



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

**Exploring Risk-Based Decision-Making Practices in Malaysian Oil and Gas
Companies: A Qualitative Study on Key Implementation Elements for Business
Value Creation**

by

NORULAIZA MOHAMAD DAUD

BCom (Accounting), The University of Queensland, Australia, 1996

Fellow of CPA Australia (FCPA), 2000

Chartered Accountant Malaysia (CA), 2001

MBA, International Islamic University Malaysia, 2016

SRM, Institute of Enterprise Risk Practitioners, 2022

Supervised by Professor Dr. Zulkifli Senterri

**This research was undertaken under the auspices of
London School of Commerce**

**Submitted in partial fulfilment for the award of the degree of
Doctor of Business Administration**

University of Wales Trinity Saint David

July 2025

ACKNOWLEDGEMENT

It gives me great pleasure to express my heartfelt gratitude to my beloved husband, parents, sons, and families, who have been my strong supporters and motivators in completing my DBA journey. This achievement is specially dedicated to them, and I could not have completed it without their unwavering encouragement, prayers, and sacrifices. Also, this endless quest for knowledge is hoped to keep inspiring my sons and others to pursue their dreams and ambitions in life relentlessly.

I would also like to extend my sincere appreciation to my supervisor, Professor Dr. Zulkifli Senteri, for his guidance and support throughout the course of my research. Furthermore, I would like to acknowledge the contributions of all professors, lecturers, and faculty staff in the DBA course from UWTSD, LSC UK, and LSC KL for their invaluable support, expertise, and commitments. Last but not least, I am truly grateful to all my colleagues, peers, and friends who have been assisting, supporting, and encouraging me to complete this thesis successfully.

I cannot thank you enough, but thank you all once again.

DECLARATION

DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed: Norulaiza Mohamad Daud (candidate)

Date: 2nd July 2025

STATEMENT 1

This study is the result of my own investigations, except where otherwise stated. Where correction services have been used the extent and nature of the correction is clearly marked in a footnote(s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

Signed: Norulaiza Mohamad Daud (candidate)

Date: 2nd July 2025

STATEMENT 2

I hereby give consent for my thesis, if accepted, to be available for deposit in the University's digital repository.

Signed: Norulaiza Mohamad Daud (candidate)

Date: 2nd July 2025

ABSTRACT

The volatile market and rapid technological advancement have caused Malaysian businesses to face high uncertainty, particularly in the oil and gas industry due to fluctuations in commodity prices, regulatory changes, and environmental pressures. This sector significantly contributes to the Malaysian economy, making up an average of 25% of national revenue over the past decade. This research aims to investigate risk-based decision-making framework key elements, its implications to the organisation business value creation and other determinant factors or emergent that contribute to greater business value creation in selected Malaysian oil and gas companies. Qualitative case study and grounded theory approaches were used, involving fourteen semi-structured case study interviews and two focus groups with ten participants, all business and risk managers who are involved in decision-making process and experienced selected through purposive sampling method. The findings provided sufficient data to identify risk governance, integration of risk assessment in decision making and involvement of relevant parties as key elements for effective implementation of risk-based decision-making framework. Findings also highlighted several positive implications of effective implementation, and enablers for better framework deployment. **Risk-Based Decision-Making Framework – Value Creation Approach** has been developed with the aims to integrate risk management into business decisions, enhancing informed decision-making by top management and boards to overcome the challenges faced by oil and gas companies in high risk and volatile market. Besides enterprise risk management, guided by international standards such as ISO 31000 and COSO, the framework is underpinned by Agency Theory, Stakeholder Theory, Rappaport Value Management System, and Decision-Making Models. Designed to be robust, comprehensive, and integrated, the framework aims to pivot business processes to meet enterprise objectives. This will benefit not only the Malaysian oil and gas industry but also other industries by preparing them for volatile market situations based on their capabilities and capacities.

TABLE OF CONTENT

	Page
ACKNOWLEDGEMENT	ii
DECLARATION	iii
ABSTRACT	iv
TABLE OF CONTENT	v
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVIATION	xiii
 CHAPTER 1 INTRODUCTION	 1
1.1 Introduction	1
1.2 Research Background	1
1.2.1 Overview Of Oil And Gas Sector	4
1.2.2 Oil And Gas Industry As A Major Contributor To Malaysian's Economy	14
1.3 Problem Statement	21
1.4 Research Aims And Objectives	26
1.5 Research Questions	26
1.6 Scope Of The Study	27
1.7 Definition Of Key Terms	27
1.7.1 Strategic Objectives And Business Goals	27
1.7.2 Value Creation	28
1.7.3 Business Acceptance	29
1.7.4 Risk Culture	30
1.7.5 Risk Governance	30
1.7.6 Integration Of Risk Assessment Into Decision Making	32
1.7.7 Involvement Of Relevant Parties	33
1.7.8 Process And Procedures	34

1.7.9	Capability And Knowledge Management	34
1.7.10	Value Management System And Performance Measurement	35
1.7.11	Risk Management System	36
1.8	Significance Of The Study	36
1.8.1	Theoretical Contribution	37
1.8.2	Practical Contribution	38
1.9	Organisation Of The Study	39
CHAPTER TWO LITERATURE REVIEW		41
2.1	Introduction	41
2.2	Risk Management	41
2.1.1	Risk And Risk Management	41
2.1.2	Enterprise Risk Management	43
2.1.3	Risks In Global Oil And Gas Industry	46
2.1.4	Risks In ASEAN Oil And Gas Industry	50
2.1.5	Risks In Malaysian Oil And Gas Industry	52
2.3	Embedding Risk Management Into Business Processes	57
2.3.1	Risk Assessment In Decision Making	58
2.3.2	Implication Of Risk-Based Decision-Making Process To Business	61
2.3.3	Governance Requirements	63
2.4	Underpinning Theories	64
2.4.1	Agency Theory	65
2.4.2	Stakeholder Theory	74
2.4.3	Value Management System	83
2.4.4	Decision-Making Models	103
2.4.5	Enterprise Risk Management Framework	110
2.5	Theoretical Framework	118
2.6	Debates And Gaps On Literature	121
2.7	Summary	125

CHAPTER THREE METHODOLOGY	126
3.1 Introduction	126
3.2 Research Approach	126
3.3 Research Design	130
3.4 Case Studies	133
3.4.1 Types Of Case Studies	133
3.4.2 Design Of Case Study	136
3.4.3 Grounded Theory	138
3.5 The Population Sampling	138
3.6 Case Study Protocol	142
3.6.1 Documentation	150
3.6.2 Site Visit	151
3.7 Focus Group Discussions	151
3.8 Data Collection	153
3.8.1 Interviews	153
3.8.2 Interview Planning, Technique And Protocol	155
3.8.3 Interview Topics And Questions	157
3.8.4 Conducting Interview Session	157
3.8.5 Verbatim	158
3.9 Data Analysis	159
3.9.1 Transcription And Translation	160
3.9.2 Coding Strategies	160
3.9.3 Nvivo 12 Plus Software	162
3.10 Reliability	163
3.11 Validity	164
3.12 Ethical Considerations	165
3.13 Conclusions	166
 CHAPTER FOUR RESEARCH FINDINGS	 167
4.1 Introduction	167

4.1.1	Background	167
4.1.2	Thematic Analysis	168
4.1.3	Narrative Analysis	170
4.2	Demographic Profiles Of Case Study Interview Respondents	171
4.3	Demographics Profiles Of Focus Group Discussion	176
4.4	Findings From Case Study Interviews And Focus Group	179
4.4.1	Findings On Research Question One (RQ1)	180
4.4.2	Findings On Research Question Two (RQ2)	209
4.4.3	Findings On Research Question Three (RQ3)	252
4.5	Summary Of Findings From Case Study And Focus Group	274
4.6	Risk-Based Decision-Making Framework	277
4.7	Conclusion	279
CHAPTER FIVE DISCUSSION & CONCLUSION		280
5.1	Introduction	280
5.2	Recapitulation Of The Findings	280
5.3	Discussion Of Findings And Results	281
5.3.1	Discussion For Research Question One	281
5.3.2	Discussion For Research Question Two	288
5.3.3	Discussion For Research Question Three	294
5.4	Contribution Of The Study	298
5.4.1	Theoretical Implication	302
5.4.2	Business Implication	304
5.5	Recommendations Of The Study	305
5.6	Limitations Of The Study And Suggestions For Future Studies	306
5.6.1	Limitations Of The Study	306
5.6.2	Suggestions For Future Studies	307
5.7	Conclusion	307
REFERENCES		310
APPENDICES		348

APPENDIX A: RESEARCH QUESTIONNAIRES AND FURTHER INQUIRIES	348
APPENDIX B: RISK MANAGEMENT PRINCIPLES, FRAMEWORK AND PROCESS	351
APPENDIX C: VALIDATION FORMS SIGNED BY RISK INDUSTRY EXPERTS	364
APPENDIX D: GUIDANCE OF SEMI-STRUCTURED QUESTIONS	366
APPENDIX E: SAMPLE OF CASE STUDY INTERVIEW TRANSCRIPT	368
APPENDIX F: ETHICAL PRINCIPLES FOR THE CONDUCT OF RESEARCH	375
APPENDIX G: THEMES, SUB-THEMES, RESEARCH QUESTIONS AND FURTHER ENQUIRIES	376
APPENDIX H: LIST OF TRANSCRIPTS EXPORTED TO NVIVO 12 PLUS	378
APPENDIX I: PRINCIPLES OF “CORPORATE GOVERNANCE”-OECD JUNE 1999	379

LIST OF TABLES

Table 1: PETRONAS' Annual Net Profit and Dividend Payment, 2010-2020	22
Table 2: Types of Case Studies	134
Table 3: Case Study Designs	136
Table 4: Guidelines for Semi-Structured Interview Questions	146
Table 5: Demographic Profile of Respondents	172
Table 6: Summary of Respondents' Demographic Profiles	175
Table 7: Arrangement of Focus Groups	177
Table 8: Focus Groups Participants Demographic Profiles, Background and Working Experience	178
Table 9: Summary of Major Themes Emerged for RQ1 from Focus Groups Discussions	206
Table 10: Summary of Major Themes Emerged for RQ2 from Focus Groups Discussions	248
Table 11: Summary of Major Themes Emerged for RQ3 from Focus Groups Discussions	272
Table 12: Summary of Findings from Case Study Interviews and Focus Groups Discussions	276

LIST OF FIGURES

Figure 1: Leading Oil and Gas Companies Worldwide Based on Revenue (in billion USD)	7
Figure 2: Malaysia’s Oil and Gas Landscape, 2020	9
Figure 3: Annual Brent Crude Oil Price Trend from 1976 to 2023	11
Figure 4: 2023 GDP Value	15
Figure 5: Manufacturing and Mining & Quarrying 2023 Percentage Share by Sector	16
Figure 6: Top 10 Major Exports for 2023 – Provisional Data	18
Figure 7: National Major Revenue Contributors	20
Figure 8: Malaysia Credit Rating Trend	55
Figure 9: Integration of Risk Assessment into Business Processes for Maximising Value	60
Figure 10: Agency Theory	67
Figure 11: Elements of Agency Cost (adapted from Jensen and Meckling, 1976)	72
Figure 12: Stakeholder Map	75
Figure 13: Alfred Rappaport Shareholder’s Value Model	85
Figure 14: Ten Ways to Create Shareholder Value	88
Figure 15: Contingency model for enterprise governance and value-based management.	91
Figure 16: The World’s Top 10 Most Valuable Brands 2022	94
Figure 17: Enhanced Rappaport Model	98
Figure 18: Five Steps Risk Management Steps	100
Figure 19: Green Governance Framework	102
Figure 20: The Decision-Making Process	104
Figure 21: 2004 COSO ERM Framework	112
Figure 22: ISO 31000 (2018) – Risk Management Principles, Framework and Process	117
Figure 23: Theoretical Framework for Risk-Based Decision-Making Framework – Value	

Creation Approach	119
Figure 24: Research Design Adopted from ‘Research Onion’.	127
Figure 25: Research Design and Process	131
Figure 26: Coding Strategies	161
Figure 27: Summary of RQ1 Data Findings	181
Figure 28: Summary of RQ1 Data Findings	210
Figure 29: Explore Diagram for Goals and Objectives Theme	211
Figure 30: Summary of RQ3 Data Findings	252
Figure 31: Word Cloud Top 30	274
Figure 32: Risk-Based Decision-Making Framework – Value Creation Approach	301

LIST OF ABBREVIATION

AC	Audit Committee
AI	Artificial Intelligence
ASEAN	Association of Southeast Asian Nations
B.C.	British Columbia
B/D	Barrels per Day
BP	British Petroleum
CEO	Chief Executive Officer
CNPC	China National Petroleum Corporation
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CRO	Chief Risk Officer
CSR	Corporate Social Responsibility
CVA	Cash Value Added
DPS	Dividend Per Share
EBITDA	Earnings Before Interest, Tax, Depreciation and Amortisation
EIA	Energy Information Administration
ELT	Executive Leadership Team
ERM	Enterprise Risk Management
EPS	Earnings Per Share
ESG	Environment, Social and Governance
EVA	Economic Value Added
GDP	Gross Domestic Product
GST	Goods and Services Tax

HSSE	Health, Safety, Security and Environmental
IEA	International Energy Agency
IOCs	International Oil Companies
IPO	Initial Public Offering
IRR	Internal Rate of Return
ISO	International Organisation for Standardisation
KPI	Key Performance Indicator
KPQ	Key Performance Question
LNG	Liquified Natural Gas
MAS	Malaysian Airlines Berhad
MCCG	Malaysian Code of Corporate Governance
MIDA	Malaysian Investment Development Authority
MNC	Multi National Company
MVA	Market Value Added
NOCs	National Oil Companies
NPV	Net Present Value
PwC	PricewaterhouseCoopers International Limited
RC	Risk Committee
RMC	Risk Management Committee
ROA	Return On Asset
ROE	Return On Equity
RQ	Research Question
SDG	Sustainable Development Goal
SME	Subject Matter Expert

S&P	Standard & Poor
SST	Sales and Service Tax
SVA	Shareholder Value Analysis
SWOT	Strength, Weakness, Opportunity and Threat
TSR	Total Shareholder Return
VBM	Value-Based Management
VUCA	Volatility, Uncertainty, Complexity, and Ambiguity

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter presents the background of the study and the problem statement that motivated the researcher to implement this study. Then, this chapter enlists the research objectives and research questions that drive this study before emphasising its scope. Other than that, this chapter also highlighted the definition of key terms that are frequently used throughout the study. This chapter ends by presenting the organisation of the study, which consists of five independent chapters.

1.2 Research Background

Risk management is one of complex branches of management science and improved decision-making. Researchers have agreed that risk management considers the assessments of uncertainties which may impede the achievement of objectives, identification of mitigation plans to manage these uncertainties as well as undertaking possible business opportunities in a planned and systematic way (Aziz et al, 2018; Shmatkova and Karminska-Bielobrova, 2023). It plays a critical role in ensuring the long-term success and sustainability of organisations by identifying, assessing, and taking appropriate actions to mitigate or exploit risks. By implementing robust risk management strategies, organisations can effectively navigate uncertain and turbulent environments, thereby maximising their potential for growth and success (Jalilvand and Moorthy, 2023). Effective risk management involves a comprehensive and integrated approach that encompasses various processes and activities. Prior studies revealed that by proactively managing risks, organisations can minimise the likelihood of investment losses and optimize opportunities for positive outcomes which match to the overall company's investment objectives and strategic planning (Bhatti et al., 2023). Furthermore, risk management requires strong leadership and a risk-aware culture within organisations. It involves instilling a mindset that acknowledges and appreciates the importance of risk and

the potential consequences of inadequate risk management. This includes promoting transparency, accountability, and open communication channels where risks and potential issues can be reported and addressed in a timely manner. In today's rapidly changing and interconnected world, risks can arise from various sources such as economic, political, technological, environmental, and social factors. Glette-Iversen et al. (2023) acknowledged the dynamism of risks and uncertainties in the environment where organisation needs to be more vigilant and adaptive to effectively manage these risks and seize opportunities that emerge. For example, technological advancements have introduced new risks such as cyber threats and data breaches, requiring organisations to invest in robust cybersecurity measures. Likewise, environmental risks such as climate change and natural disasters necessitate organisations to develop strategies for sustainability and resilience (Aziz et al., 2016; Razak et al., 2024). In summary, risk management is a critical discipline that enables organisations to navigate uncertainties and capitalize on opportunities. It enhances decision-making processes by considering potential risks and their implications, ultimately enhancing overall business performance, business value and resilience and at the same time safeguarding the long-term success and sustainability of organisations.

In decision-making contexts, recognising both positive and negative risks can lead to more informed choices. The action of making decision is still necessary even in the vulnerable and uncertainty conditions (Hjorth, 2017). He argued a more holistic risk–benefit risk management approach can enable decision-making process and mitigate business exposure. By evaluating both the potential downsides and upsides of a decision, individuals can make more balanced assessments that consider the full spectrum of possible outcomes (Althearn, 1971). Shmatkova and Karminska-Bielobrova (2023) concluded that it is necessary for manager to perform assessment prior to making decisions which include decisions to avoid, accept, transfer or reduce risks by using specific methods or methodology to facilitate the process. This is crucial as it the process of decision-making has a significant impact to the organisation's direction and achievement of its objectives. Depending on the level of complexity of the tasks, the decision-making environment varies depending on the level of risks. Aziz et al. (2018)

agreed that a thorough understanding of risks can improve decision-making processes. When organisations assess risks alongside potential rewards, they can make more informed choices that align with their strategic objectives, ultimately leading to better outcomes. Embedding risk management in managing business is aimed to maximise the potential benefits and value creation of any business decisions which are subject to risks (Kähkönen et al. 2018). Khanyle and Cluett (2018) also agreed that risk-based management system in the organisation is designed to minimise potential threats in order to achieve objectives. In summary, while risks inherently involve uncertainty and potential downsides, they also present opportunities for organisations to innovate, improve, and grow. By adopting a proactive and strategic approach to risk management, organisations can leverage these opportunities to enhance their overall performance and achieve their objectives. Analysis of key elements and approach of implementation of risk based decision-making framework is key as it will enable a better decision-making process to protect and create value, reputation and business sustainability.

Business disruption for many organisations is inescapable in view of operational failures, high competition, rapid technological evolution, and changing people's lifestyles in the current market environment. The oil and gas industry place a great importance in a country's economy regardless of it stands as a producer, consumer or both as it generates revenue for the country and/or supplies energy to a greater use of the nation such as in logistic, manufacturing and utilities sectors (Aydin et al., 2022). The risk level varies across business industries where risks are defined higher when it involves significant level of hazard and huge financial losses as a result of the incidences such as fire incidents and fatalities of employees and contractors (Fabiano et al., 2019; Abrahamsen et al., 2017). Aydin et al. (2022) considered oil and gas industry as one of the business industries which subject to high level of risks based on the nature and risks surrounding its business operation. Saad (2016) revealed that oil and gas industry is a significant contributor to Malaysia's economic by contributing to GDP, job creation, foreign investment, government revenue, energy security, technological advancement, and overall economic transformation. Their role is pivotal in shaping the future of Malaysia's economy. The sector remains a driving force behind Malaysia's economic development (PwC, 2015;

IEA, 2022). Whilst the outlook of Malaysian's oil and production is reported to experience slight decline which require more investment and capital injection, the sector remains vital and demand critical decisions to address the business long term sustainability growth in supporting the economy (IEA, 2022). Therefore, Moore (2013) suggested to establish and identify the associated risks comprehensive and systematically in this kind of industry. Therefore, the focus on implementing and adopting effective risk-based decision-making framework is seen as crucial in business organisation, including in the oil and gas companies in Malaysia.

1.2.1 Overview of Oil and Gas Sector

Energy is one of the most important and necessary inputs for the economic, social, and technological development of any region, community, or nation, where oil and gas is one of the main sources of energy production (Çakmak and Acar, 2022). With the understanding of its importance, energy is the main source of major economies' energy balance in almost all developed and developing countries of the world, government, and social sector (Çakmak and Acar, 2022; Yu et al., 2023). Demand for oil and gas in the world's energy continues to rise to support global GDP growth. Ahmad and Zhang (2020) forecasted that in 2040, the demand for oil and coal, and gas will increase by 15% and 50% respectively. Demand for gas is expected to be higher due to its energy-saving, and energy efficiency in providing a sustainable energy supply.

The global oil and gas industry has undergone significant challenges in recent years, due to various reasons and developments such as geopolitical conflicts, market uncertainties, and pressure on energy transition to achieve the United Nations' Sustainable Development Goals (SDG) by 2030. These one hundred ninety-three countries signed SDGs pledges in September 2015, comprising developed and developing countries where significant attentions have been set on protecting air pollutions and environments (Omer and Noguchi, 2020; Alawneh et al., 2019). Although this energy transition is predicted to affect the global oil demand, investment in this sector, both for fuel and non-fuel purposes, continuing to be strong as the energy is a necessity for the world consumption and its

transition needs to take on affordability and viability of energy supplies (McKinsey, 2024). The oil and gas industry has always been exposed to dynamic markets and been known for adapting itself to fluctuations. (Liu et al., 2022). Furthermore, Ahmad and Zhang (2020) urged to increase productivity to meet the ever-increasing demand forced the industry to go beyond the conventional processes and embrace technological advancements.

Major global oil and gas players are mainly comprised of National Oil Companies (NOCs) and International Oil Companies (IOCs). National oil companies or NOCs include government-backed entities that go to great lengths to take charge of their nation's petroleum reserves either directly or through a stake in a joint venture. The most prosperous and well-connected NOCs have been playing an increasingly important role in the global energy market, acting as both a player and a regulator. National oil companies successfully dominate many of the world's reserve holders, given the fact that some of the largest oil and gas producing countries are state-owned. The most well-known NOCs in the oil and gas industry include Russia's Gazprom, China's CNPC, as well as Saudi Aramco, the largest oil and gas firm in the world, with an estimated value of US\$2.2 trillion (IPO). On the other hand, many of the world's remaining energy resources remain untapped due to a lack of necessary experience and investment, thus involving international companies. When in need, countries with NOCs often collaborate with IOCs to create or implement riskier ventures. In addition, international oil companies are about 10% to 15% more prevalent in chemical production, but the rate varies among countries. In the oil and gas market, the most well-known IOCs include Royal Dutch Shell, Exxon Mobil, Chevron, BP, and Total, all of which have reached the global level. IOC makes substantial investments in restoring the world's oil and natural gas reserves. Total S.A., however, is a French multinational oil and gas company that operates on a vast scale. It also has assets in other energy firms, as well as pipelines and solar energy projects. The bulk of the company's money, however, comes from oil and natural gas production and trading. Shell takes advantage of various oil and gas rates throughout the world to maximise its revenues. Even so, it stands to reason that the United States, the European Union, and Africa consume the majority of the company's products. Shell's corporate

headquarters are in The Hague while its operational headquarters are in London. The corporation has around 87,000 employees. These NOCs and IOCs are the leading oil and gas companies based on their productions and revenues. Figure 1 below depicted the revenue reported by Statista Research Department up to 4th July 2024. This has shown China companies are leading, followed by the US, UK, France and India.

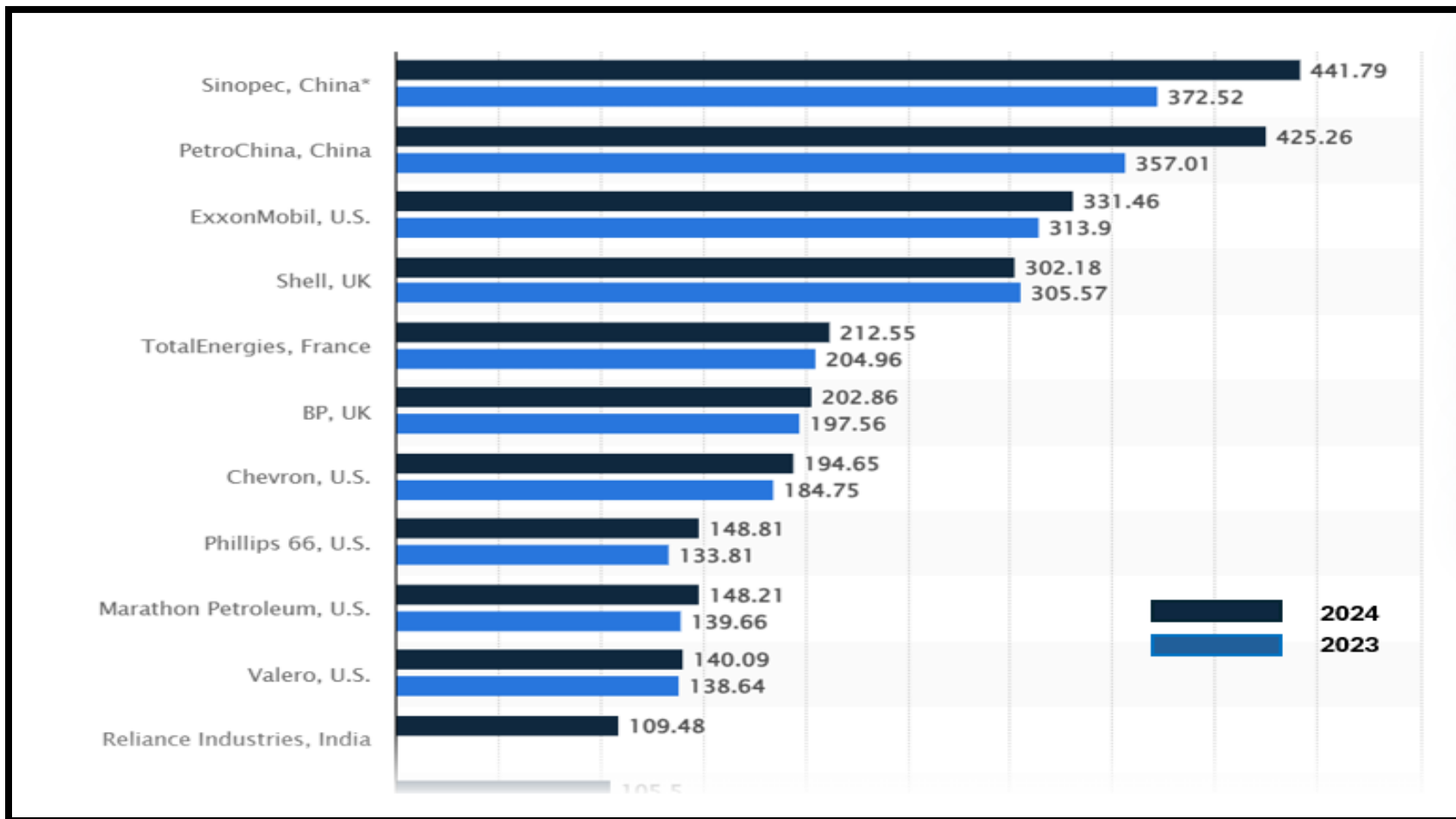


Figure 1: Leading Oil and Gas Companies Worldwide Based on Revenue (in billion USD)

Source: Statista (2024)

The Malaysia oil and gas industry is experiencing steady growth, motivated by growing demand across the globe. The sector is divided into upstream, midstream, and downstream sectors. Upstream segment works on exploration and discoveries; midstream segment focuses expanding the discoveries into further refined products to meet market requirements and; downstream segment market and/or further refine the products to meet certain speciality requirements in the further chain in the business value chain such as petrochemical products and cleaner fuel production (Saad, 2016). Bhattacharya and Hutchinson (2022) stated that at the end of 2020, the country held proved oil reserves of 2.7 billion barrels and natural gas deposits totalling 32.1 trillion cubic feet which are located mainly at the east coast of Peninsular Malaysia near to Kelantan and Terengganu as well as in the Borneo side at offshore of South China Sea, near to the coasts of Sarawak and Sabah as depicted in Figure 2. In addition, in 2023, the country has a total liquid fuel production closed to 596,000 barrels per day (b/d) which was consist of around 501,000 and 44,000 b/d crude oil and natural gas plant liquids respectively (EIA, 2024).

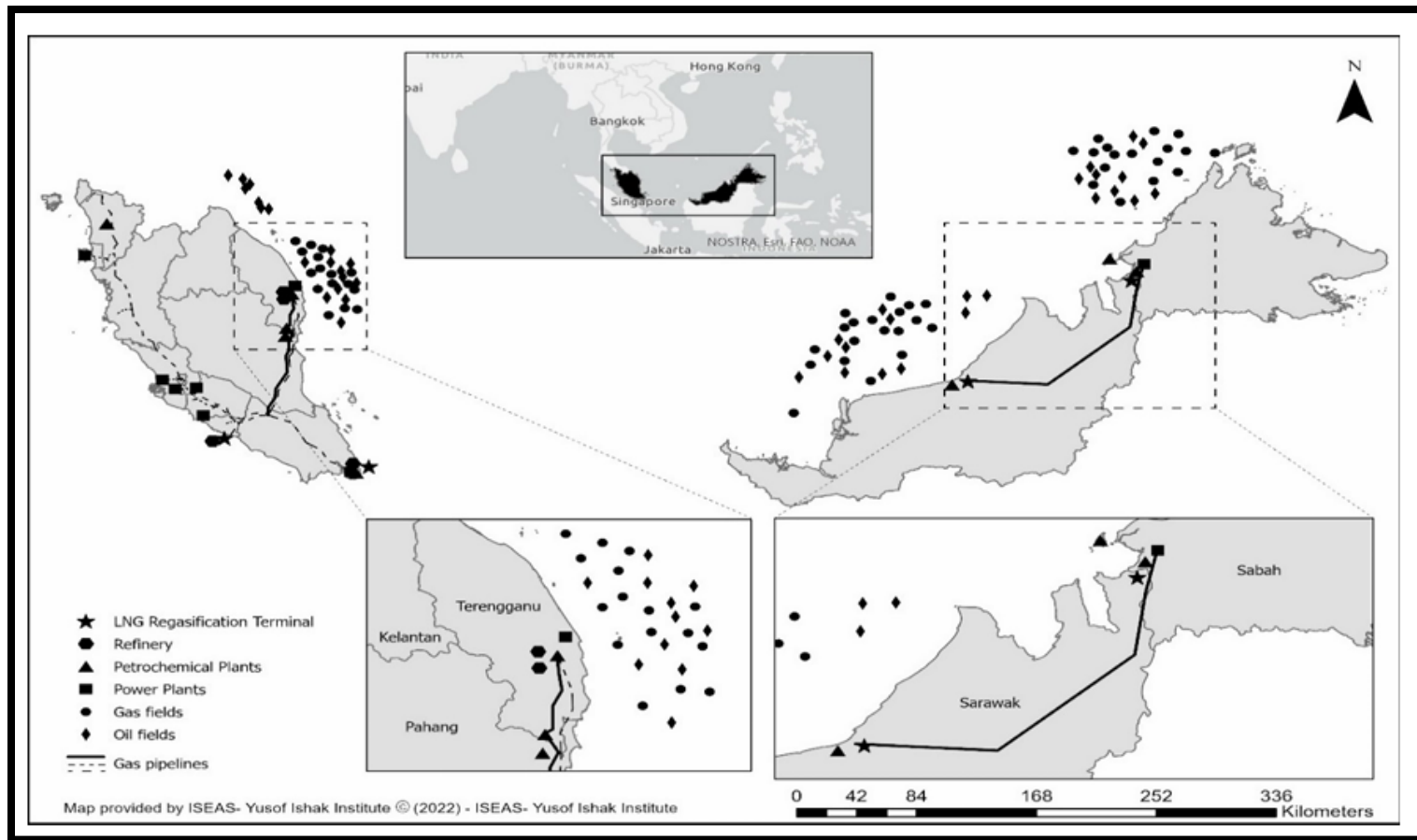


Figure 2: Malaysia's Oil and Gas Landscape, 2020

Source: Bhattacharya and Hutchinson (2022)

News Strait Times (2024) reported PETRONAS being the NOC is the key player in this sector in Malaysia and being supported by major OICs such as ExxonMobil and Hess Corporation, PTT Exploration and Production Public Co Ltd of Thailand and EnQuest in the upstream business segment. According to Bhattacharya and Hutchinson (2022), there are about 4,000 oil and gas related companies which cover domestic, major and non-major OICs, independents, and services and manufacturing firms which allow substantial economic benefits to the communities as well. This includes marine, drilling, engineering, fabrication, offshore installation, and operations and maintenance services as the enablers to oil and gas companies at large. These services create employment to the nation across upstream, midstream and downstream activities along the oil and gas business value chain. Nevertheless, South Asian region is one of the fastest-growing regions in the world, which brings with it an increased demand for energy and therefore providing advantage to the producing oil and gas or energy sector countries as major national income generator (Yang et al., 2022). Energy demand in Southeast Asia has been increasing with an average rate of 3% year over for the last two decades and continue to rise even beyond 2030 (IEA, 2022). The increasing rate trend has been disrupted during Covid 19 but back on track post the event (Darkhabani, 2022). This industry becomes the major engine of global economic growth and relevant country although the rate of contribution may vary. The Malaysian economy is expected to experience slower growth in 2024, influenced by current events. This slow growth is attributed to ongoing challenges in generating margins and demands for businesses due to economic uncertainties and market dynamics. Strategic reforms and stimulus measures are required to address these challenges.

Due to various uncertainties, the oil and gas industry is inherently subject to significant risks and exposure (Demirer et al., 2020). A primary risk that oil and gas companies must manage is market risk, as their products are globally traded commodities on exchange markets and platforms using international price markers such as Brent Crude (London), West Texas Intermediate, and Dubai/Oman (Middle East). The volatility in the supply and demand of oil and gas products results in fluctuating prices. Figure 3 illustrates the annual average price volatility of UK Brent crude since 1976, highlighting the erratic trend in price movements.

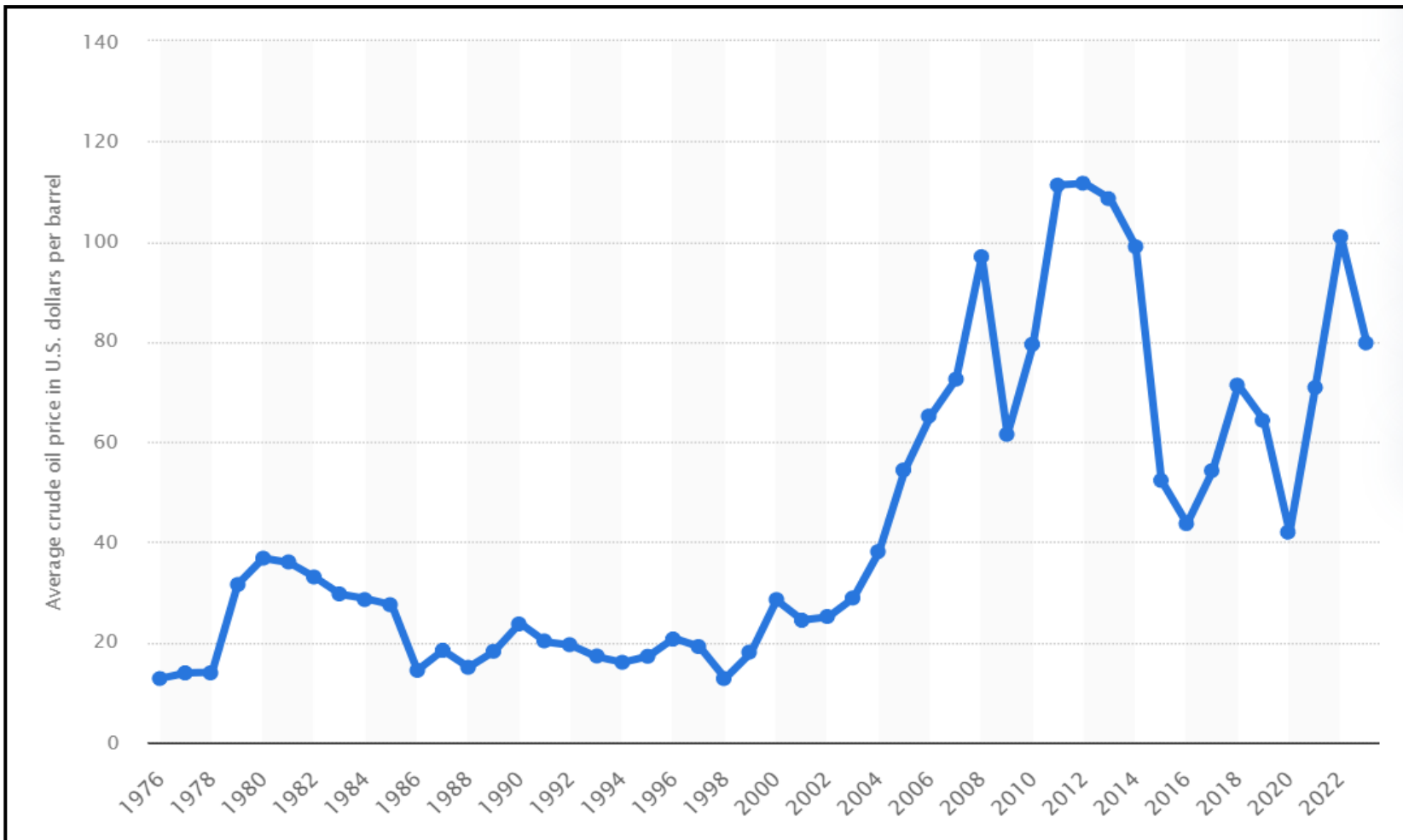


Figure 3: Annual Brent Crude Oil Price Trend from 1976 to 2023

Source: Statista (2023)

Typically, risk management strategies involve hedging activities via financial instruments approved or allowed by the company's mandate (Bâtcă-Dumitru, 2023). Hedging activities are done to protect the trading margin's volatility and the level of risk that the company is willing to take. Therefore, a strong governance structure which includes an informed decision-making process, risk monitoring, risk mitigation and most importantly risk appetite approved by the board is required for dynamic management and response (Gerken et al., 2019)

Beside market and financial risks, operation and safety are considered major or main risks of oil and gas company as it is its licence to operate for all companies in this sector. A significant case study for oil and gas industry where an incident occurred in April 2010 which is known as Deepwater Horizon rig massive blowout which destroyed the rig and caused the Gulf of Mexico oil spill as well as huge environmental damages including lives of workers, habitats of animals and aquatic life (Svejkovsky et al., 2023; Boufadel et al., 2023). The Conservation (2020) reported that BP has incurred huge number of financial damages amounting to more than USD60 billion in various penalties and claims. The incident was caused by a reckless corporate culture of cost-cutting and excessive risk-taking that triggered the cause of oil spill which can be prevented by rigorous risk assessment to support critical business decisions in running the rig operations. In addition, the impacts of the disaster were not only financial losses but also fatalities of employees and contractors, environmental and reputation damages as well as destroyed the shareholder wealth with 55% share price dropped from USD59.48 per share to USD27 per share on April 19, 2010, to June 25, 2010, respectively (Market Realist, 2014). Another event carries a high level of risks in making business decision in oil and gas companies is Kashagan Oil Field in Kazakhstan's zone of Caspian Sea. The financial and value losses to shareholders and stakeholders are significant. The ventures between several companies including Eni SpA, Shell Plc, Exxon Mobil Corp. and Total Energies SE which had invested about USD55 billion to develop this oil field since 2000. The development project is one of the most challenging megaprojects due to its geological and environmental conditions which caused project overrun and delay in the development of the oil field and raised project costs. The delay and underproduction from oil field has

caused a significant revenue lost to the shareholders and government. Bloomberg (2024) has reported that the Kazakhstan government is currently suing the international oil companies involved in this oil field development for more than \$150 billion. Choong (2024) reported although global economic position is volatile pivoting towards trade tensions between US and China and other global major events which impact many countries with have trade relations with them.

In Malaysia, high exposure and losses in oil and gas companies can be evidenced from the various projects that PETRONAS being the NOC and other oil and gas companies incorporated in Malaysia involved. Vancouver Sun (2017) reported the cancellation of Pacific North West LNG project in British Columbia (B.C.), Canada worth USD11.4 billion although it had already spent significantly on this project. James Tansey, associate professor with the Sauder School of Business at the University of B.C. quoted that “.... maybe underestimating the complexities of getting deals done in B.C., but also of longer-term low oil prices in Asia (where) the oil prices are tied to the gas prices,”. The country risks, environment risks where the need to comply with the local environment regulations and indigenous requirements as well as market risks are amongst the key challenges faced. Additionally, The Edge Malaysia (2017) stated that PETRONAS’ investment in Sudan was at stake when South Sudanese rebels said had kidnapped four oil workers and forced the investors including PETRONAS to exit the country and paid for the ransoms in order to release the hostages. The has company decided to exit Sudan and South Sudan in 2022, selling its entire oil and gas asset portfolio with the consideration amount of up to USD1.25 billion due to the challenges in doing business in the country (S&P Global Commodity Insight, 2023).

This clearly demonstrated although oil and gas industry contributes generously towards nations’ economy and growth, investments in this sector are subjects to various risks amongst others, operations, safety, supplies, financial, investment, geopolitical, legal, and social risks. Hence, Ezech et al. (2024) advocated the importance of oil and gas warrants for the careful and comprehensive assessment in doing business in this industry.

1.2.2 Oil and Gas Industry as a Major Contributor to Malaysian's Economy

As reported in US Energy Information Administration (EIA) (2021), Malaysia is the second-largest oil and natural gas producer in Southeast Asia and is the fifth-largest exporter of liquefied natural gas (LNG) in the world, as of 2019. Bhattacharya and Hutchinson (2022) reported that according to data collected by EIA, in 2020, Malaysia will be the world's third-largest exporter of liquefied natural gas, the second-largest oil and natural gas producer in Southeast Asia and strategically located amid important routes for seaborne energy trade. Its gas and oil reserves are relatively large, ranking 24th (in 2015) and 28th (in 2016) in the world's rankings, respectively (Malaysia Energy Statistics Worldometer 2020). The oil and gas industry is one of the most important export commodities for Malaysia and the main stimulus for economic growth by promoting employment and developing infrastructure. The Department of Statistics, Malaysia (2024) reported mining and quarrying, and manufacturing contributed 6.2% and 23.4% respectively to Malaysian's GDP in 2023 as shown in Figure 4 and Figure 5 below. Out of the percentage, oil and gas production contributed 90.5% to the mining and quarrying sector whereas petroleum, chemical, plastic and rubber contributed 27.8% to the manufacturing sector.

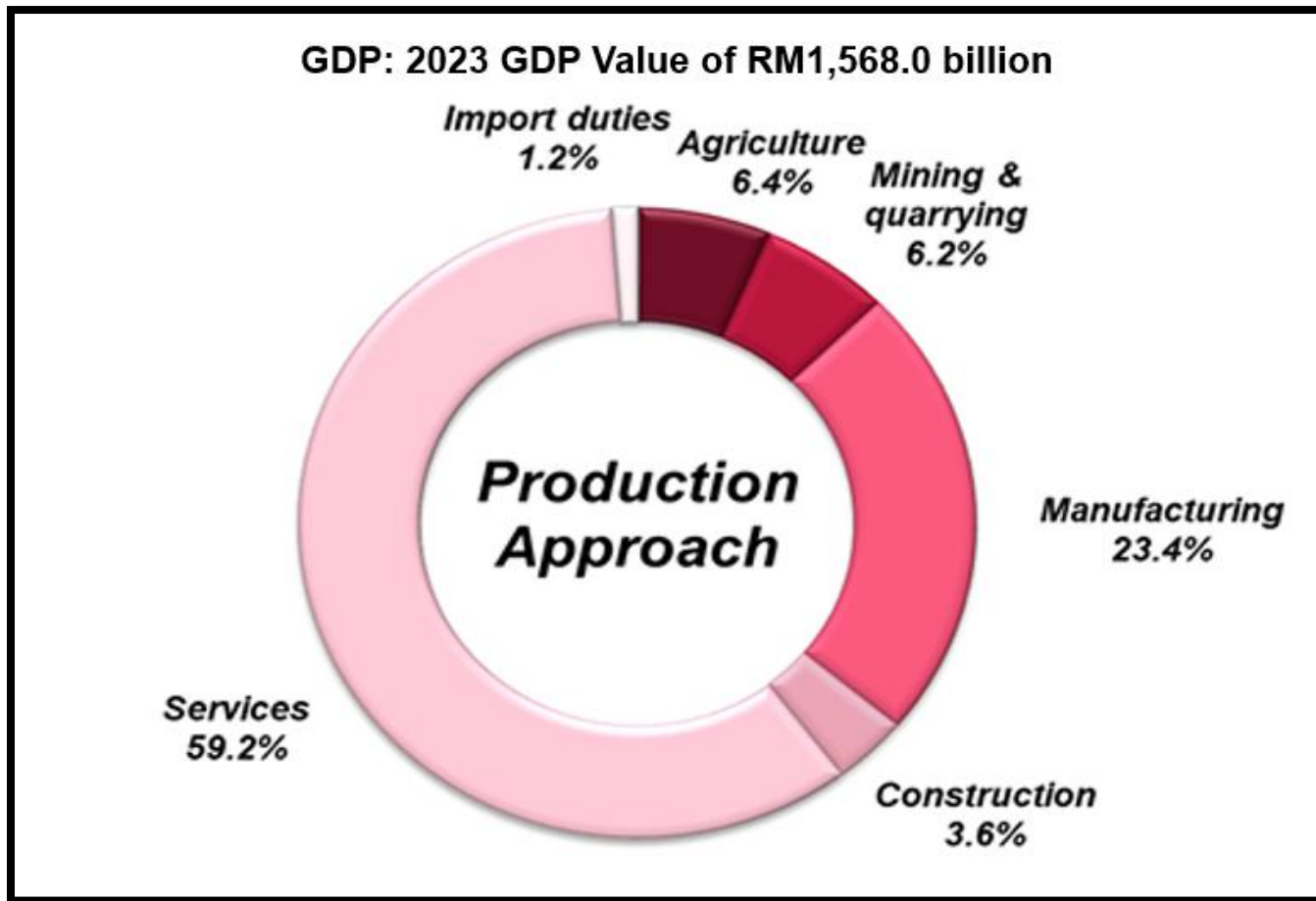


Figure 4: 2023 GDP Value

Source: Department of Statistics, Malaysia (2024)

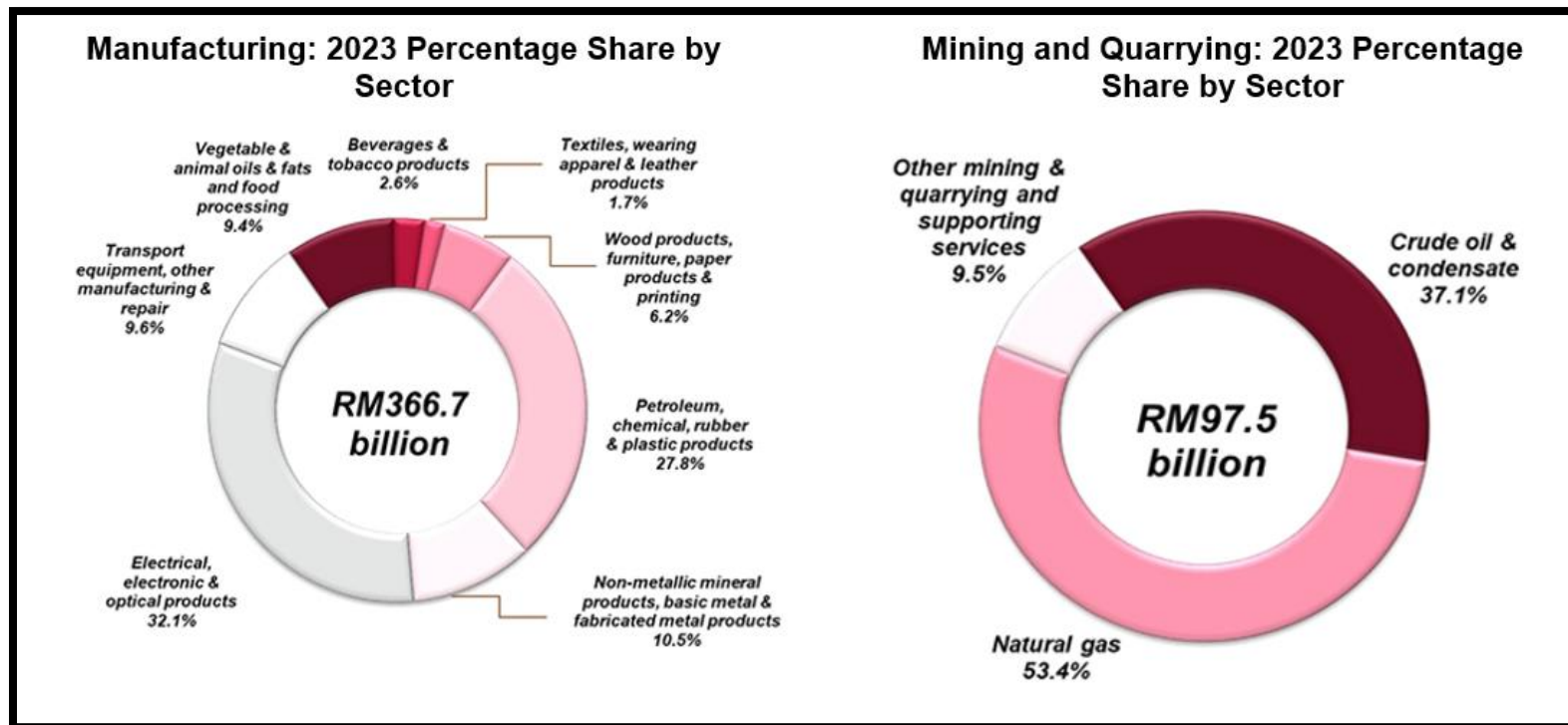


Figure 5: Manufacturing and Mining & Quarrying 2023 Percentage Share by Sector

Source: Department of Statistics, Malaysia (2024)

According to Malaysia External Trade Development Corporation (MATRADE) statistical data as depicted in Figure 6, petroleum products and LNG, as well as chemical products where petroleum products are mainly used as part of the chemical products' raw materials contributed a total of 19.3% to the Malaysian total exports in 2023. This places oil and gas as one of important sectors to the nation.

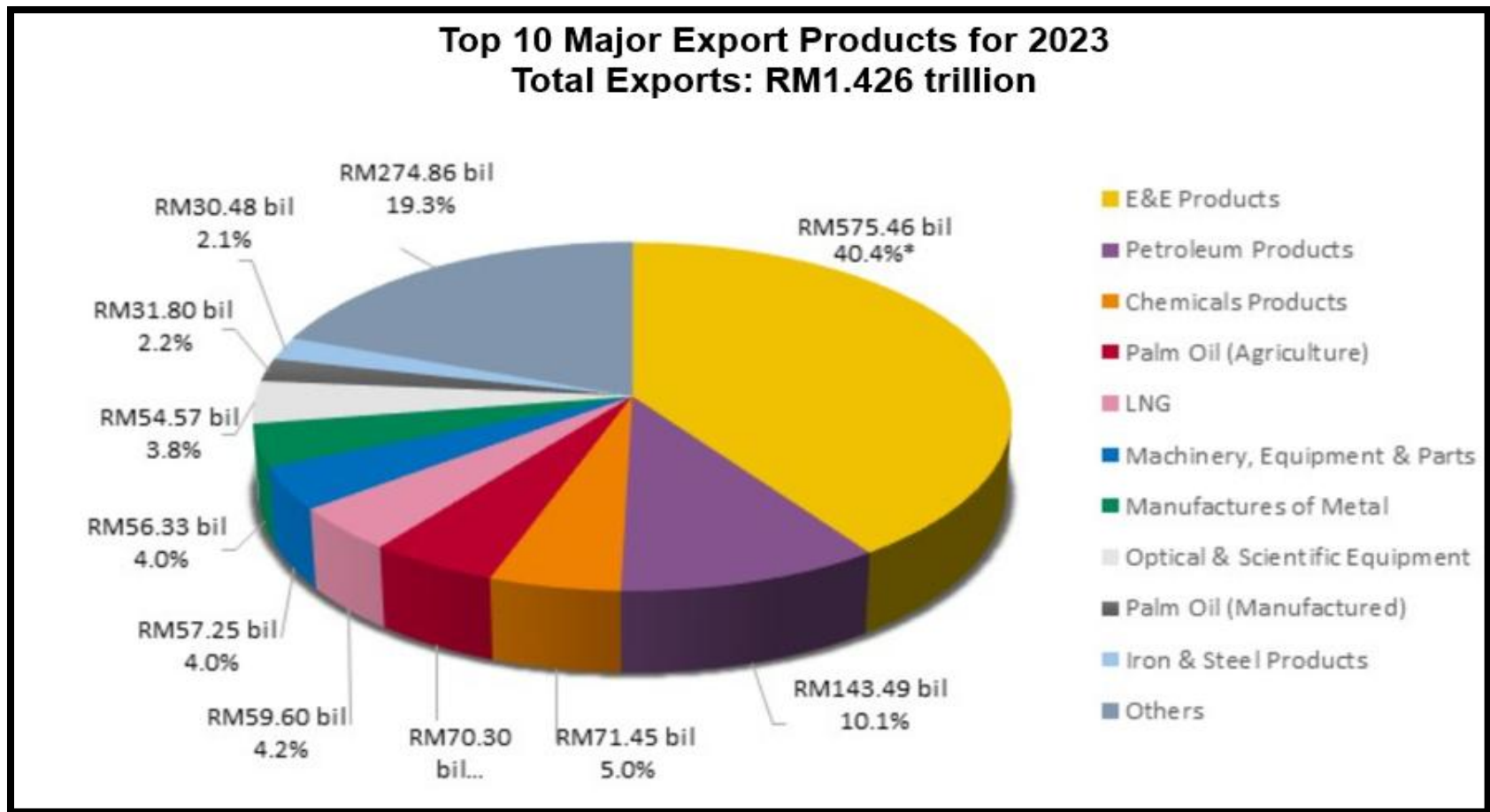


Figure 6: Top 10 Major Exports for 2023 – Provisional Data

Source: Department of Statistics, Malaysia (2024)

This sector continues to be one of the major national revenue contributors in terms of taxes and dividends payout to Malaysian Government as reported in Figure 7. When the Goods and Services Tax (GST) was put in place in 2015 but abolished in 2018 where during this period, oil taxes or dividends were less dependent on this sector as the government collected revenue mostly from this source. The collected taxes amounted to RM37.9 billion in 2015, RM59.3 billion in 2016, RM67 billion in 2017, and RM36.7 billion in 2018 before it was abolished (The Star, 09 Mar 2023). Indirect tax system using the old sales tax system has been re-introduced by the new government post May 2018 election which is called Sales & Services Tax (SST) and claimed as less effective mechanism (Malay Mail 2020). This indirect tax reform has led to higher dependency on petroleum revenue again where in 2018 and 2019, the sudden surge of petroleum revenue to government of 21.7% and 30.9% respectively from only 15.7% in 2017 where GST was still used. However, indirect tax collection is projected to increase by 4.7% to mainly due to higher SST rate imposed from 6% to 8% starting from 1st March 2024 (Ministry of Finance Malaysia, 2024).

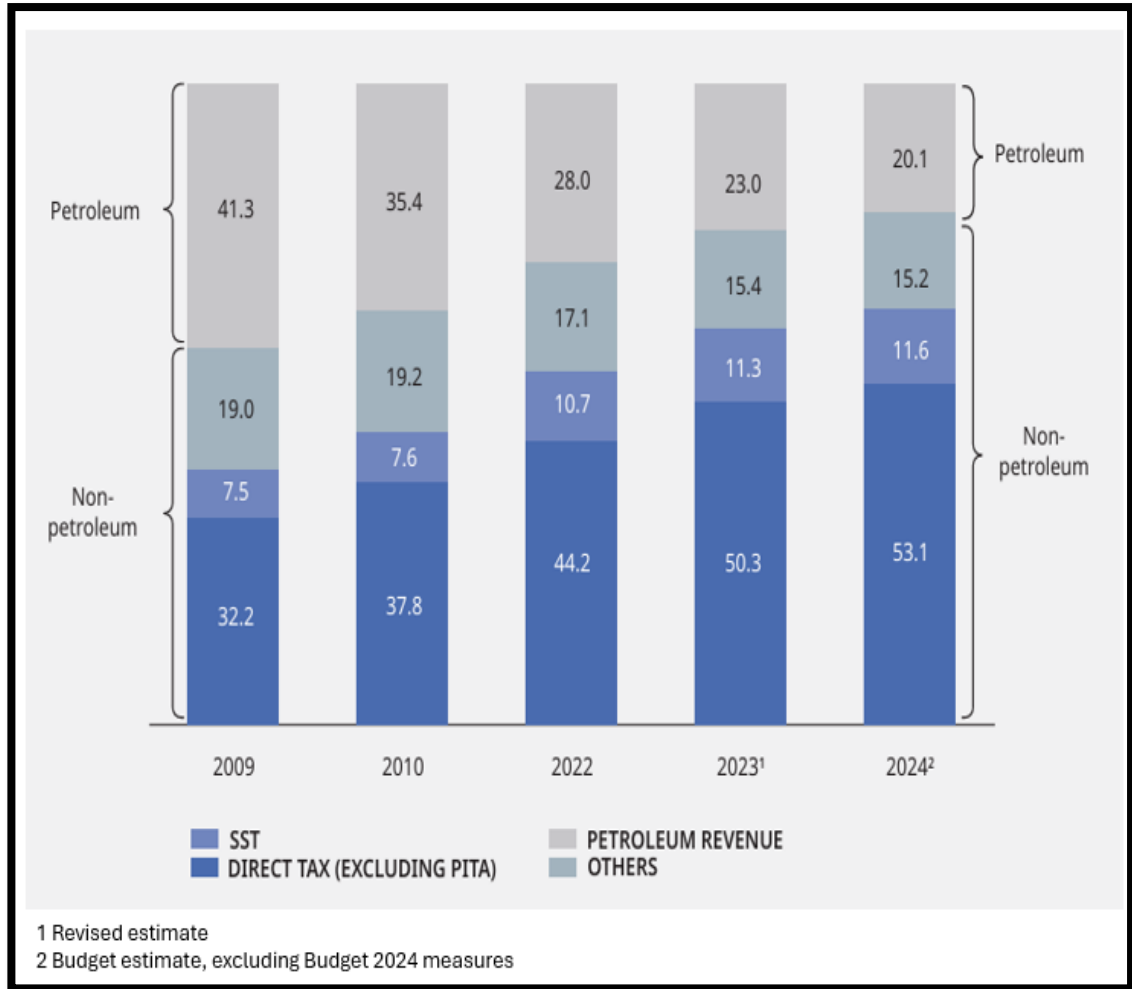


Figure 7: National Major Revenue Contributors

Source: Ministry of Finance Malaysia (2024)

In summary, oil and gas industry is contributing to the nation's GDP and revenues which makes the risk management process becomes critical and therefore robust, agile, and effective risk assessment process in making high value capital expenditure and operating expenses decisions must be in place.

1.3 Problem Statement

Business and risk are not separable, and undertaking risk in business is seen as acceptable if it is within their risk limit or risk appetite. In the case of oil and gas industry, when the supplies or production of crude oils are interrupted, there will be chains of implication and consequences (Li et al., 2021). Risks are intra-connected and inter-connected. Negi and Kumar (2018) shared that multiplier impacts will happen up to the channel of distribution along the integrated value chains. Their business values are at stake if the business managers are not calculating their investment risks upfront, should the exposure really hit them. The COVID-19 pandemic is a classic example of an “unknown-unknown” event based on “Black Swan Theory” by Nassim Taleb. This theory highlights events that are exceptionally rare and unpredictable, yet have significant and far-reaching impacts. Despite their unpredictability, once these events occur, individuals frequently rationalise them, suggesting that, in retrospect, they were understandable and could have been anticipated. Therefore, companies need to perform risk assessments to analyse the uncertainties and potential exposures for a better understanding and preparation of the action plan to mitigate or overcome the risks, otherwise they will not be prepared to face challenging situations to respond to and recover from the event (Aven, 2017).

The oil and gas sector is essential for Malaysia’s economy, not just for its contribution to GDP, employment but also the nation’s long-term wholesome economic development promoting local entrepreneurship along the business value chains i.e. upstream, midstream, and downstream activities (Bhattacharya and Hutchinson, 2022). PETRONAS as the Malaysian NOC has been contributing dividends and additional dividends to the government consistently to support the government’s expenditure requirements such as during the phasing out of the GST in 2019 and COVID pandemic in 2020 and 2021 (Bhattacharya and Hutchinson, 2022). The commitment of the additional payment in 2020 was RM10 billion, in addition of the agreed RM24 billion even when the organisation faced with financial losses in that year as shown in Table 1 below.

Table 1: PETRONAS' Annual Net Profit and Dividend Payment, 2010-2020

Source: Bloomberg, Petronas, and Ministry of Finance Malaysia (various years).

Year	Net Profit (in RM billion)	Dividend Payment (in RM billion)
2010	40.3	30
2011	54.8	30
2012	49.4	27
2013	65.6	28
2014	47.6	29
2015	20.9	26
2016	23.8	16
2017	45.5	16
2018	55.3	54
2019	40.5	24
2020	-21	34

Malaysian oil and gas companies are among the major income contributors and GDP generators for the country as discussed above. The companies are aggressively growing their positions domestically as well as internationally. According to Malaysian Investment Development Authority (MIDA), oil and gas remains vital for the nation's economy with its contribution of 20% to Malaysian annual GDP. According to MIDA, in 2022, nine projects worth RM5.9 billion were approved and created significant numbers of employment avenues and opportunities. Malaysia has been one of the major beneficiaries of 'value investments' from major International Oil Companies (IOCs), independent companies, and National Oil Companies (NOCs) around the world (Huebner, 2020). As industry practitioners, there seems to be room for improvement in onboarding risk into their business activities and processes. Based on the criticality of the industry to the nation, effective implementation and applications of risk-based decision-making framework will enable informed decisions for top management and directors of these companies in high value and risky investments. Nevertheless, the implementation of Enterprise Risk Management (ERM) frameworks has been a growing trend in the Malaysian oil and gas industry (Annamalah et al., 2018). However, Hjorth (2017) suggested a more holistic risk-benefit approach which can increase the acceptance to adopt the process, facilitate the decision-making process better and reduce business exposure.

Ricardianto et al. (2023) claimed that integrating risk into a company's strategies and decision-making process would increase the firm's competitive advantage. This happens when the firm can take advantage of its existing strengths and opportunities and lower limitations from its weaknesses and threats to be ahead of its competitors. Integrating risk assessment into the decision-making process may sound too technical and academic to some business managers. However, the practise of weighing the costs and benefits has been in place for decades. In fact, International Organisation for Standardisation 31000 (ISO 31000) emphasises the risk management principles, which are to improve an organisation's performance, encourage innovation, and facilitate the achievement of its objectives through value creation and protection. This integrated approach allows

companies to better understand the holistic risk landscape and make informed decisions that align with the principles of corporate sustainability and green growth (Shah et al., 2022). Likewise, business and relevant experts are required to develop mitigation strategies, they need to identify and analyse their risk carefully and hence a comprehensive framework is required to be developed and implemented (Renn et al., 1997; Aydin et al., 2022). In addition, Bhatti et. al. (2023) suggested for decision makers to really understand the decision-making process, parties involved surrounding the process and their leadership styles and how risks being assessed and managed. As decision makers for the organisation, they are responsible to make critical decisions which have direct implications on the company's growth, profitability, market.

However, Kalina et al. (2022) noted there were lack of risk management culture and the lack of understanding of the importance the risk-based management processes in their operational and strategic activities. Aside from that, Mikes et al. (2017) also suggested that there is a gap for further study on what risk management roles are to be played by stakeholders and methods to measure the risk management effectiveness that need to be done for the practises across the organisation and its control measures to be put in place. This can be due to limitation, rigidity and unclear key elements in risk-based decision-making framework. Jardine et al. (2003) argued that although there are guidance on risk management in decision-making process with well-established and structured principles which progressed over time, the frameworks are not flexible to put into practice. Furthermore, Krewski et al. (2022) agreed that although there are well-described scientific approaches, the principles of risk management decision-making are less articulated which led to debate, discussion and interpretation for providing clarity for wide-spread application and implementation. There may be some challenges amongst the business managers in realising the value of risk assessment in implementing in their business process. More often than not, risks are seen as a showstopper, form-filling exercise, and/or too academic in the process itself, which may reduce business agility in response to a competitive and dynamic market environment. Hoyt and Liebenberg (2011) suggested future research be conducted to further identify how risk management can create value for firms. Despite numerous studies on risk-based decision-making framework, gap in the key

elements for effective implementation and practices among selected oil and gas companies incorporated in Malaysia towards meeting business value creation remains.

The oil and gas industry faces significant challenges related to business and operational complexity, high capital expenditure, uncertainties and dynamic market environment as well as difficult and complicated decision-making process. In Malaysia, where this industry plays a significant role in the economy, there is a need to enhance risk-based decision-making framework to ensure effective implementation and adoption. However, existing research gaps persist in investigating the key elements and its positive implication that led to effective risk-based decision-making process within this context.

Risk management, if done in a holistic and well-structured manner, can bring strategic advantages and sustain value creation to organisation on a long-term basis. As such, the aim of this study is to fill this gap in the current field and comprehensively explore the key elements in risk-based decision-making frameworks particular to the industry they are in. In light of the above, and particularly in view of the high risk and importance of the oil and gas sector in contributing to the Malaysian economy, the current research seeks, as a primary objective, to highlight key elements in a risk-based decision-making framework which need to be considered by oil and gas companies incorporated in Malaysia. The oil and gas industry in Malaysia is a critical sector that requires robust risk management practices to ensure sustainable growth and profitability (Hamzah & Marimuthu, 2018). Implementing an effective risk-based decision-making framework is essential for oil and gas companies to identify, assess, and mitigate potential risks (Syzdykov et al., 2020).

Problem Statement

The Malaysian oil and gas industry plays a critical role in the nation's economy but faces challenges in implementing effective risk-based decision-making frameworks. These challenges stem from gaps in understanding key elements, practical application, and adaptability. Consequently, there is a need for an enhanced and effective risk-based decision-making framework tailored to the industry to ensure sustainable growth, profitability, and long-term value creation.

1.4 Research Aims and Objectives

The main objective of the research is exploring the key elements in risk-based decision-making framework for effective implementation and practices among selected oil and gas companies incorporated in Malaysia towards meeting business value creation. It is anticipated and highly expected that the outcome of this meticulously conducted research can extensively facilitate and enhance the improvement, enhancement, and refinement of the existing key elements studies of best practices in risk assessment in decision-making process for oil and gas companies which suited and tailored into Malaysian context. Furthermore, this study aims to diligently collate, scrutinise, and critically refine the findings obtained from the comprehensive analysis. Three major research objectives are outlined as follows:

- a. To explore the key elements of incorporating risk management into the decision-making process.
- b. To investigate the implications of risk assessment in business decision-making framework implementation and practices on business value creation.
- c. To analyse the other determinant factors and any other emergent properties that may provide a greater impact of risk assessment in decision-making to create value for the company.

1.5 Research Questions

This section lists three research questions for this study. These research questions are about exploring the key elements of an effective risk in decision-making framework, the implication of risk in decision-making framework to business value creation and other determinants factors that would further facilitate an effective implementation and practice of risk in decision-making process. Further inquiries on these research questions were detailed in Appendix A.

- 1) How does the organisation incorporate risk management into their business

activities and what are the key elements in performing the risk-based decision-making process?

- 2) How the risk based decision-making process affects the organisation from business value creation perspectives?
- 3) What are other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company?

1.6 Scope of the Study

Area of research is limited to the analysis of risk-based decision-making framework implementation and key elements in selected oil and gas companies in Malaysia. These selected companies involved were based in Kuala Lumpur, Malaysia where their employees involved are playing corporate and business roles who involved in critical business decision-making process. The study does not cover implementation issues and framework elements in other countries. It also incorporates the supplementary elements that are enabling these employees in the implementation and adoption of risk-based decision-making framework. Additionally, the study also explores further understanding on the implications of the framework implementation and adoption. The study will use all available resources from literature reviews and, findings gathered from interviews and focus groups to provide a set of conclusions and recommendations by proposing the enhanced risk-based decision-making framework for wider implementation, adoption and adaptation.

1.7 Definition of Key Terms

1.7.1 Strategic Objectives and Business Goals

Strategic objectives refer to high-level, measurable goals that organisations set to achieve their long-term vision and mission. These objectives guide decision-making processes by providing a clear roadmap for aligning company efforts and resources towards desired

outcomes (Grünig et al., 2022). In a risk-based decision-making framework, strategic objectives assist organisations in evaluating potential risks and rewards, ensuring that decisions support overall business growth and sustainability. For example, an organisation might set a strategic objective to increase market share by 30% over the next five years, which would involve assessing relevant risks such as market risk, country risk, legal risk, and supply risks. By understanding the exposures to the strategic objectives, the organisation can develop strategies to mitigate them. According to Sinnaiah et al. (2023), taking the right actions at the right time can help organisations remain competitive and protect themselves from negative consequences by making necessary changes to improve performance.

Business goals, on the other hand, are specific, measurable outcomes that a company aims to achieve within a defined timeframe. These goals are often more short-term and actionable compared to strategic objectives. In the context of a risk-based decision-making framework, business goals help organisations prioritise tasks and allocate resources effectively to manage risks and achieve desired results (Singh and Singh, 2021). For example, a business goal might be to reduce operational costs by 10% within the next year, which would require identifying cost-related risks and implementing measures to control them. Organisations should establish measurable objectives to assess the effectiveness of their strategies, thereby enhancing employee commitment toward achieving the goals (Sinnaiah et al., 2023). Committee of Sponsoring Organisations of the Treadway Commission (COSO) (2017) ERM Framework also advocated for the alignment of sustainable business objectives with business strategies and understand the risks which may affect the business performance and value preservation. Hence, by having both strategic objectives and business goals are paramount to ensure the organisation to stay focused.

1.7.2 Value Creation

Value creation refers to the process through which organisations generate economic, social, and environmental value for their stakeholders via strategic initiatives and risk

management practices. Notably, ISO 31000 (2018) stresses that the core purpose of risk management is the creation and protection of value. Within a risk-based decision-making framework, value creation entails identifying and mitigating potential risks while leveraging opportunities to enhance overall business performance and stakeholder satisfaction (Testorelli et al., 2024). This ensures that decisions are made with a comprehensive understanding of their potential impacts, resulting in well-informed choices that promote sustainable growth and competitive advantage. Furthermore, value creation is also received when the incorporation of risk management into the decision-making process which allows organisations to make well-informed decisions that balance risk and reward, thereby promoting innovation and resilience (Boghean, 2020). By systematically assessing risks and their potential impact on value creation, companies can formulate strategies that not only safeguard but also enhance their value proposition.

1.7.3 Business Acceptance

In business, making a deliberated decision by an organisation to acknowledge and tolerate certain risks while pursuing strategic objectives and business goals is essential (Shefrin, 2016). Business acceptance in this context refers to the willingness of business managers, risk managers, top management, and the board of directors to adopt a risk-based decision-making framework. The entire ecosystem in the organisation being integrated with risk management mindset where the value is created and protected. This involves performing thorough risk-reward trade-off assessments and evaluating the potential impact of risks prior to making informed decisions. The decisions are made based on whether the potential benefits outweigh the potential drawbacks (Schoemaker and Tetlock, 2017). By accepting certain risks, organisations can allocate resources more effectively and focus on achieving their long-term goals (Aven, 2016). Business acceptance increases when employees see the outcomes of practicing this process, where the achievement of objectives and value creation from the process are evident. Once this occurs, the company can easily develop strategies to mitigate potential challenges and capitalise on new opportunities, ultimately driving business growth and success (Kaplan and Mikes, 2016).

1.7.4 Risk Culture

In the context of this research study, risk culture refers to the shared values, beliefs, attitudes, and behaviours regarding risk within an organisation (Schein, 1983). It includes how employees at all levels perceive and manage risk, and how risk management is incorporated into the organisation's processes and decision-making. A strong risk culture encourages a proactive approach to identifying, assessing, and mitigating risks, which can contribute to better decision-making and enhanced organisational performance (Aziz et al., 2018). The authors also stated that by advocating a consistent risk culture, organisations can ensure that risk management is integrated into their operations, helping them achieve strategic objectives and business goals more effectively.

Establishing an effective risk culture involves fostering an environment where employees are empowered to identify, assess and report risks, and encouraged to take calculated risks to achieve business objectives as risks can be both opportunities and threats to the business (Kurniawan et al., 2017). Aziz et al. (2018) suggested that for this to be accomplished, comprehensive training, clear communication, and leadership that prioritises the significance of risk management. When a risk culture is deeply ingrained within an organisation, it can lead to increased resilience, innovation, and value creation, as employees are more inclined to make informed decisions that balance risk and reward. In the end, a robust risk culture enhances the organisation's capacity to navigate uncertainties and seize opportunities, contributing to sustainability of business growth and long-term success (Razak et al., 2024).

1.7.5 Risk Governance

Governance refers to the framework of rules, practices, and processes by which an organisation is directed and controlled. It includes setting and pursuing objectives and managing risks. Governance involves relationships among stakeholders like the board of directors, management, employees, shareholders, and others, creating transparent reporting and monitoring activities. Effective governance ensures ethical practices and compliance with legal and regulatory requirements, fostering trust and accountability. In

addition, risk governance is the framework of risk policies, processes, and structures used to manage and control risks. It involves identifying, assessing, and prioritising risks, then applying resources to minimise, monitor, and control their impact (ISO 31000, 2018; COSO, 2017). In a risk-based decision-making framework, risk governance integrates risk management into all organisational levels, promoting proactive risk assessment and mitigation. This helps organisations achieve strategic objectives and business goals by balancing risk and reward effectively.

Effective risk governance necessitates the involvement of various stakeholders, including management, employees, and external partners, to ensure a comprehensive understanding of risks and their potential impacts. By promoting strong partnership between business managers and risk managers as well as collaboration with various parties involved, organisations can develop robust risk management strategies that are aligned with their overall business strategy. This approach not only enhances the organisation's preparedness against potential threats but also creates opportunities for value creation and innovation. Ultimately, a well-implemented risk governance framework supports sustainable growth and long-term success by embedding risk management into core decision-making processes.

Governance refers to the framework of rules, practices, and processes by which an organisation is directed and controlled. It includes setting and pursuing objectives and managing risks. Governance involves relationships among stakeholders like the board of directors, management, employees, shareholders, and others, creating transparent reporting and monitoring activities (Grünig et al., 2022). Effective governance ensures ethical practices and compliance with legal and regulatory requirements, fostering trust and accountability (Sinnaiah et al., 2023). In addition, risk governance is the framework of risk policies, processes, and structures used to manage and control risks. It involves identifying, assessing, and prioritising risks, then applying resources to minimise, monitor, and control their impact (ISO 31000, 2018; COSO, 2017). In a risk-based decision-making framework, risk governance integrates risk management into all organisational levels, promoting proactive risk assessment and mitigation. This helps

organisations achieve strategic objectives and business goals by balancing risk and reward effectively (Testorelli et al., 2024).

Effective risk governance necessitates the involvement of various stakeholders, including management, employees, and external partners, to ensure a comprehensive understanding of risks and their potential impacts. By promoting strong partnerships between business managers and risk managers, as well as collaboration with various parties involved, organisations can develop robust risk management strategies that align with their overall business strategy (Tillema et al., 2022). This approach not only enhances the organisation's preparedness against potential threats but also creates opportunities for value creation and innovation. Ultimately, a well-implemented risk governance framework supports sustainable growth and long-term success by embedding risk management into core decision-making processes (Aziz et al., 2018).

1.7.6 Integration of Risk Assessment into Decision Making

The term 'Integration of risk assessment into decision making' refers to systematically incorporating risk analysis into business decision-making processes (Boghean, 2020). This approach ensures that potential risks are identified, evaluated, and considered alongside potential rewards when making strategic choices (ISO 31000, 2018). By embedding risk assessment into decision-making procedures, organisations can make more informed and balanced decisions that align with their overall objectives and risk tolerance. This integration facilitates the proactive management of risks and enhances the likelihood of achieving desired outcomes (COSO, 2017).

In a risk-based decision-making framework, integrating risk assessment is crucial for effective implementation. It allows organisations to prioritise risks according to their potential impact and likelihood, facilitating the development of suitable mitigation strategies (Grünig et al., 2022). This proactive approach not only minimises adverse outcomes but also identifies opportunities that can add value to the organisation. By embedding risk assessment into the decision-making process, organisations can foster a culture of risk awareness and resilience, ultimately resulting in more robust and

sustainable business practices (Testorelli et al., 2024).

1.7.7 Involvement of Relevant Parties

Involvement of Relevant Parties refers to the active participation of all stakeholders who have a vested interest in the decision-making process within an organisation. In the context of risk-based decision-making framework, the relevant parties refer to the proposal owner, risk manager, subject matter experts such as legal manager, operation manager as well as external stakeholders like customers, suppliers and regulators (Kliem and Ludin, 2019). Engaging these parties ensures that diverse perspectives and expertise are considered in the risk assessment, leading to more comprehensive and well-rounded decisions. By involving relevant parties, organisations can identify potential risks and opportunities more effectively, promoting a collaborative and inclusive environment that supports informed decision-making (Hopkin, 2018; Tillema, 2022).

In a risk-based decision-making framework, the involvement of relevant parties is essential for effective implementation. This participatory approach aids in evaluating various scenarios and opinions from multiple perspectives, which can positively influence the decision-making process (Aven, 2016). Such inclusiveness not only improves the quality of decisions but also fosters transparency and trust among stakeholders. When stakeholders are engaged in the risk management process, they are more likely to support and commit to the decisions made, leading to enhanced ownership of risk mitigation efforts and value creation for the organisation (ISO 31000, 2018).

Furthermore, effective communication, consultation, and collaboration with relevant parties are vital. There must be established mechanisms for regular interaction with stakeholders, providing them with the necessary information and resources to comprehend and contribute to the risk management process (COSO, 2017). This can be facilitated through workshops, meetings, surveys, and feedback sessions. By empowering stakeholders and valuing their input, the risk-based decision-making framework will enable organisations to achieve their strategic objectives and business goals, ultimately leading to sustainable growth and success (Grünig et al., 2022).

1.7.8 Process and Procedures

Process and procedure refer to the structured and systematic techniques that organisations use to manage and control risks effectively in order to achieve the set objectives (Glette-Iversen et al., 2023). These include clearly defined steps, guidelines, and protocols that outline how decisions should be made, risks assessed, and actions taken to mitigate those risks (ISO 31000, 2018). By establishing well-defined processes and procedures, organisations ensure consistency and clarity in their risk management practices, which helps in minimizing misunderstandings and disputes among relevant parties (Tillema et al., 2022). This structured approach also facilitates accountability and transparency, as each step in the process is documented and can be reviewed and audited (Grünig et al., 2022).

In the context of a risk-based decision-making framework, having clear processes and procedures is essential for effective implementation. These guidelines help delineate roles and responsibilities among stakeholders, ensuring that everyone knows their specific duties and how they contribute to the overall risk management strategy (Hopkin, 2018). This clarity is important for fostering collaboration and coordination, as it reduces the potential for conflicts and ensures that all parties are aligned in their efforts to achieve strategic objectives and business goals (Aven, 2016). Well-defined processes and procedures also provide a foundation for continuous improvement, as they can be regularly reviewed and updated based on feedback and changing circumstances (COSO, 2017).

1.7.9 Capability and Knowledge Management

Capability management entails the development of talent, encompassing systematic training in both hard and soft skills, as well as the cultivation of business knowledge and risk expertise (Smith et al., 2005). Additionally, knowledge management involves the acquisition and organisation of necessary information and data to facilitate accurate, reliable, and relevant analysis, thereby enabling informed decision-making and effective risk management (Desouza, 2003; Yam et al., 2004). In a risk-based decision-making

framework, this means ensuring that business managers possess the necessary business acumen and risk management knowledge to assess and respond to potential risks accurately (Hitt and Ireland, 2000). Therefore, access to pertinent resources and data is essential for conducting agile and meaningful risk assessments, which are critical for making decisions especially in a dynamic market environment. By promoting a culture of continuous learning and knowledge sharing, organisations can enhance their decision-making capabilities and improve their overall risk management practices (Smith et al., 2005).

To manage capabilities and knowledge effectively, organisations must establish structured processes for sharing critical information. Examples include training programs, knowledge repositories, and collaborative platforms that enable employees to access and share expertise (Yeboah, 2023). According to Aven (2016) that when an organisation provides managers with the right tools and knowledge, risk assessments can be conducted accurately and efficiently, leading to better decisions. This proactive approach supports strategic objectives, enhances resilience, and improves adaptability to uncertainties (Smith et al., 2005).

1.7.10 Value Management System and Performance Measurement

The value management system and performance measurement is a structured approach designed to align organisational objectives at all levels with the organisation's strategic goals (Rappaport, 1986; 1998). This alignment ensures that every decision and action within the organisation contributes to overall value creation and long-term success. By implementing performance measurement tools, organisations can monitor and evaluate their performance against key performance indicators (KPIs) that reflect their strategic priorities (Sheedy and Canestrari-Soh, 2023). This focus on KPIs helps maintain an emphasis on value creation, while also ensuring efficient and effective resource utilisation.

Petravičius and Tamošiūniene (2008) advocated that value management system implementation alongside a performance measurement framework incentivises employees by setting clear performance objectives and providing regular. For instance, using a

balanced scorecard approach that combines financial and non-financial metrics delivers a holistic view of organisational performance (Kaplan and Norton, 2005). This method not only improves transparency and accountability but also promotes a culture of continuous improvement and innovation. By acknowledging and rewarding accomplishments that align with strategic goals, organisations can enhance employee morale and motivation, encouraging them to excel and support the organisation's risk-based decision-making processes (Kaplan and Mike, 2016).

1.7.11 Risk Management System

A risk management system refers to a digital platform designed to identify, assess, manage, monitor, and report risks within an organisation. Within a risk-based decision-making framework, the system ensures a robust, agile, and dynamic risk assessment process, enabling swift and informed decision-making through a straight-through-processing approach (Paraschivescu (2016). By utilising a risk management system, the process becomes seamlessly integrated, allowing for the assessment of potential risks and their impacts through the digital platform (Schönherr et al. (2022). This leads to better prioritisation and allocation of resources, as well as providing a repository of information for future retrieval, timely monitoring of mitigation actions, and reporting to relevant stakeholders for appropriate actions and information (Lawson and White, 2018). This proactive approach not only enhances operational resilience but also supports strategic objectives through effective and efficient processes (ElMassah and Mohieldin, 2020).

1.8 Significance of the Study

Carlsson (2001) stated that value creation is needed for organisations to build sustainable business growth, but not all decisions can lead to value creation. The decision-making process is a delicate area as it involves human ability and capacity to make decisions, a set of processes, governance to be adhered to, and objectives that are set as the aim of the business decision outcomes. Hence, risk assessment to facilitate decision-making is an integral part of the process to ensure the calculated risk is considered in business decision-making within the organisation's business objectives, risk mandate, and appetite.

Therefore there is a significance of the research study to understand the various elements and implication of risk-based decision-making framework implementation and to what extent value creation can be achieved through its effective implementation. In fact, Testorelli et al. (2024) emphasised the need for additional research to identify variables for an emerging risk management framework that can efficiently create value for stakeholders. An examination of relevant theories and models pertaining to risk-based decision-making frameworks revealed the rationale behind managerial behaviours and business systems in relation to decision-making principles and processes.

The expected output from the research study is to fill the gaps in the literature on exploring the key elements of risk management application and implementation (Kewski et al., 2022) as well as further understanding on risk culture and its importance to their operational and strategic activities (Kalina et al., 2022). Other expected significant output is to address gap raised by Mike et al. (2017) on the stakeholders roles in practising and inculcating the risk practices in the organisation. By proposing a risk-based decision-making framework, this study advances understanding and opens new avenues for future research in this research area

The study also provides actionable recommendations that can be implemented by oil and gas companies in Malaysia to improve the implementation of risk-based decision-making framework which in turns enable the achievement of their strategic goals and business objectives. Furthermore, the expected benefits of this research can be extended to other industry practitioners and researchers for applications and further research.

1.8.1 Theoretical Contribution

The concept of risk-reward trade-offs is also commonly used in an informed decision-making process where the decision-makers are made aware of the potential key exposures associated with the areas of decision-making. Md.Sum (2013) agreed that risk assessment acts as the process to elicit and provide risk management's view and opinion on the potential impact on business proposals for informed decision-making. Some may argue that value creation can be in the form of value protection, while others argue that strong

risk management practises and processes can also create value for the organisation to tap into towards enhancing their business value. Bhatti et al. (2023) suggested to explore the behavioural finance influences business in decision-making process beyond traditional risk management which focuses more on quantitative measures. Research could explore how elements like psychological factors and environments which affect risk perception and decisions. This research study examines several theories, including Agency Theory, Stakeholder Theory, Value Management System, and Decision-Making Models. These frameworks offer insights into how risk-based decision-making can align the interests of agents, principals, and stakeholders in the organisation, particularly oil and gas companies in Malaysia, as well as understanding the functioning behind decision-making models and tools to motivate them. The study identifies specific risk management practices that address agency and interaction issues, enhancing oversight and accountability in risk-based decision-making processes.

Hoyt and Liebenberg (2011) suggested that future research be conducted to further identify the specific ways in which risk management can create value for firms. Mikes et al. (2016) also suggested that there is a gap for further study on what risk management roles are to be played by stakeholders and methods to measure the risk management effectiveness that need to be done for the practises across the organisation and its control measures to be put in place. Thus, the study on the key elements of risk-based decision-making framework is critical to support an effective risk management process to business activities particularly in decision making area.

1.8.2 Practical Contribution

In the current volatile and fast-paced environment, it requires a more robust and agile framework for businesses to be able to respond quickly to market threats and opportunities. For an organisation to stay relevant in the competitive market environment, it is essential to have a competitive advantage through value creation from their business decision-making. In the context of Malaysian businesses, the oil and gas industry is playing major roles in supporting the country's economy through their dividends, taxes,

exports, employment, and strategic positioning globally. By adopting a risk-based decision-making framework, oil and gas companies in Malaysia can enhance their business performance and resilience (Annamalah et al., 2018). This framework allows for the prioritisation and efficient management of various risks, including financial, operational, regulatory, and strategic risks (Jessen, 2008). This leads to the significance of this study to focus on Malaysian business entities in commodity-based industries, particularly the oil and gas industry, where a study on their risk assessment in the decision-making process, other enablers to support the process and acceptance, and their contributions in attaining returns on investment in an uncertain business environment is to be undertaken.

1.9 Organisation of the Study

The study is divided into five chapters, namely: Chapter 1 Introduction, Chapter 2 Literature Review, Chapter 3 Methodology, Chapter 4 Findings, and lastly, Chapter 5 Discussion and Conclusion. Chapter 1 covers the research background, which entails the issues and requirements of the study. These form the research problem and questions to be answered, as well as the aims for which this study was pursued in the first place. Clarification on the scope and coverage of this study is required to clarify that the study is narrowing on oil and gas companies in Malaysia. Then, as risk assessment in the decision-making process is critical in deriving a well-balanced judgement in sanctioning high-value projects in the oil and gas business, the significance of the study, specifically in terms of the theoretical and practical contributions, is also discussed in this chapter.

Chapter 2 reviews past literature on risk management including industrial risk management framework such as COSO and ISO 31000 and risk-based decision-making framework by other scholars. Besides, this chapter also discusses decision-making process, value creation, and a risk-based decision-making conceptual framework that discusses the key elements, enablers, and value management system performance measurement. Then, this chapter also emphasises both theoretical and conceptual frameworks.

Chapter 3 articulates the research methodology used in this study. It describes the design of the study, specifically the research philosophies, research approaches, and research strategy, as well as both research choice and method and time horizon. Then, this chapter also emphasises data collection. Other than explaining the selection of respondents and sample size, this section also explains interview planning, technique, and protocol, as well as interview topics and questions. Then, this section also covers the elaboration on how this study conducted the interview session and the transcription and translation. Towards the end of the chapter, this study discusses the other three critical topics, including data analysis, reliability, and validity, as well as ethical considerations.

Chapter 4 details the analysis and outcomes of the findings. A qualitative research interview analysis system, i.e., NVivo 12 Plus, is being used to describe and explain the thematic analysis based on the coding strategies adopted. This serves as the vital stage of the study, where it conforms the elements to be prescribed in the conceptual framework ‘Risk-Based Decision-Making Framework - Value Creation Approach’, for the purpose of wider adoption by not only oil and gas companies but also companies in other industries.

Lastly, Chapter 5 concludes the study with a summary of the outcomes of the study. It covers the contribution of the proposed framework for practical implementation and discusses the potential shortcomings of the research for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews past literature on risk management, risk in business processes, underpinning theories and theoretical framework which is relevant to this thesis. Underpinning theories cover related theories to this study namely Agency Theory, Stakeholder Theory, Rappaport Shareholder Value Analysis (SVA) model and Decision-Making models of which these theories and models are used to form the thesis theoretical framework. This chapter ends with debates and gaps on this literature review and used as the basis to strengthen the analysis of key elements in Risk-Based Decision-Making Framework.

2.2 Risk Management

2.1.1 Risk and Risk Management

Risk in doing business may appear as a threat, but it can also be an opportunity for many business entities depending on the various interpretation and acceptance. Traditionally, scholars defined risk as uncertainty and the occurrence of the event which may impose exposure or potential loss for an organisation to achieve their intended objectives (Crowes and Horns, 1957; Denenberg et. al., 1964; Mehr and Cammacks, 1961; Greene, 1962 and Rabel, 1968). Shmatkova and Karminska-Bielobrova (2023) described uncertainties arise when the actual result of the options taken are not known in advance. Sotic and Rajic (2015) cited Adam (2014)'s research on framing risk who argued that the term risk is defined in numerous manners and in different circumstances. It usually causes the feeling of urgency as it carries the connotation of potential harmful event or catastrophic consequence may happen. Risk is also defined various ways by international standard boards but mainly narrow to the same meaning of interpretation. ISO 31000 (2009, 2018) defines risk as the effect of uncertainty which may impede the business from meeting its business objectives. The standards describe that the uncertainty which lead to the deviation from the target or expected objectives can be both positive and negative. Risks

are also referred as potential events and consequences or a mixture of both instances where the likelihood of occurrences are assessed to understand risk profiles and risk positions for the organisation. Additionally, COSO as one of well-known standards bodies prescribes risks as both negative and positive risks where the potential positive risks increase organisational business value which is aligned to the business objectives. Risks are connected the decision-making process especially are considered at business strategy level which has direct impact to business performance (Veltsos, 2017). It involves multifaceted concept that involves uncertainty and the potential for negative consequences, making it a critical consideration in decision-making across various fields (Athearn, 1971; Shmatkova and Karminska-Bielobrova, 2023). Athearn (1971) also noted that there was a lack of consensus among scholars regarding the definition of risk of which each define and emphasise various elements, such as uncertainty, loss, and undesirable outcomes, which complicates a unified understanding of risk. Therefore, Sotic and Rajic (2015) agreed that risk definitions can be multidimension and wide interpretation, it was worth noting that for an organisation to define the risks to them require initial understanding of their objectives and contexts. They also suggested to move away from risk as a concept but applying them into the business process such as decision-making process. This leads to the application of risk into the act of conducting risk identification, analysis, assessment and management.

There are three perspectives on risk management; firstly on ‘why the business want to implement risk management’, secondly on ‘why businesses should implement risk management’, and thirdly on ‘why businesses have to implement risk management’ (Turner and Keetelaar, 2005). In the context of business investments, risk management refers to process of identification and mitigation of potential losses through strategies such as diversification of business portfolio, buying insurances or financial derivatives and carefully performing market trends and company performance analysis (Bhatti et al., 2023). Aligning to the same understanding, Glette-Iversen et al. (2023) further added that the process should also involve the establishment of a risk management context by defining its objectives and purpose in alignment with their business objectives, identification of situations and events that may impede meeting the defined purposes and

objectives. This analysis may use various available tools such as cause-and-effect analysis to bring to further evaluation of events' likelihood and their impacts on the business, prioritisation and rankings of resources allocations, and finally risk treatments or mitigations. In fact, Stulz (2008) claimed that some mitigation tools through financial derivatives, such as using options, to manage the downside risk against price risk could also have upside potential when the value of options can be encashed. Chang et al. (2015) also suggested for a vigilant monitoring process of these exposures which can provide ample time for them to react and response as well as re-adjust their business strategies. Therefore, the business manager must be clear of key elements in risk frameworks, their importance, the translation of these elements into processes and analysis being used in order to manage their risks effectively in the organisation (Naude and Chiweshe, 2017). Nonetheless, business risks are dynamic which change risk profile of the business from time to time and the risk assessments may vary accordingly. Hence Aydin et al. (2022) also suggested the deployment of a balanced approach of risk management process especially in the aspect of oil and gas industry safety which emphasises the need for flexibility in risk management strategies, allowing organisations to adapt to new challenges and seize any opportunities as they arise.

2.1.2 Enterprise Risk Management

The act of identifying, assessing, and mitigating risks within specific areas addressing individual risks to protect the company's assets, resources and business is usually referred to a risk management activity. ERM however, according to Gordon et al. (2009) refers to risk management in a holistic and integrated approach in managing risks throughout the entire organisation, involving all business units, functions, and processes. ERM process adopt a strategic and structured approach to identify, assess and manage risks to align to the organisation's goals and objectives. It aims to optimize risk-taking to achieve a balance between risk and reward, supporting long-term sustainability and value creation through iterative way instead of in separate silos and in a static way. Similar descriptions of risk management process by many scholars, Lai et al. (2010) stated the ERM process involves identifying and analysing risk from an integrated perspective of a wholesome company's

wide perspectives via a structured and disciplined method towards deploying the organisation's strategy by exploiting its business processes, technology, knowledge management, and people talent to assess and manage exposures and risks of the organisation for the purpose of creating value for them. At the organisational enterprise-wide level, ERM is usually adopted by most companies as the framework or process to cover portfolio risk management on a proactive basis, which assesses risk in totality by screening through major risks that may impede meeting the organisation's objectives as opposed to the traditional way of managing risk on an individual basis and on a reactive mode basis (Aziz et al., 2018). Implementation of ERM systems is seen to improve organisations' firms, though performance measurement is limited and not measured robustly (Barton et al. 2002; Lam 2003; COSO 2004; Nocco and Stulz, 2006; Stulz 2008; Hoyt and Liebenberg, 2011). In fact, with current business challenging markets amidst COVID-19 and global rapid change in business models and lifestyles in view of technological advancement, ERM is an effort to capture and reduce the uncertainties surrounding these complexities identified with its broad and open-system framework for organisations to manage their risks (Moeller 2007; Monahan 2008; Olson and Wu, 2010; Wu and Olson, 2010; Hoyt and Liebenberg, 2011; Kraus and Lehner, 2012; Taran et al., 2013).

ERM Insight by Williams (2019) listed the differences between traditional risk management approaches and ERM. A few of the main differences of ERM that have advantages over the traditional model are its multi-dimensional assessment approach when the organisation's risks are assessed, the need to understand the root cause of the exposure and prioritise material them for considerations of risk treatments, controls, and monitoring, its more proactive approach, which is more forward-looking risk assessment, its continuous approach in assessing the risk for the organisation, and its incorporation of risk in the organisational culture and mindset. Similarly, Aziz et al. (2018) also advocated that cultural and mindset shift must be viewed as critical component for effective risk management implementation particularly in embedding risk at strategic planning and operational execution. Traditional risk management approach, on the other hand has been criticised for its disconnection in assessing risk from the business process, culture, and

mindset, whereas ERM process is commended for its more systematic, ingrained in processes and thinking approach to its valuable decision-making tool, regardless of whether the process is formalised or not (Woods, 2023).

In addition, COSO (2004), Ernst and Young (2006), The National Affordable Homes Agency (2008), Deloitte and Touche (2008), Olson and Wu (2010), Wu and Olson (2010), Hoyt and Liebenberg (2011), Kraus and Lehner (2012), and Taran et al. (2013) highlighted several other benefits of having ERM as a risk management framework. Amongst others are better contingency plan by anticipating potential exposures and proactively managing risks before they happen; improved and clearer decisions as a result of the alignment of strategies with the organisation's risk appetite; improved decisions in responding to risk through 'avoid, reduce, share or accept risks' risk treatment strategies; value creation from new prospects or opportunities by understanding the identified risks; structured and comprehensive risk management process that includes resource allocation, capital deployment, and alignment of performance targets; higher transparent corporate governance with clear reporting, communication, and compliance requirements and protocols with clear accountability. ERM is not only about managing downside risk but also enabling an organisation to seize opportunities through its process. Nocco and Stulz (2006) suggested that the value creation effects can happen at both the "macro" and "micro" levels, which means the value can be seen at the companywide level or transactional level, respectively. It enables the management to quantify and supervise the risk-return trade-off at the enterprise level as well as at the operations level through their daily practices, which are equally important as the alignments bottom-up and top-down can be met and achieved. The right discipline and culture for managing risks in the organisation need to be established.

Many Malaysian organisations adopt and adapt the widely known global standards or frameworks issued by ISO 31000 and COSO which prescribe risk management guidelines for managing ERM. It is crucial to subscribe and implement the framework and guidelines as ERM stands as an important role in the development of the organisation strategies where sustainability risks serve as one of the critical risks for many companies to stay

competitive and relevant in the market (Shad et al., 2019). It also ensures sustainability of the organisation and improves economic efficiency and growth as well as enhance investors' confidence (Meyer and Reniers, 2013; Zio, 2007). Razak et al. (2024) also emphasised the needs to deploy a necessary framework which include integration, informed decision making, structured and comprehensive process, stakeholder management and continuous improvement to face the constant evolution of exposure to the business especially the sustainability risks in the current green movement pressure globally. Hence, Glette-Iversen et al. (2023) advocated for a framework in decision making process to ensure systematic approach and clear rigour are captured for guidance for generating information about risks and uncertainties in making informed decisions. By having this framework, Woods (2023) had the view that the organisation would be able to capture and consider the relevant information in their risk analysis and further strengthen their business decisions and its process effectiveness. Consequently, it brings values to the business process which enable the organisation to view broader context of emerging risks and uncertainties, ultimately enhancing strategic foresight and decision-making capabilities. Nevertheless, although structured risk management process or framework are readily available for manager to undertake and seize the benefits, there were also views that risk analysis in decision making is still limited by their individual experience and working exposure in order to achieve the desired objectives (Turner and Keetelaar, 2005; Islam and Tedford 2012).

2.1.3 Risks in Global Oil and Gas Industry

Oil and gas play a crucial role in the global economy and represent a substantial portion of national and regional GDP for many countries (Yang et al., 2022; Etokakpan et al., 2020; Korkmaz, 2022; Adabor and Buabeng, 2021). In major producing oil and gas countries, the contribution of oil and gas to their GDP is significant which generates substantial revenue through their export market and have been the cornerstone of their economies (Murty, 2020; Azam et al., 2021; Abboud and Betz, 2021). As this industry provides huge employment market directly and indirectly to the populations, it holds significant impacts to countries' economies through its multiplicative effects via its

potential to create industry linkages (Ostic et al.2022; Martinez, 2020; Abboud and Betz, 2021). The labour market of oil and gas consist of multiple disciplines of skilled and unskilled labour who work in oil and gas exploration, development, production, refineries, transportation, marketing, and petrochemical plants (Inayat and Jahanzeb; 2021). This employment led to per capita availability of purchasing power which spur the nation's domestic demands and foreign direct investment which creates an avenue for the economy to grow both directly and indirectly (Nathaniel et al., 2021; Usman and Balsalobre-Lorente, 2022). Most industrialized and developing countries rely on natural gas, oil supplies, and to some extent coal or power plant technology to meet their energy demand. (Majid, 2020). Potrč et al. (2021) also claimed that reliance on oil and gas as main source of input to many business sectors such as transport and manufacturing still persist due to supplies from renewable energy are still not stable and insufficient, makes oil and gas industry remains as critical industry globally. Blondeel et al., (2021) shared their findings agreed that renewable energy transformation will take time to mature and subject to various risks too such irregular supply due to its nature e.g. solar as sun does not shine all the times and the of need storage capacity when sun or wind does not blow

Nonetheless, oil and gas industry is not free from risks and threats which have had a significant impact the global energy supplies, environments and hence leading to global economy and commodity price shocks (Litvinenko, 2020; Demirer et al., 2020). Amongst common major risks to the oil and gas industry are political risk, environment and geological risk, financial risk, safety and cyber security risk (EcoMENA, 2024). Some risks can be easily identified and mitigated, while others may be difficult to foresee. The rigour of assessing risks remains critical at every stage of the business process to ensure the companies are in check and prepared for any worst-case scenario (Naude and Chiweshe, 2017). The complexity of oil and gas operations and the nature of volatile oil and gas products make it important to pay more attention and greater action (Ayden et al., 2022). The more complex the company's structure and presence, the more risks involved. Kalina et al. (2022) agreed that for a company going into cross-border businesses or international investment, merger or integration subject to more intense competition both domestically and internationally. Chong (2024) shared that risks from geopolitical

conflicts are currently on-going in the global landscape such as trade tensions between US and China, the Russia-Ukraine War, tensions between China and Taiwan, and the Israeli Palestinian war or conflict which led to high investment risk.

Furthermore, these risks which are inherited in this industry will consequently transfers the impact of risk exposure to others such as assets, producers, refiners, marketers, and consumers (Ezeh et al., 2024). Potential connectivity and cascading failures from one risk to another can result to significant complex interaction. Therefore the research carried out by Ezeh et al. (2024) served as a catalyst for further investigation into the complexities and uncertainties in oil and gas industry, ultimately contributing to the development of more robust risk management strategies. In addition, Al-Janabi (2020) shared that oil and gas operations from upstream to midstream and downstream of oil and gas value chain processing including corrosion inhibition process, are exposed to various potential hazards to people and environment. This includes some of the air and water pollution associated with most forms of energy extraction, but with additional environmental risks including habitat degradation, release of carcinogens, and some potential linkages to climate change (Liu et al., 2022).

In addition to environmental risk, the industry is also subject to compliance risk as there are numerous laws, standards and regulations to adhere to especially in developed countries. Esayas and Mahler, 2015 urged regardless in whatever industry the firm is operating in, adherence to laws and regulations is paramount, otherwise it may restrict their operations and lead to higher costs of penalty, administration and rectification. The management of compliance risks. Having to mitigate compliance risk helps companies to uphold ethical values through better customer service, consistent monitoring and checking on safety requirements, subscribing to mandatory liability management and regular employees' engagement (Tams and Gentile 2020). Deepwater Horizon rig massive blowout is a classic example on the financial losses of more than USD60 billion and huge non-financial loss to BP and populations at The Gulf of Mexico (The Conversation, 2020). It shows the massive financial impacts of compliance, safety and regulatory risks to the organisation. In addition, Andrews et al. (2021) commented that other than financial

losses, other lasting impacts such as reputation, branding, stakeholder trust, marine environment harmed for decades and public perception will haunt the organisation for a long-while.

Oil and gas firms are subject to high financial risks such as price risk, credit risk and liquidity risk which impact their bottom lines (Demirer et al., 2020). Striving to create greater value to themselves and their stakeholders are key. As commoditised companies where their crude and products prices are subject to volatility of demands and supplies which impact their prices, these exposures have direct impact to the financial performance and returns. Beside the operating cost aspect, Steadman et al. (2023) shared that the rising oil prices raise the cost of exploration and production due to the oil consumption itself in the process. However, these conditions provide an opportunity to capitalize on the resources in the exhausted world with increasing oil prices. These financial risks can be dealt risk by understanding portfolio of risks where managers or risk managers can manage them at portfolio level through hedging activities using financial derivatives, as an example of risk mitigation (Gerken et al., 2019; Bătcă-Dumitru et al., 2023). This require a concept of risk tolerance offers ways to actively manage risk. Zajac and Goranova (2024) suggested that the risk manager should ensure engage and include all related parties regardless their levels in the organisation and demonstrate risks and the benefits of proper risk management practice and advise options to manage these risks including financial risks. Additionally, Gerken et al. (2019) urged the risk manager to ensure that internal management, governance, mandate, risk appetite from the board and internal controls are in place reduce and respond to risks as a result of the market uncertainties. Shmatkova and Karminska-Bielobrova (2023) claimed that there are various methodologies are being used by market players from the use of performance, operations, and technologies to ensure they are competitive over their its peers. In addition, the dynamism in the market pose even high risks to company's strategic planning, development, and activity decisions. Building on this perspective, Duan et al. (2021) reinforced the notion on static data used in analysis in insufficient and not entirely reflecting the magnitude of risks and hence suggested the organisation to adopt a more dynamic approach to risk analysis for more timely result. Therefore, it is crucial for the

organisation to understand their risk profiles and used them as key indicators to track their competitiveness in operations as to allow them to regularly evaluate their exposure and implement the necessary risk mitigation action (Aven, 2017). As mentioned by Ayden et al. (2022), the oil and gas industry operations and business structure complex. Due to the complexity of the sector, Jones (2018) added that it is essential for the firms to analyse these risks at all levels i.e. from operations to enterprise-specific level and even at country levels if their engagements and business activities involve multi nationals. In light of the risks and complexities inherent in the sector, Duan et al. (2021) advocated for a diligent evaluation process, considering the real potential and implications of investment decisions. In summary, the literature review on the risks associated with the oil and gas industry reveals a landscape of challenges that mirror those faced in other regions, particularly in developing countries. The foundational work of Kraidi, Shah, Matipa, and Borthwick (Kraidi et al., 1970) emphasised the critical risk factors inherent in oil and gas pipeline projects, particularly in unstable environments like Iraq. Their analysis identifies significant threats, including terrorism, sabotage, and theft, alongside regulatory risks stemming from corruption and lawlessness. Hence, the authors suggested to implement a holistic risk management framework that could be instrumental in mitigating these risks, a concept that resonates with many countries including Malaysia where common threats may be present. This denotes the criticality of comprehensive risk management framework, strategies and processes being effectively implemented and practised to ensure shareholder value is created and preserved.

2.1.4 Risks in ASEAN Oil and Gas Industry

The oil and gas sector within ASEAN is essential for regional energy supply, socio-economic stability, and economic growth (Khan et al., 2024). At present, due to the expanding economies in ASEAN countries, they are identified as net importers of crude oil, with 92% sourced externally, while half of them are net exporters of natural gas, with 81% exported beyond the region (ASEAN Centre for Energy, 2024). Similar to the global oil and gas industry, the ASEAN region faces various risks including supply risk, safety hazards impacting the environment and population, non-compliance with international

and national regulations, complexities in cross-border transactions, geopolitical instability, and financial volatility. Critical challenges identified by BERNAMA (2025) include preparedness for potential shortages of oil and gas supplies within the region due to declining production, limited refinery capacity, and rising demand from sectors and consumers in these countries.

This literature review on the ASEAN oil and gas industry highlights significant strengths in institutional risk management, regulatory compliance, and innovative approaches to risks. Despite these advancements, the industry continues to face persistent risks across financial, operational, geopolitical, and environmental dimensions due to regional volatility and uncertainty (BERNAMA, 2025; Alexandra, 2025). Kimura et al. (2017) have recommended the adoption of appropriate frameworks by all ASEAN nations to ensure proactive and effective management of their respective oil and gas sectors, especially in terms of governance, national resilience, and emergency response measures. Japan has been cited as an example of a country with an effective framework for earthquake emergency response. Additionally, there is a need to enhance security measures to mitigate cybersecurity threats, which are increasingly prevalent in modern business environments. Efforts such as the digitalization of processes and big data analytics throughout the business value chain are essential for strengthening these measures (Alexandra, 2025).

Saeed (2025) highlighted that recent developments have intensified issues related to border security and geopolitical risks, particularly due to the unrest in the Middle East region. It is crucial to enhance regional cooperation regarding security and maritime governance. Collaboration with neighbouring countries in various domains, especially regional security, was one of the resolutions achieved at the 46th ASEAN Summit. All participating countries agreed to unite and support each other in line with the theme *“Inclusivity and Sustainability”*, emphasising regional unity, maritime cooperation, and responses to global challenges (Malaysiakini, 2025). Furthermore, ongoing discussions focus on implementing frameworks to govern transnational crime at and along borders. The ASEAN Border Management Cooperation Roadmap has been adopted to improve

policy and practical collaboration in addressing transnational crime at and along borders (United Nations Office on Drugs and Crime, 2021).

Understanding the major risks impacting the oil and gas industry in this region is essential for the decision-making processes of businesses and corporations operating in these countries. Alexandra (2025) emphasised the importance of integrating risk management into business decision-making processes to ensure that informed decisions are made. Conducting comprehensive risk assessments, understanding potential risks, implementing effective action plans to mitigate those risks, and monitoring any red flags will help businesses be better prepared for any possible changes in business strategies needed to achieve their goals.

2.1.5 Risks in Malaysian Oil and Gas Industry

Malaysian economy and GDP growth are supported by major industries to create strong fiscal and monetary policies for the government, employment to citizens, spur local and international demands on Malaysian products and services including export market. Oil and gas industry being one of the significant revenue contributors and economy catalyst plays the importance role to the country (Ministry of Finance Malaysia, 2023; Saad, 2016). Price Water (2015) stated that this industry has evolved over the years, with Malaysia becoming a key hub for major oil and gas companies, hosting over 400 oil and gas fields and holding the second-largest reserves in the ASEAN region. Additionally, Malaysia is recognized as the world's third-largest exporter of LNG. However, the industry is not free from numerous threats and risks alike to oil and gas industry globally. Similarly, oil and gas industry in Malaysia is also subject to operational, financial, environment, safety and cyber security risks, amongst others (Ghani and Rosdi, 2019; Jahidi et al., 2024). Operational and safety risks are risks that are critical and paramount for an oil and gas company to manage prudently to avoid consequential wider impacts such as financial, reputational and environment risks (Chong, 2024; Inayat-Hussain et al., 2018; Ma et al., 2020). In line with this perspective, The Edge Malaysia (2020) reported that The Refinery and Petrochemical Integrated Development (RAPID) project in Pengerang, Johor which

is a joint venture between PETRONAS and Saudi Aramco faced several risks and have significant impacts to their operation. The company experienced a few fire incidents and a fire event in April 2020 has caused fatalities and caused the plant to shut down immediately. The investment was also faced with project delays, economic and market volatilities on commodity prices and demand due to slowdown in economic activities globally (The Straits Time, 2021). All these impacts certainly will impact financial performance, environment and stakeholders of this project.

Other critical risk impacting Malaysian oil and gas industry is geopolitical risk within the country as well as outside Malaysia. The reason for outside Malaysia is critical for Malaysian companies is due to their investments abroad for example PETRONAS Integrated Report 2022 has reported that as the national oil and gas company, the organisation has more than two hundred fifty wholly owned subsidiaries, partly owned subsidiaries and associate companies worldwide. These subsidiaries are involved in various aspects of the oil and gas industry, including upstream, downstream, and petrochemical operations. This led to more risks such as higher regulatory risk as there are many international laws for their subsidiaries and holding company to abide to, as well as higher geopolitical and stakeholder risks depending on countries they invested in. For local companies operate in Malaysia, they are also subject to political risk but the scope and coverage are within the known boundaries, which are familiar and easier to handle than companies operate in internationally. In addition, Malaysia as a country faces numerous risks which are considered by Rating Agency such as S&P Global Rating (S&P) and Fitch Ratings (Fitch) which perform sovereign credit ratings on countries globally. Various aspects are being assessed and reviewed regularly to reflect the sovereign credit rating for Malaysia. Companies which are tagged to Malaysia sovereign credit rating will be impacted when some of risks indicators assessed and analysed by rating agency become escalating and higher. This limits the attractiveness or ability of the company to obtain cheaper funding from investors or financial institutions if the sovereign credit rating is low. Figure 8 below depicts the trend of Malaysia sovereign credit rating from 2004 to 2020 which reported a decreasing trend from 2016 to 2020 due to various challenging outlooks such as political conflicts, lower revenue resulted from sharp decline in oil price

in 2016 and abolishment of Goods Service Tax in 2018. However, according to Ministry of Finance Malaysia (2024), Malaysia sovereign credit rating has been improved and recently reaffirmed by S&P and Fitch at A- and BBB+ respectively with “Stable” outlook. Both rating agencies indicates international stakeholders’ continued confidence in the country’s robust and resilient growth despite a few challenges coming from external environment and increased geopolitical conflicts.

	S&P		Moody's		Fitch	
05/02/2004					BBB+ positive	Up
29/09/2004			Baa1 positive	Up		
08/11/2004					A- stable	Up
16/12/2004			A3 stable	Up		
31/07/2007	A- positive	Up				
22/01/2008					A- positive	Up
15/05/2008	A- stable	Down				
09/11/2008					A- stable	Down
30/07/2013					A- negative	Down
20/11/2013			A3 positive	Up		
30/06/2015					A- stable	Up
11/01/2016			A3 stable	Down		
10/04/2020					A- negative	Down
27/06/2020	A- negative	Down				
04/12/2020					BBB+ stable	Down

Figure 8: Malaysia Credit Rating Trend

Source: S&P, Moody's, Fitch, Kenanga Investment (2021)

Another critical risks in doing oil and gas business in Malaysia is price volatility in the commodity price that is traded internationally of which local Retail Stations dealers are subjected to. Fuels and diesels in Malaysia have been subsidised by the Malaysian Government for a long time although the subsidy reforms aimed to phase out gradually (PwC, 2015). Moreover, Saudi et al. (2019) urged Malaysian government to provide targeted subsidies and incentives to manufacturing sector to cushion rising energy costs as a result of LNG price hike while they are transitioning to alternative energy sources. Any price hike for fuels, diesels as well as LNG will cause the government to absorb the additional costs and hence impacting the national budget and resource allocation (PwC, 2015; Chong, 2024). Any deficit will lead to additional borrowings for the government. Chong (2024) highlighted that although the government debts are incurred domestically, which mitigate the risk of bankruptcy, the high-interest payments lead to substantial financial problem on the government's budget and may pose consequential impact to its budget allocation to other crucial services and investments. Additionally, oil and gas companies as well as retail station dealers will have to bear the stock holding loss when the price movement is not in their favour. Although there are times where the price may move towards their benefits where they will record the stock holding gains in their financials. Gerken et al. (2019) highlighted that price and market risks can be through various ways such as using financial derivatives to hedge their price or managing their inventory optimally to reduce the impact of price volatility. Though Malaysia is not within the Pacific Ring of Fire, there were times where the country was affected by heavy rain and floods due to monsoon seasons, which pose risks to the country in general including the oil and gas industry in many ways such as lower demand due to plant shutdown, damages to asset and inventory and delay in delivery due to road conditions or heavy rain weather (Yusoff et al., 2018; Maqtan et al., 2022). Further extending from this claim, Maqtan et al. (2022) also shared that the country is also exposed to the risk of flash flood especially in central region, even the situation is not deadliest weather-related hazard but it causes significant financial, property, human and economy losses to governments and societies Therefore, natural disaster risk still persists in this country although the level can be low to medium range.

The risks cannot be avoided entirely as some of them are inherent risks such as risk of flood which cannot be avoided but can be expected, mitigated and acted upon when the situation arises (Ghani and Rosdi, 2019). Jahidi et al. (2024) urged oil and gas companies in Malaysia to espouse a comprehensive and proactive approach to risk management to mitigate these key risks to ensure their performance and long-term value are being created and protected. On top of that, Saad (2016) recommended for oil and gas companies to enrich their capabilities which include the technology investment, stakeholder management, and upgrading proficiencies of their employees to navigate the complexities of the industry. The insights gained from these reviews highlight the importance of adapting risk management framework and policy, complying with standards and regulatory, nurturing safety culture and enhancing the required capabilities in dealing with this specific industry. This will help to address the unique challenges faced by the Malaysian oil and gas industry.

2.3 Embedding Risk Management into Business Processes

Settembre-Blundo et al. (2021) suggested that a resilient organisation embeds risk management into its business process for better understanding of the uncertainties and informed decisions. Pietser (2014) also shared that in high-risk business such as petrochemical industry, an extensive risk assessment is part of key business processes of which they need to follow stringent procedures according to statutory requirements and best practises to mitigate potential hazardous exposure to their assets and employees. Bhatti et al. (2023) highlighted the need for a more holistic approach in decision-making process due to the rapid changes in the business environment. Having risks identified, understood, and measured are only meaningful and impactful when they are used in the analysis of business discussions for business managers to make informed decisions (Yazdi et al., 2020; Yazo-Cabuya et al., 2024). Therefore, the organisation can be updated with current data hence improve their competitiveness, strategies and operations (Aziz et al., 2018; Aydin et al., 2022). However, Klein (2003) claimed that better decisions by experts can be done by trusting their intuitions instead of relying on too much detailed information. Nonetheless, making informed decisions is essential for business managers

to drive towards creating values and achieving the companies' business objectives, and therefore, embedding risk assessment into critical business process is crucial.

2.3.1 Risk Assessment in Decision Making

Deploying risk assessment in decision making is critical especially for highly hazardous companies (Yazdi et al., 2020). This is particularly important when there is economic or financial investments involved (Kahneman, 2003). As decision-making process requires information, expertise and agreement, there should be a structured process to insert the evaluation of alternatives (Schoenfeld (2011). The assessments on alternatives involve the topics of uncertainties and how to prevent accidents, losses and hazards to the organisation which are used in the decision-making process (Virlic, 2013; Lee, 2016). A decision is always made based on the set objectives. It is very crucial to understand the strategic intent or aim of preparing a proposal for decision-makers to decide. Hamel and Prahalad (1989) also agreed that each firm or organisation must have its 'strategic intent' so that decision making can be made objectively. To support this perspective, a proper risk assessment and risk management process need to be part of key business activities in the organisation (ISO, 2018; COSO; 2017).

As decision making can be tricky, Skjong and Wentworth (2001) claimed that it is important to seek expert judgement in the risk assessment process. However, the researchers suggested that the judgments should be utilised with care within their respective areas of expertise and distribution of risk, and their utility needs to be paid attention too. The rationale for having the right parties, particularly experts, in decision-making is to provide the right inputs and insights (Yazdi et al., 2020). Having multiple inputs and advice work not just in business decision-making process but also in ethical decision-making framework (Banks et al., 2022). Hence, collaboration and engagement between business managers and respective experts involved such as from risk management, finance, logistic and sales, are crucial in making sure the end-to-end process of risk management or risk assessment is understood, practised, and accepted (Yazo-Cabuya et al., 2024). This is to ensure the parties involved are clear of the issues and their

responsibilities for seamless and agile risk assessments for decision making.

In addition to seek and collaborate with right parties and experts, it is essential for the process description of performing each step of risk assessment to ensure the relevant parties involved are aware of the requirements (Yazdi et al., 2020). This will allow for the implementation of robust governance structures, organisations can enhance their resilience and create long-term value (Bhatti et al., 2023). Marr (2008) also suggested a way to do this by creating key performance questions (KPQ) that guide managers to ask questions about the project that are in line with the project's value drivers. Each KPQ has a clear purpose and aims to provide useful information that helps reduce confusions and promotes learning. In fact, Mikes et al., (2016) shared that it is important to have strong linkages between risk management processes and other forms of control in the organisation, like internal audits, for better connectivity and synergy. As the market environment changes rapidly, risk management processes and practises must also follow suit to evolve to catch up with the changes and requirements. It revolves around facilitating businesses to make informed decisions in an agile manner through an integrated risk framework leveraging technological advancements and effective data management for better control and monitoring processes. Iraci and Howell (2017) advocated strongly for risk managers to be able to work on big data to understand risk better, where strong risk management capability and statistical modelling to integrate and perform risk analysis in their daily risk control and monitoring activities are essential. In fact, with the technological advancement and artificial intelligence environments, which provide added capability advantages to managers analyse and present data to support business decision-making process for informed decisions (Lawson and White, 2018). Furthermore, it is essential for top management to set tone from the top and willingly allow the integration of risk management into the business process at all levels for a pervasive risk management culture in the firm. Daud (2020) suggested the integration of risk management must be at every level for all strategic key decision-making processes, as illustrated in Figure 9 below.

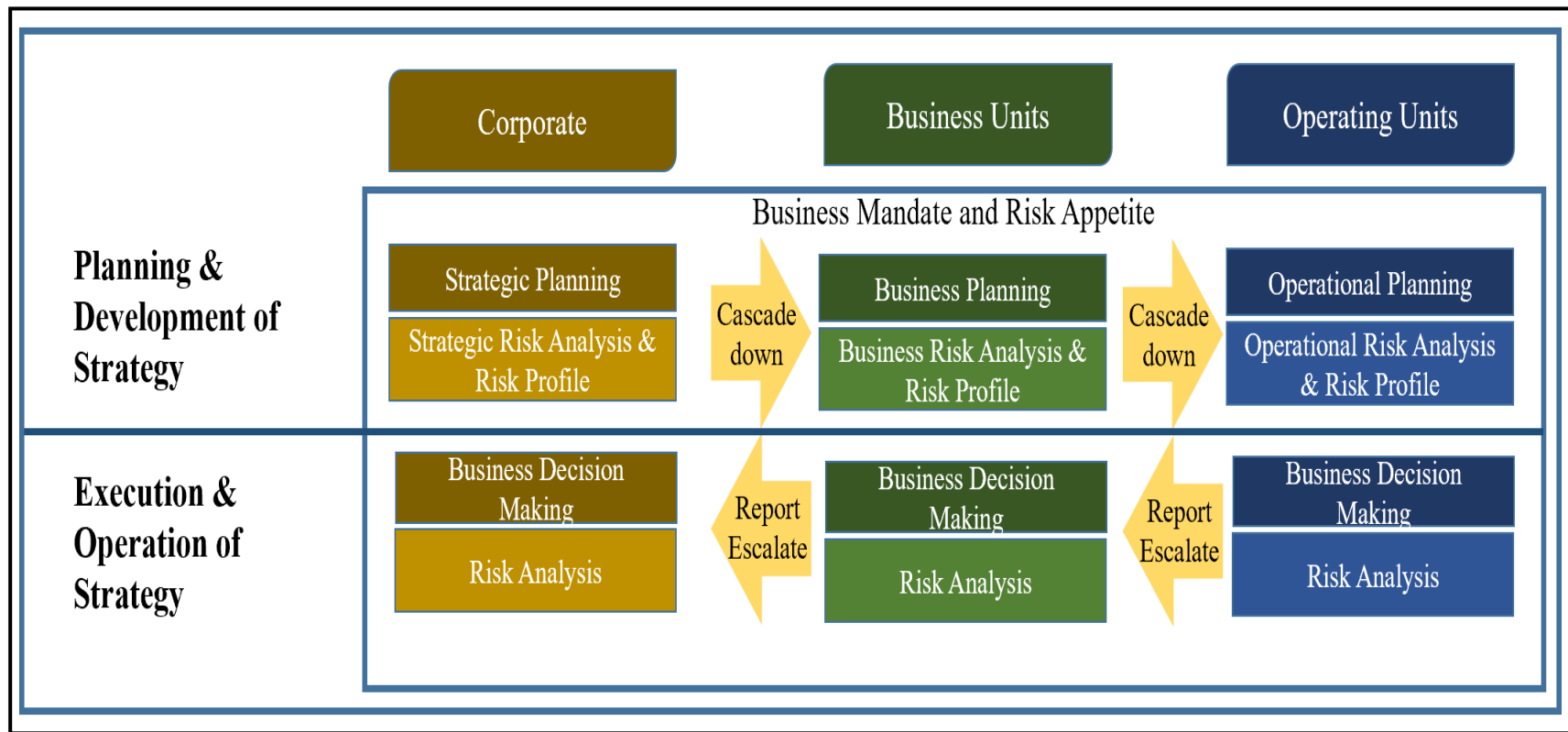


Figure 9: Integration of Risk Assessment into Business Processes for Maximising Value

Source: Daud (2020)

Boghean (2020) also supported to the approach of integrating risk management into decision-making process as relevant risks elements such as environmental, social, governance as well as their complex interactions between them are considered prior to making decisions. The integrated approach must be adopted as an integral part of the organisational structure which includes vision, mission and goals and objectives setting to ensure seamless business activities (Yazdi et al., 2020). The rigor of risk assessment depends on the nature and level of risks (Aven, 2017). Another key step in decision-making process is to perform post-mortem review to ascertain the decisions made are effective considering various limitations (Yoe, 2016). Quick action may minimise the impact of the risk to the business objectives. Nevertheless, although there is a structured decision-making process, Taleb (2007) claimed that humans tend to focus more on events that are already known and not open enough to estimate opportunities and vulnerabilities. Aligning to this perspective, Aven (2017) agreed that the focus should include unknowns and unexpected risks, especially for important operations. Therefore, Yoe (2016) suggested that risk managers to conduct necessary review research and embed risk assessment into decision-making process through an adaptive risk management approach. Virlics (2013) also suggested business agility is vital particularly in making dynamic investments decisions as timely information may not be readily available but the promptness of decision-making process has a significant impact on its competitiveness. Embedding risk management into business processes may sound easy on paper, but it can be challenging during the actual implementation, especially in a larger organisation. Nonetheless, the integration will provide a better corporate governance structure in the firm's value management system. It sets the company's overall business goals, risk philosophy, risk mandate, and risk boundaries, or the amount of risk that management is willing to take.

2.3.2 Implication of Risk-Based Decision-Making Process to Business

The benefits of applying and practising risk-based decision-making framework is acknowledged widely. Bhatti et al. (2023) shared that they found that there were several key aspects of value creation from this framework application, amongst others were (i)

informed investment choices which align with their risk appetite and investment objectives; (ii) diversification of investment portfolios where the business managers are to spread risk across various assets in making business decisions; (iii) long-term sustainability where the process encourage prioritisation of risks to sustain their growth and profitability, and hence increase the shareholder value; (iv) competitive advantage which allow the business to understand and navigate risks to their advantages. Virlics (2013) agreed that investment decisions are made to achieve the organisation's goals and growth target, and hence assessment of associated risks is critical and integral for making a trade-off risk rewards decisions. Riding on the same perspective, managers need to understand the risks and mitigate them by choosing the optimal possible plans to achieve the desired results at the lowest possible cost to the organisation (Todos and Zarisneac, 2015). Additionally, understanding the possibility of future events and forecasting them based on a pro-active and more agile approach will deter escalation of costs to the organisation (Kast & Lapied 2006). This helps to minimise potential value leakages by preparing the organisation with robust action plans accordingly.

Khalid et al. (2024) asserted risk-based decision-making process enables firms to achieve their long-term goals in challenging and complex business environment. ISO 31000 and COSO describe the impact of the risk on business objectives can be both positive and negative. However, risk management impact to business activities is seen as value protection or cost reduction although the benefits arise from lower costs enable more investments elsewhere (Andersen and Roggi, 2012; Merton, 2005). This supports the argument brought by Nocco and Stultz (2006) that impact of effective risk management in business process helps the organisation to gain funding access from capital markets to implement and broaden their strategic business plans. Similarly, Testorelli et al. (2024) viewed favourable outcomes from the practice of embedding risk assessment in decision-making process led to value protection as well as value creation. This perspective is well founded through the principles of goals achievement by discovering new opportunities, minimising potential losses such as bankruptcy risk in uncertain and dynamic business environment (Radner and Shepp, 1996). In fact, Hopkin (2018) agreed the impact of embedding risk management includes strategy implementation, efficient operations, and

effective projects management. Besides, the implementation of risk-based decision-making process itself creates value for the organisation as it garners stakeholder confidence i.e. investors, customers, and regulators, potentially better financial terms to the organisation (Aydin et al., 2022). As a result, this boosts the company's valuation from the perspectives of investors, suppliers, and customers. The impact measurement of value varies according to the context of the organisation's objectives and values to be achieved as there are financial and non-financial measures that are contextual to the organisation's operations and objectives (International Integrated Reporting Council, 2013). The traditional accounting measurement methods such as economic value and accounting ratios can be used to figure out how much risk there is. However, these measurement methods might not give a true picture of all risks as there are subjective elements, such as environmental risk and societal value risk (Kücükgül et al., 2022). In summary, although the effectiveness of decisions depend on various factors such as the availability of reliable, timely and accurate information, Settembre-Blundo et al., (2021) were of the view that alongside risks, inevitable dangers and opportunities, the implementation of risk assessment as a useful tool in decision making enables the reduction of negative effects and create values to the organisation.

2.3.3 Governance Requirements

Aligning to COSO and ISO 31000 risk management principles, framework, and process, risk governance is a critical element and should stand as a main pillar in corporate governance in managing risk in the organisation. It provides a clear mandate, boundary, or tolerance level that the organisation can work on in achieving its objectives. Furthermore, effective implementation of risk governance through the establishment of an oversight structure and relevant policies and frameworks enables the organisation to have clarity in its business decision-making objectives. Alshebli and Alhajri (2023) highlighted the importance of the board of directors knowing their responsibilities as part of being the oversight committee, which approves the risk policy, endorses the risk appetite, and is responsible for overseeing the risk management activities in the organisation. The establishment of policies and frameworks has become essential

governing documents and guidance in managing risk while performing business transactions (Shakatreh et al., 2023). This allows a clear understanding of the requirements and prescriptions approved by the board and top management. At the same time, it spells out the risk appetite, mandate, and strategic intent or aim for the organisation to conduct its business activities. Nevertheless, the formalisation and implementation of such integration need to happen at the tactical and operational levels as well to ensure alignment and seamless integration vertically and horizontally across the organisational structure. Documentation or codification of the processes and requirements is key, as they serve as reference documents, tools, standard or policy for relevant employee to adhere to as part of its governance process (Settembre-Blundo et al., 2021). Often, regulatory or statutory bodies look for the insertion of risk ownership or accountability in the job description of business heads (Power, 2009). Hence, this promoted the board to enforce the formalisation of the requirement to integrate risk management into the business management system activities, especially in the decision-making process. Organisations that adopt or adapt these standards and frameworks will have an added advantage in their efforts to integrate risk requirements into their decision-making process as the requirements have been approved and accepted by their management and boards.

2.4 Underpinning Theories

There are many different theories that have been created with respect to how, what, and why organisations can or should be organized or managed. In the complex and messy reality of organisational behaviour and management especially in oil and gas industry, most of these theories in some ways make sense. According to Syafriadi et al. (2023), adoption of Agency Theory has significant impact for an organisation in understanding the firm's organisational behaviour and corporate management which includes the key elements and factors attributing to effective informed business decision making. Other theories such as Stakeholder Theory stipulated the importance of other stakeholders in the firm's institutional structure to maximise company's performance or value as well as the integration of various stakeholders in strategic management in the firm (Shah et al., 2022). Hence, it is crucial for the firm's decision-making process aligns with value management

system towards maximising the shareholder value through the identified value drivers (Rappaport,1986). Therefore, this study would explore four underpinning theories to gain a deeper understanding of their practical application in business decision-making activities. The theories are Agency Theory, Stakeholder Theory, Alfred Rappaport Shareholder's Value Management System and Decision-Making Models. Additionally, COSO and ISO 3100 which are well-known and well received enterprise risk management framework and standard by companies globally and locally shall also be reviewed and discussed in the following section.

2.4.1 Agency Theory

Agency relationship problem has been rooted long time ago. Adam Smith in his work in 1776 on "The Wealth of Nations" has spelled out the problem that may arise when an organisation is not managed by its actual owner. He also raised about the managerial behaviour which may lead to suboptimal outcomes to the owner. Subsequently, there are many other scholars had explored this matter and formed the theory of agency, generally and specifically in various areas. Agency theory is a framework that explores the relationship between principals and agents where those delegates the duties are the former whilst those receiving the mandate to execute the tasks on the principals' behalf are the latter. The principal-agent relationship is a core concept and fundamental of this theory which emphasise on the understanding issues of governance, control, and performance in various organisational settings (Panda and Leepsa, 2017; Aluchna, 2023). This theory had been formally introduced by Stephen Ross and Barry Mitnick in the 1970s, independently and about at the same time. According to Mitnick (2019), Ross is the founder of the economic theory of agency where the initial focus of this origin theory was on contracting compensation or incentive issue between principals and agents. Whereas Mitnick was responsible in establishing the institutional theory of agency where the emphasis in on agency institution and its structure surrounding it. He was of the view that behaviours and motivations of the agents can be guided by the clear rules, governance or norms established within the institutions and society. This approach initiated the logics of developing the core theory where the foundation is the building institution and connect it

with the agency. Both economic theory of agency and institutional theory of agency are complementing each where similar concepts are used although with different assumptions. However, Kiser (1999) shared that Berhold had also initiated the Agency theory in economics in 1971 prior to Ross in 1973, where the focus was on the behaviour of agent with regards to contract choice being affected by the risk preference and the variation reward schemes have impact agent's performance. Subsequent to Ross's discovery on "new institutionalism" in economics, Jensen and Meckling (1976) had their research to solve problems of control due to irregularities in information and communication of delegation of duties in the relationship which have impact to Principals' welfare, hence contractual relationship is a crucial part of the relationship. The agency theory is also used and applied in various relationship beyond economic institutions (Kiser, 1999). In fact, agency theory is considered one of the "dominant theories of economic organisation and management" (Bosse and Phillips, 2016). There are five main focuses to be discussed in this section which are principal-agent relationship, information asymmetry, governance of principal-agent relationship, other factors influencing agency relationship and agency costs.

Principal-Agent Relationship

Principal-agent relationship occurs when the principals (shareholders) delegates actual management functions to agent (management) or a management team made up of many members to manage the firm on their behalf (Rose-Ackerman 1978; Klitgaard 1988). This occurrence could result in the agent not consistently making decisions that are in the best interest of the principal. (Boivie et al.2021). In managing this issue, principal's crucial task is to establish a structure for controlling their managers' behaviour and motivation so that they can act in the best interest of principal (Nwajei et al., 2022). The concept of an agency relationship is very useful in explaining the relationships present in the modern corporation. Figure 10 below summarises the concept of Agency Theory.

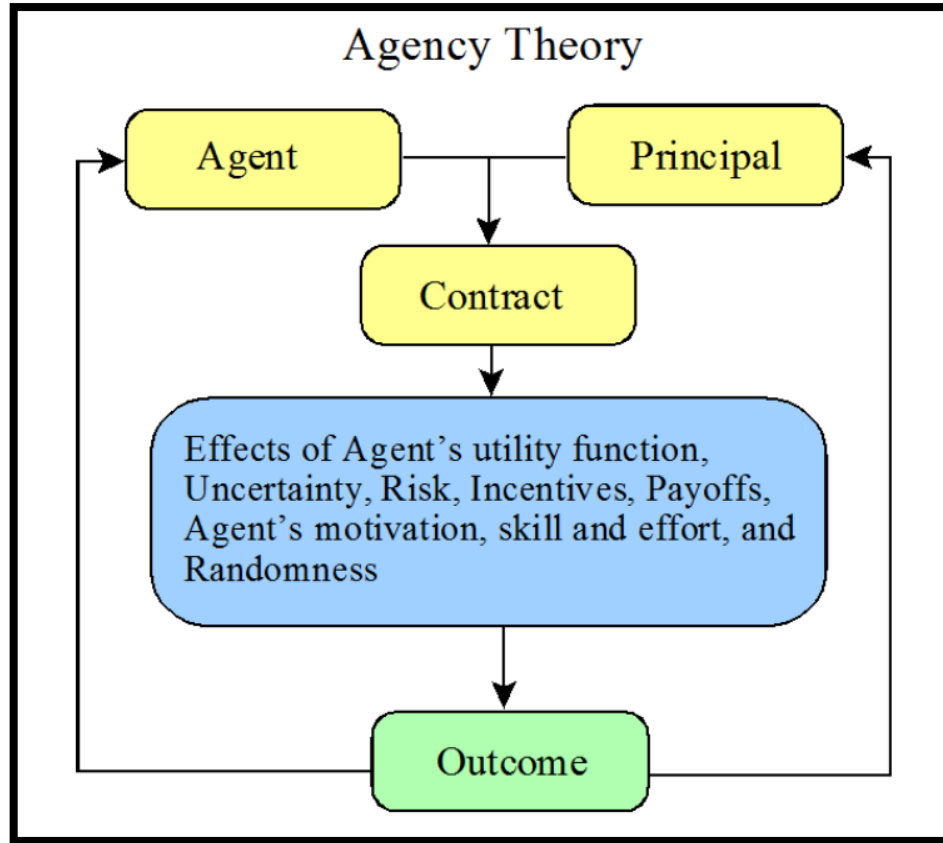


Figure 10: Agency Theory

Source: Tiessen and Waterhouse (1983)

In the context of business, this theory is significantly relevant as there is a separation of ownership and control i.e. between the company's shareholders, as the principals and company's employees, as the agents. Jensen and Meckling (1976) highlighted that this theory is a useful framework to govern and motivate employees towards achieving the company's business objectives. Fayezi et al. (2012) emphasised that the agency theory serves as a practical tool for managers to diagnose and manage their agency relationships in understanding and addressing transaction cost dilemmas, thereby improving collaboration and operational efficiency. In addition of clarity of agency relationship, Panda and Leepsa (2017) shared that one of the elements in the agency theory framework in modern business corporation, delegation of authority to agents (manager) by principals (shareholder) in managing the business is critical to ensure the business can be run effectively and timely.

Governance of Principal-Agent Relationship

Agency conflicts in agency relationships are expected to occur in view of separation of ownership and controls. Misalignment of interests between shareholders and managers can occur when there is problem in managing the company's well-being especially when it involves financial related matters. Agency theory has great implication in understanding the organisational behaviour particularly on decision-making, risk management, and overall dynamics in organisations (Syafriadi et al., 2023). In order to manage the organisational behaviour, Schleifer and Vishny (1986) suggested to establish a corporate governance to govern the activities in the institution which assure the returns of the investments made by the shareholders from the finances or capital they provided. Blair (1995) defined corporate governance as the whole institutional structure that cover full range of legal, cultural, delegation of authority and control surrounding the firm's incorporation. However, the corporate governance establishment being criticised for its simplicity which only cover relationship between the organisation and shareholders (Bradley et al., 1999). Especially in emerging countries where the establishment of corporate governance frameworks are being questioned as there are institutional differences in adopting these corporate governance policies. (Yusof, 2016). Higher complication arises for firms which incorporate their subsidiaries or companies internationally. Yadav (2021) studied the state of Agency Theory phenomena in multinational firms and identified that there are gaps in understanding the governance issues especially due to the variation of country matters, geopolitical, cultures, norms, values and policies. Therefore, it is crucial for the organisation to establish controls to ensure alignment of interests between all parties at each corporate governance level to overcome potential differences in objectives and hence foster harmony between them and transparency in monitoring and reporting (Zogning, 2017). Any operational transactions or decision must be made within the risk appetite approved or mandated by shareholders. This needs to be aligned, understood and internalised accordingly. In fact, Parker et al. (2018) advocated the act of delegating authority from shareholders to managers to act on its behalf to smoothen the operational business transactions.

Although the agency relationship has laid out the expectation and rules, there are instances where employees have different objectives and priorities, and exploiting the power delegated to them which likely led to conflicts and misunderstandings (Aluchna, 2023; Panda and Leepsa, 2017). Agarwal et al. (2014) concluded that because of the divergence of interests and objectives between shareholders and managers, to which the ownership and control are separated can lead to detrimental impacts on the firms' interests, performance and value. One of the ways of to mitigate the risk of opportunistic behaviour and conflicting interests, and to promote alignment between principals and agents is by setting the right and optimal incentives to the agents (Ross, 1973; Fayezi et al., 2012; Aluchna, 2023). Barney (1988) studied the viability of employee stock ownership reduces a firm's cost of equity capital. Aligned to Jensen and Meckling's Agency Theory studies, Barney claimed that employee stock ownership helps to align the interests of employees with shareholders, hence promotes lower cost of equity from market perspective. Zogning (2017) also propagated an optimal solution to address the misalignment or conflict of interests in the agency relationship is to reward managers through performance linked compensation with adequate monitoring process. Performance linked incentives structures includes performance-based bonuses and stock options. On the hand, Zogning suggested is should also include direct intervention by shareholders when there are any misconduct or misalignment of objectives which result in financial or non-financial loss to the organisation, penalties for non-compliance, threat of dismissal and right to take over the management of the organisation.

Information Asymmetry

One of prominent key concepts of Agency Theory is the assumption that individuals are boundedly rational and information communicated or shared within the organisation is asymmetry in nature due to the act of exploitation of informational or opportunistic behaviour which at the other party's expense (Jensen & Meckling, 1976; Armstrong et al. 2016). Furthermore, Panda and Leepsa (2017) stated that in principal-agent contract relationship, beside clear incentive structure and labour market, information asymmetry is also a vital element which set as the foundation of the theory of ownership structure.

Information asymmetry highlights the imbalance of information between the parties involved which has been argued to cause several issues, amongst others are moral hazard, adverse selection in contracting due to misunderstanding of principal's interests. Nwajei et al. (2022) described this phenomenon leads to opportunistic behaviour resting with the agents if it is not governed and controlled properly. On the hand, Wagner (2019) advocated whilst agent is labelled with this opportunistic behaviour, unequal distribution of power due to power asymmetry is held by the principal. This put pressure on agent to obey their instructions where this vicious cycle leading to "opportunism games" between principal and agent. Hence, there were critiques from researches that not all problems resulted from information asymmetry are initiated by the agent, unreasonable expectations set by principal can result on misalignment of goals and available resources, creating issues to the agents in managing the firms (Wagner, 2019; Nwajei et al., 2022).

Other Influencing Factors in Agency Relationship

One of the main contributions of Agency Theory is its risk implications due to uncertainties of organisation's future which can bring positive outcome or otherwise where not all are within the organisation's control (Eisenhardt, 1989). There are external environment that is not within the organisation's control such as natural disaster, new government regulations and new innovative technology. Agency theory assumes that all agents act rationally and are primarily motivated by self-interest. This simplification overlooks the complexity of human behaviour, including philanthropy, ethics, and social influences. The theory has been criticised for its focus on economic rationality, ignoring other motivational factors or moral hazard that may put the agency relationship at risk (Eisenhardt, 1989; Kotlar and Sieger, 2019). Furthermore, its narrowing focus on principal-agent relationships and ignore other factors such as organisational culture, social norms, and external environmental influences may affect the delivery of agency's performance (Kiser, 1999; Zogning, 2017). Chen et al. (2016) stated that there are other elements or factors such as the directors' human and social capital as well as their occupational experiences which goes beyond principal and agent relationship and its structure when it comes to the application of Agency Theory on firm's internalisation

decisions. With these challenges and limitations, Panda and Leepsa (2017) added that the theory's application in the current complex organisational can be suboptimal. Hence, Kiser (1999) propagated to emphasise on the integration of agency theory with other theoretical frameworks for more comprehensive understanding of organisational behaviour. Trust and effective communication will reduce many of the conflicts inherently baked into any principal-agent relationship. In the simplest terms, the principal-agent problem occurs when the agent's objectives are at odds with those of the principal.

Agency Costs

Al-Faryana (2024) conducted a study on the theory of agency, governance and corruption, and with the concept of the separation between ownership and control. It was noted that when there are changes in ownership patterns, the more concentrated ownership, the more agency crises leading to higher agency costs occurred. He suggested for integrating agency theory with adequate corporate governance to mitigate agency costs and corruption. Figure 11 depicts the elements of agency costs which consists of direct costs; such as implementation of robust risk management framework and monitoring cost and indirect costs which will incur

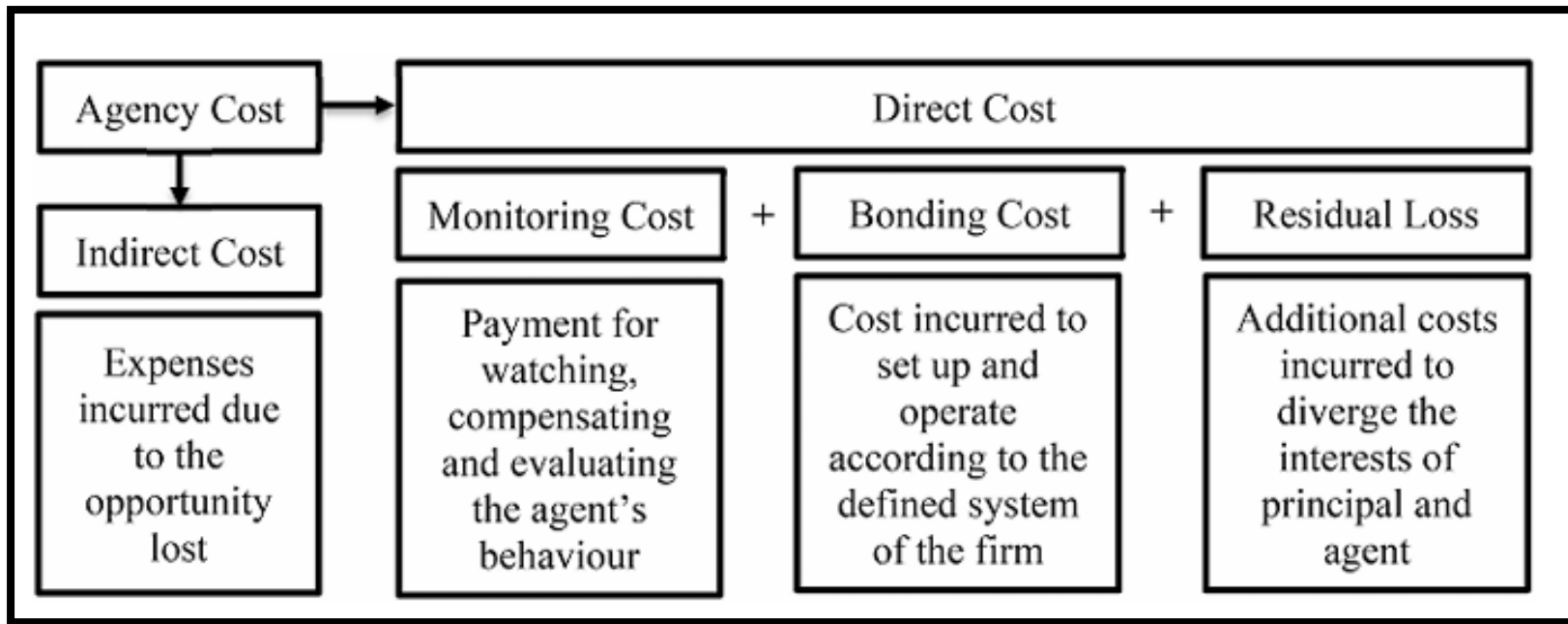


Figure 11: Elements of Agency Cost (adapted from Jensen and Meckling, 1976)

Source: Al-Faryana (2024)

As a result of focusing too narrow to opportunistic financial behaviours of managers and the contracts between the principals and agents, Davis et al. (1997) argued such matter led to creative initiatives, self-entrepreneurship and innovation in companies' institution to incur additional cost and effort in their monitoring and reporting process, which sometimes ignored by agency.

Summary

In Agency Theory is a useful framework to be used and applied in a corporate organisation in general. The theory propagate the implementation of governance in the institution, clarity of information between shareholders and managers, communication of the agency agreement or contract and rewards or incentives to agent. However, it is argued that the value of agency relationship between principals and agents is not optimised due to different interests and information is asymmetric which lead to higher costs to manage the relationship (Payne and Petrenko, 2019; Taiwo et al., 2022). Nevertheless, amongst key elements founded in Agency Theory are the establishment of proper governance in the agency relationship which cover the clarity of corporate governance structure, alignment of information to avoid information asymmetry, incentives and rewards to motivate and influence the behaviour to act in alignment with the shareholders. Empirical studies has revealed that Agency Theory often simplifies the complexity of risk management, in the context of oil and gas industry, where there are multiple layers of risks involved such as operational, financial, environmental, Egila et al. (2022) suggested to incorporate more nuanced risk management frameworks that account for the diverse and interconnected risks specific to the oil and gas sector. Besides, in this modern and hyper dynamic business environment, Al-Faryana (2023) suggested for integrating agency theory with a real-life governance practice to reduce agency costs and exploitation as one of the ways to enhance the application of Agency Theory into modern corporate institutions. To overcome the shortcomings from Agency Theory in information asymmetry is to impose information transparency and regularity of financial reporting to shareholders which at the same time propagate better risk management in the institution (Armstrong et al., 2016). Moreover, various limitation and challenges being critiqued by theorists and scholars which include

other motivational factors such as social status, norms, value, culture and uncontrolled external environment which have been ignored but being identified as factors impacting agency relationship. Hence, amongst others, areas of further research and enhancement to support the application of Agency Theory in modern incorporation include establishment of corporate governance that influence and motivate the maximisation of shareholder value, implementation of frameworks to manage the various risks in the organisation and compliance to regulatory standards and practices to mitigate agency relationships and unnecessary agency costs. Nwajei et al. (2022) also suggested to set reasonable target as overambition will have detrimental effect on morale of the agents. Besides, they added competent and capable team is crucial in applying Agency Theory into the firm's internalisation or incorporation.

2.4.2 Stakeholder Theory

Stakeholder theory has evolved significantly since its inception, particularly in its application to modern corporate firms. The theory has been initiated by Professor Eric Rhenman in 1960s and further elaborated and influenced by Professor by R. Edward Freeman in 1984. This theory suggests businesses to consider the interests of all stakeholders beyond only shareholders as described in Figure 12 below. Eskerod (2020) summarised the key attributes of stakeholders which are power i.e. the ability of a stakeholder to influence the organisation; legitimacy i.e. the perceived validity of a stakeholder's involvement or claims and urgency i.e. the degree to which a stakeholder's claims require immediate attention. Additionally, the term stakeholder could theoretically include all individuals and institutions that have a stake in the outcome of an organisation's actions, providing that those interests had enough "thought power" to ensure similar responses from the managers of that organisation. Novoa et al. (2018) also claimed that stakeholder include anyone affect and being affected by the company's actions, such as employees, customers, suppliers, and community. Näsi (1995b) defined stakeholder as the 'holders' who has 'stakes' on company's best interests, hence making the operation feasible. There are as many meanings to and perceptions of the term "stakeholder" as there are different stakeholders (Rhenman, 1968; Eskerod, 2020). Originally, it was premised

that all firms have stakeholders who can anyone that can affect or be affected by the firm's operation, performance and achievement (Freeman, 1984). Hence, in a modern corporate environment and highly complex industry like oil and gas business, managing stakeholder relationship and their power have become essential to achieve business objectives and remain success over times (Eskerod, 2020).

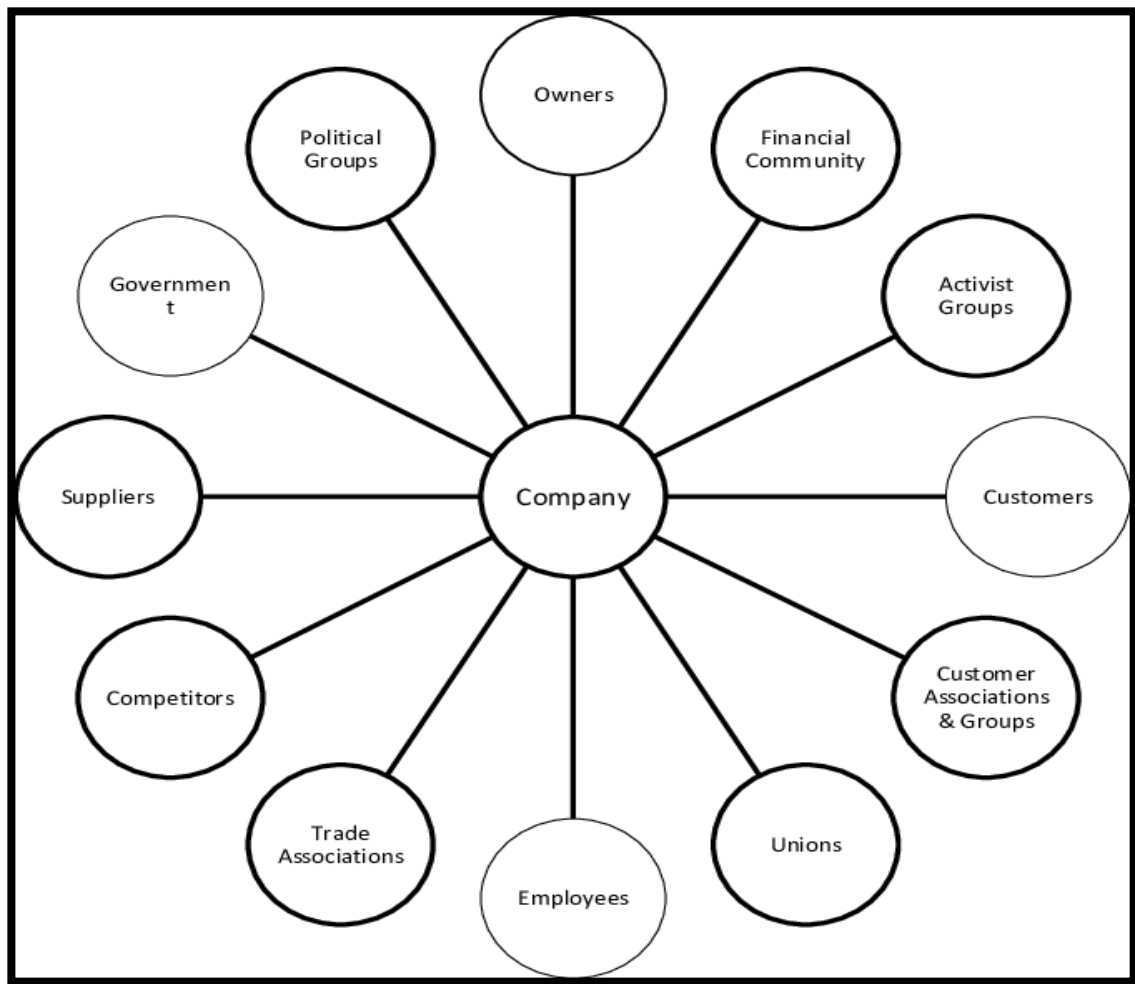


Figure 12: Stakeholder Map

Source: Freeman (1984)

Stakeholder theory recognizes the interconnectedness of different stakeholder groups and the need for organisations to manage relationships and fulfil their obligations towards each group in order to maintain a harmonious and sustainable business ecosystem (Kivits and Sawang, 2021). According to stakeholder theory as proposed by Freeman in 1984,

managers are responsible for considering the interests of all stakeholders in the decision-making process of modern business organisations. This includes not only traditional shareholders, but also customers, employees, suppliers, and the community at large. The theory emphasises the creation of value for all stakeholders, rather than solely focusing on maximising profits for shareholders (Gupta et al., 2020; Dymtriyeu et al., 2021). This means that corporate social responsibility should be a priority for management, with a focus on enhancing economic value while also meeting the expectations of society. In essence, the stakeholder theory redefines the goals of modern organisations, shifting the focus from solely pursuing profit to not only considering the well-being and satisfaction of all those involved in and impacted by the corporation, but also prioritising sustainability and ethical practices in order to achieve long-term success and foster positive relationships with stakeholders. Additionally, Friedman and Miles (2006) claimed that the managers who manage businesses responsible to understand and identify the stakeholders involved and manage them effectively not just with them but also among the stakeholders themselves to avoid any potential disputes.

Stakeholder Relationship

Friedman (2007) defined stakeholder relationships based on Freeman (1984) foundational work on stakeholder theory. Friedman emphasised the importance, dynamic and inter-connectivity between parties who can affect and being affected by the achievement of the firm's objectives where they are actively involved in the ecosystem of the organisation. This was a shift from agency theory, where the focus was mere shareholder-centric view to a wider inclusion of various interested parties which have influence or being influenced by the organisation's achievement. Eskerod (2020) claimed that active engagement and consider the interests of stakeholders in decision-making processes, managers can ensure the longevity and resilience of their organisations, ultimately leading to increased trust, loyalty, and reputation within the broader societal context.

Amongst the key features of stakeholder theory are inclusivity, interdependence, ethical considerations and lastly long-term perspectives. The theory extends the scope of corporate responsibility beyond just shareholders to include employees, customers,

suppliers, communities and the environment (Lin, 2018). This inclusivity ensures that the interests of all parties affected by corporate actions are considered. The recent development of stakeholder impacts on an organisation has been evolved significantly due to advanced technology of information system and lifestyle change and expectation about corporate behaviour towards a wider impact to society, environment and governance (Bugg-Levine and Emerson, 2011). Stakeholder Theory posits the principle that the firm's success is interdependent with stakeholders where the firm will not be able to succeed solely and independently without being supported by all interested parties in the eco-systems. Deep knowledge on critical linkages between these individuals or groups of individuals with the firm, will strengthen its business positioning to increase their brand value, operational efficiencies, customer loyalty and goodwill (Eskerod, 2020). However, although the organisation should consider various parties in their business plan or strategy, conflicting claims from different stakeholders can be challenging (Abosag et al., 2016; Harrison et al., 2019; Gonzalez-Porras et al., 2020). Stakeholder theory urges managers to balance these interests, ensuring that the objectives of the organisation align with the needs and expectations of various stakeholders, such as customers, employees, and shareholders (Laude, 2020). This can lead to more sustainable decision-making and long-term success.

Other key feature of Stakeholder Theory is ethical considerations where it suggests the integration into business practices. The corporations have a moral obligation to consider the impacts of their stakeholders. Kujala et al. (2022) challenged the assumption that all engagement is considering ethical inherently positive and emphasises the need for organisations to critically evaluate their practices to avoid manipulative or harmful behaviours. Nevertheless, Banerjee (2008) shared although large firms for example Shell, Glencore and Nike have been involved in unethical activities, they continued their business as usual and still successful. Highlighting the moral implications of stakeholder claims can encourage stakeholders to consider the broader impact of their positions. This ethical framing can promote a more collaborative approach to resolve conflicts of interest whilst attaining the optimal outcomes for the organisation (Weibel et al., 2020). On top of the above highlighted features, focusing on long-term perspective in addition to short-

term perspective of doing the business is one of the key features of Stakeholder Theory (Kivits and Sawang, 2021). This approach can lead to sustainable business practices that benefit both the corporation and its stakeholders over time. Freeman et al. (2010) highlighted the importance of the alignment of values, norms and ethics between all parties in order to achieve efficiency and effectiveness in doing the business. Likewise, Rowley (1997) emphasised the importance of understanding the interconnections and influences among stakeholders as stakeholders do not operate in isolation but can significantly impact one another. Therefore, it sums up that by engaging stakeholders, addressing their concerns proactively and balancing the benefits for all parties including the firm's well-being, companies can mitigate risks, build stronger, more cooperative relationships and able to make informed decisions that consider the interests of all relevant parties.

Strategic Management and Decision Making

The strategic component of stakeholder engagement emphasises purposeful and goal-oriented aspects and typically has a focus on the organisation, while stakeholder engagement is seen as a means for organisational benefits (Kivits and Sawang, 2021). Accordingly, the strategic aims are concerned with influencing the involved stakeholders to improve the firm's value creation, knowledge creation, or reputation (Freeman, 1984; Dmytriiev et al., 2021). The strategic activities are mainly transactional and build on benefit improvement and risk reduction, which lead to impacts that strengthen firm performance in many ways. Over the years, Stakeholder Theory has integrated with strategic management, leading to the development of concepts like behavioural stakeholder theory, stakeholder strategy theory, and stakeholder governance (Viglia et al., 2018; Gupta et al. (2020). By incorporating stakeholder perspectives into strategic planning and decision-making processes, organisations can gain insights into the expectations and contributions of different stakeholders. This participatory approach can lead to better-informed decisions that consider the broader impact on all parties involved, thus fostering a more inclusive and effective strategy (Freeman, 1984; Eskerod, 2020). The theory has become a key consideration in business ethics, corporate social responsibility (CSR), and environmental, social, and governance which recently become

key strategy by most companies globally i.e. under Environment, Social and Governance (ESG) movement (Kujala et al., 2022). Lin (2018) shared that there were many cases of large corporations investing in philanthropic organisations such as Gates Foundation and Chan Zuckerberg Initiative with the aim to enhance their corporate value through investments that benefiting their stakeholders at large. However, it is worth to highlight that lack of clarity of strategic directions as a result of vague objectives and its emphasis on ethical considerations, sometimes can lead to contradictory guidelines for managers and difficulties in developing coherent and actionable planes (Jensen, 2002).

Besides, the theory has improved the decision-making approach in the organisation to be more holistic which encourage managers to consider the broader implications of their decisions. By doing so, strategic decisions are analysed based on their impact on all factors including stakeholders, leading to more sustainable and ethical business practices (Freeman, 1984; Pedrini & Ferri, 2019). By identifying and attending the concerns of various stakeholders, the organisations are able to predict the potential risks proactively and mitigate them better. Hence, with effective stakeholder management, it allows for proactive management and reducing the likelihood of conflicts or crises (Freeman, 1984; Bridoux and Stoelhorst, 2022). Organisations that actively engage with their stakeholders are likely to build a stronger reputation and attract investors for capital investment. Likewise, Pedrini and Ferri (2019) advocated that strategically it benefits the companies as they will retain customer loyalty and employee trust, and at the same time, more favourable relationships with suppliers and regulators. Another key feature of Stakeholder Theory is to promote alignment in the organisation's strategic objectives by incorporating in the strategic planning as one of the corporate goals. This alignment motivates the management and employees toward having more innovative and resilient strategies that are better suited to long-term success (Freeman, 1984; Bridoux and Stoelhorst, 2022). As there are involvements from various parties in either strategic or operational decision-making process, Gersel and Johnson (2020) noted that Stakeholder Theory promotes greater accountability and transparency in corporate governance. Gersel and Johnson (2020) further added that with proper standards and policy in place, corporations can ensure that their actions are scrutinised and can be held accountable for their impacts

although there are multipurposed and ethical. The establishment of clear governance, policy and standards is critical to ensure all parties involved are aligned towards the achievement of company's strategic objectives. Hence it is essential for developing a more integrated view of stakeholder management taking into account its positive and negative dimensions for better information, practices and strategies (Kujala et al., 2022).

Value Creation

Eskerod (2020) posits the importance of actively listening to and communicating with stakeholders to understand their concerns and contributions, as well as to manage risks associated with their involvement. The alignment and clear understanding of stakeholder functions of Stakeholder Theory is vital as part of its contribution towards greater value creation to businesses. By having multiple parties involved in the business process could also lead to imbalances in the options of decision making made by the managers. Thus, the emphasis of decision making should be beyond profit which consider multiple stakeholder value and do away from the principle of being a rational process but to give itself a more intuitive process (Statler, 2014; Hay, 2018). Gersel and Johnsen (2020) argued that this idea is worrying as it move away from being rational by providing specific reasons to warrant decisions where it gets replaced with creativity and emotion basis.

The stakeholder theory is a comprehensive and encompassing approach that goes beyond the mere pursuit of shareholder maximisation. It asserts that the core driver of value is the relationships between the organisation and its stakeholders. By recognizing and nurturing these relationships, organisations can create value not just for themselves but also for their stakeholders, leading to mutual benefits and enhanced overall performance (Eskerod, 2020). In the context of modern business organisations, the paramount goal is to maximise the wealth and value of the shareholders.

Consequently, stakeholder theory emphasises the importance of adopting a broader perspective that goes beyond short-term profit maximisation, instead focusing on creating shared value and contributing to the overall welfare and development of society at large (Freeman et al., 2010; Goodstein and Wicks, 2007). Therefore, Dmytriyev et al. (2021)

suggested for managers to not only consider the financial bottom line, but also take into account the social, environmental, and ethical consequences of organisational actions, thereby aligning business objectives with the needs, values, and expectations of multiple stakeholders. By doing so, organisations can enhance their competitive advantage, improve their resilience to external shocks, and foster a positive impact in the communities they operate in, while simultaneously generating sustainable economic value for all stakeholders involved (Schormair & Gilbert, 2021). However, Stakeholder Theory is criticised for its impact on corporate performance where some scholars argue that prioritising stakeholder interests can undermine from the concept of shareholder value maximisation, potentially leading to suboptimal financial performance (Jensen, 2002). This is due to the emphasis on stakeholder interests can dilute the focus on organisation's core aims due to management paralysis and additional costs to be spent on to cater for all stakeholders' interests, leading to lower financial returns and reduced competitive. Bridoux and Stoelhorst (2022) advocated to develop new type of Stakeholder Theory by integrating with strategy theory to help strategy and organisation scholars to develop a "clear thinking about the organisation of stakeholders and their cooperative role in value creation." This idea was rooted based on study made by McGahan (2021) on "new stakeholder theory" focusing on economic and moral side of human value creation and value appropriation.

Summary

Whilst Stakeholder Theory has significant contribution in shaping various management attributes as discussed, such as inclusivity, interdependence and ethical considerations which have impact to organisation's strategic management and value creation, there are a few challenges and limitations on its practicality, theoretical consistency and impact on corporate performance. Common critiques on Stakeholder Theory is on its broad principles and inclusivity in nature which make it a challenge for practical application. In fact, the term 'stakeholder' itself has been criticized for its vagueness. Waxenberger and Spence (2003) and Fassin (2009) argued that stakeholder theory lacks clarity on how to define and select stakeholder groups. This ambiguity can hinder effective stakeholder

analysis and engagement which is very critical for an organisation to undertake. However, Phillips et al. (2019) argued that managing the interests of a diverse array of stakeholders can be complex and resource-intensive, potentially leading to decision-making paralysis. Therefore, there is a need to balance the interests of multiple stakeholders which can overwhelm managers, leading to inefficiencies and increased costs Kivits and Sawang (2021) also agreed that this complexity can detract from the primary goal of maximising shareholder value, which remains a central tenet of traditional strategic management. Friedman (2006) pointed out that the various understanding of stakeholder theory has led to contestation and confusion, which can detract from practical applications. In addition, Stoney and Winstanley (2001) argued that the theory oversimplifies the concept of power as something that can be easily negotiated between organisations and stakeholders. They suggested that the theory does not adequately explain how different stakeholder interests emerge and are generalized within society, indicating a need for a more nuanced understanding of power dynamics in stakeholder relationships. Furthermore, Gioia (1999) contended that Stakeholder Theory implies that all stakeholders should be treated equally, regardless of their varying contributions to the organisation. This perspective overlooks the reality that stakeholder interests can be mutually incompatible, complicating management's decision-making process. The requirement to consider the interests of all stakeholders can result in decision-making paralysis, where managers are unable to make timely and effective decisions due to conflicting stakeholder demands (Phillips et al., 2019). These critiques suggest that while stakeholder theory provides a valuable framework for understanding organisational relationships, it requires further refinement and integration to address its shortcomings effectively. There is a need for a more precise and practical approach to stakeholder management, focusing on the managerial and organisational perspectives (Fassin, 2009). Additionally, Gersel and Johnsen (2020) urged for a more comprehensive framework for understanding how managers can engage in rational deliberation that is both ethical and accountable, ultimately enhancing corporate governance. Furthermore, Eskerod (2020) suggested for future research to explore more on a stakeholder's utility function, and its ways to create value in a system which "know how" of the stakeholder theory can be applied. The efforts to conduct in stakeholder

engagement are usually to address interest conflicts, value incongruence and misunderstanding of business objectives or contexts issues such as misfit or misuse of stakeholder engagement for firms' or stakeholders' purposes, or for better alignment in achieving firm's objectives and sustainable value. However, malicious moral issues are largely underexplored (Kujala et al., 2020). Friedman (2007) interpretation of Stakeholder Theory underscores the importance of recognizing and managing the complex web of relationships that influence corporate success. By adopting a stakeholder-centric approach, corporations can achieve sustainable growth, enhance their ethical standing, and create value for all parties involved.

In summary, Stakeholder Theory has certainly influenced to a more inclusive and ethical approach to strategic management and value creation to the organisation. However, it also faces significant critiques regarding its practical applicability and impact on corporate performance. Addressing these critiques is essential for refining the theory and enhancing its relevance and effectiveness in the modern corporate application especially in highly volatile companies.

2.4.3 Value Management System

Value management and the generation of shareholder value have emerged as pivotal elements on the strategic agendas of contemporary corporations, with their importance being emphasised in business education as fundamental to navigating the competitive landscape (Stewart, 1991). Historically, organisations have pursued long-term financial viability; however, the recent focus has shifted toward profit maximisation and wealth enhancement, heavily influenced by frameworks such as the Capital Asset Pricing Model and the risk-adjusted return approach (Sharpe, 1964). A significant transformative shift occurred in 1986, marked by a new paradigm that prioritised not merely survival but the imperative to win, outperform competitors, and attain exceptional performance (Porter, 1985). Contemporary academic thought posits that the ultimate assessment of corporate strategy is closely tied to financial performance metrics, which are increasingly articulated through the lens of achieving a sustainable competitive advantage (Barney, 1991).

Therefore, strategy encompasses an ongoing commitment to establishing superior performance in the face of competition, with the potential for reliable long-term payoff (McGrath, 2013). Human behaviour is likely to move towards a “what in it for me” approach when performing jobs. They must understand and be aware of certain incentives that are waiting for them to work towards accomplishing the given tasks fully. Kaplan and Norton (2005) stated the importance of having a balanced scorecard visible and measuring performance to meet the organisation’s strategic objectives. To see the outcome or result of an effort, Marr (2008) agreed that the value measurements would facilitate the managers and stakeholders to make better informed decisions, which would enable better performance too. It creates goals that motivate employees to change their behaviours and take the necessary actions to attain those goals, and it is designed to pull everyone towards a common vision and target. In this literature, the focus is on Rappaport Shareholder Value Management which was introduced in 1986. His shareholder value management system has considered neoclassical economic frameworks, components of agency theory, organisational theory, finance, and game theory, theorising that such theories could support decision-makers in reallocating risk investments toward the enhancement of wealth (Rappaport, 1999).

Rappaport Shareholder Value Analysis

Value creation is always a topic for strategic business growth and company’s long-term viability (Carlsson, 2001). In order to stay objective, all levels in the organisation need to collaborate and work towards the same objectives. Alfred Rappaport in 1986 introduced SVA and has further refined by prescribing business drivers which can spur further value creation in the organisation. He established several value drivers such as growth in sales and operating margin; working capital investment; income tax rate, and weighted average cost of capital, as shown in Figure 13. The model provides a structured process in the organisation to pivot their activities and focus towards creating value, including the process of monitoring performance through a set of value measurements such as returns on dividends and capital gains.

Shareholder value creation network

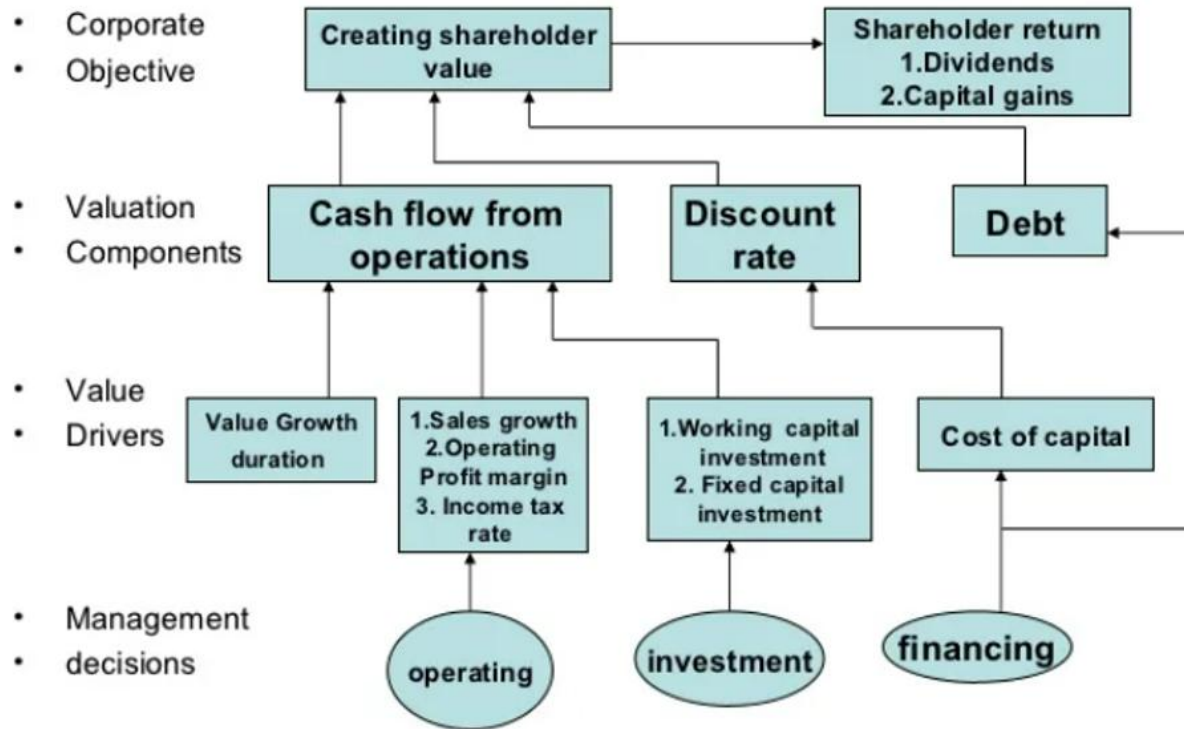


Figure 13: Alfred Rappaport Shareholder's Value Model

Source: Rappaport (1986)

This SVA serves as a framework for aligning organisation decision-making process with its strategic objectives with the aim to maximise shareholder value. It was designed to assist to resolve constraint of traditional accounting measures where its establishment to suit firm's application on capital expenditures and pricing acquisitions with discounted cash-flow models in the 1990's. The Rappaport SVA is grounded in the principles of value-based management, which prioritises shareholder value as the primary objective of corporate strategy and used as reference point for further analysis and reporting. This approach was argued to be more practical and holistic which incorporates the cost of capital into decision-making, ensuring that investments and operational decisions contribute to increasing shareholder wealth (Blume, 2015). The system advocates for the use of metrics such as Economic Value Added (EVA) and Market Value Added (MVA) to evaluate performance and guide strategic decisions. He concluded that traditional accounting measurements are not representing the actual shareholder value. There are various other factors and elements such as uncertainty in the market environment, changes in lifestyle and technology advancement that influence the company's value measurement. In fact, typical measurements such as earnings per share (EPS), dividend per share (DPS), return on equity (ROE), return on assets (ROA) have been criticised for their inability to capture other costs like cost of capital to generate value and time value as the input of resources used (Hasani and Fathi, 2012; Trifan and Suciu, 2015; Maditinos et al., 2007). Additionally, Spivey and McMillan (2001) also agreed valuation based on book values undercalculate the current financial condition and therefore urged the right methodology and valuation measurement are used for the business organisation.

Nowadays, application of SVA is also used in business planning and KPI tracking which continues to use market-based valuation by considering the firm's future cash flow and risk. Rappaport (1986; 1998) argued that SVA highlights significance of value-based management (VBM) and incorporates financial metrics at each business process including at strategic planning right down at operational decision level. Petravičius and Tamošiūniene (2008) agreed that with the introduction of the shareholder value model, a process change in the way business activities conducted by managers need to happen to ensure the focus is on creating value. Nevertheless, although SVA has been widely

adopted there are still criticism on its practicality and implications on corporate governance and decision-making processes in general (Munteanu et al., 2012).

Strategic and Long-Term Objectives

Rappaport SVA was also designed to promote a more strategic approach in business management. The shareholder value management principles play critical roles in running a business organisation as there are various elements that are required to be balanced and driven at the same time. It was argued that incorrect decisions in carrying out firm's strategy in the organisation was due to ineffective value management system which report inaccurate and incomplete (Rappaport, 1986; Rappaport, 1998; Steward, 1991). This denotes the importance of having the key elements that support decision-making process in the organisation and the alignments of these elements towards to the organisation's objectives. According to Rappaport (2006), there are ten principles of creating shareholder value as depicted in Figure 14, where the emphasis was made on the organisation's sustainable growth, featuring its long-term viability as well as focusing on the efforts to achieve optimal potential benefits of the organisation.

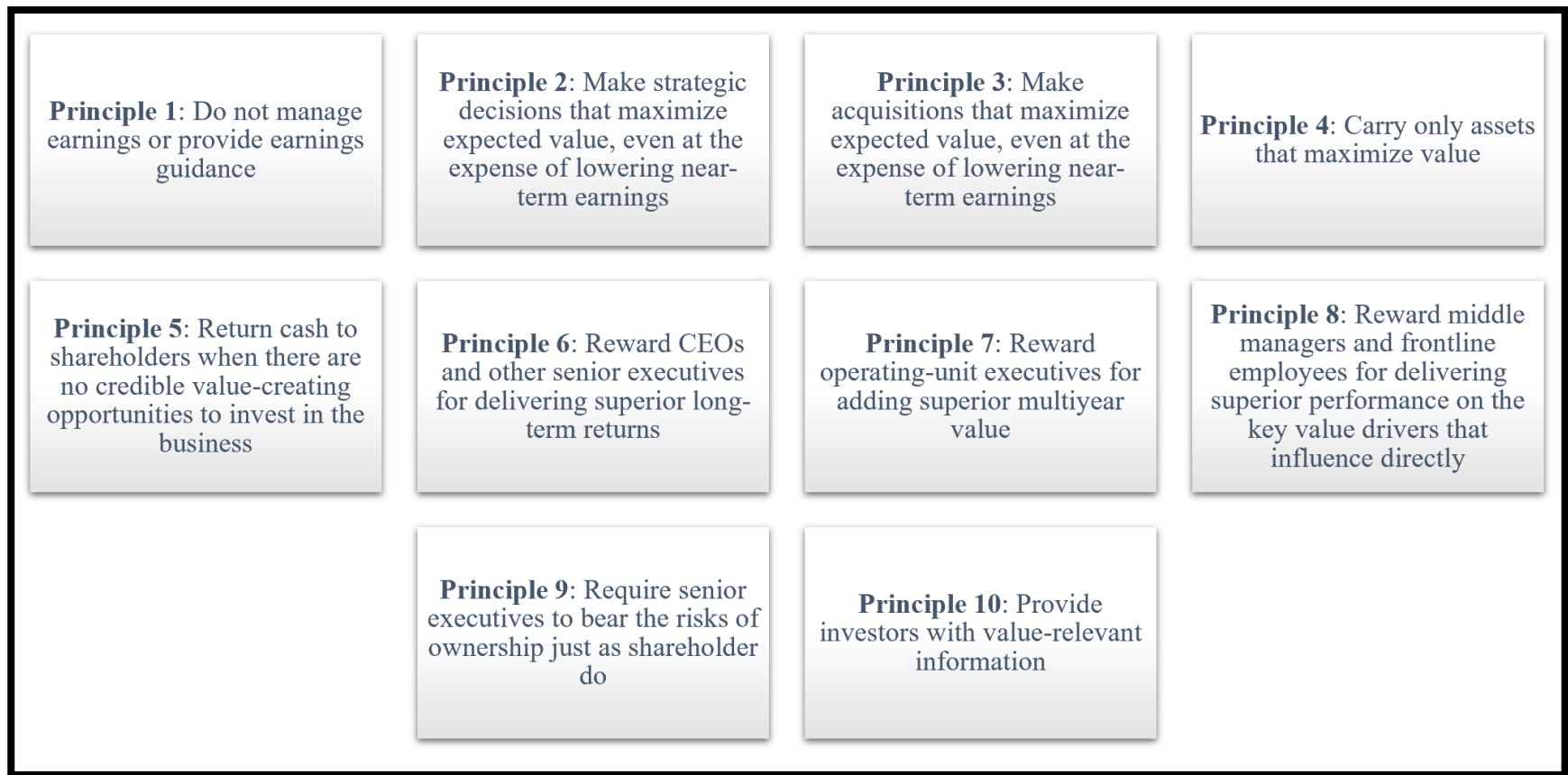


Figure 14: Ten Ways to Create Shareholder Value

Source: Rappaport (2006)

Essentially, the value management system should be implemented in the organisation by making sure the alignment of all critical activities towards achieving shareholder value through pre-defined process such as top-down and bottom-up mandate from shareholder, and transparent and clear communication from shareholders to the management via proper direction setting or KPI setting (Ryan and Trahan, 2007). Rappaport (2006) and Kaplan (1992) suggested introducing incentives to motivate employees to accountable for the performance such as stock options by alignment their individual performance with the overall organisation's performance. However, Trotta (2003) argued that there are often missing signals and linkages between organisational stated goals and the approach used to achieve them. Therefore, strategically, having the alignment of management value management system with shareholder's value and performance target aspired by shareholder will help shaping the organisation on track to achieve their strategic goals. SVA provides a framework that link strategic objectives and operational decisions to their impact on shareholder value. In assessing shareholder value, the management is responsible to concentrate on long-term value drivers, undertaking business investment and financial decisions concurrently (Mauboussin, 2012). He further added that the value drivers can be elements that satisfying both shareholders and other stakeholders such as employees in order to achieve long-term business sustainability from greater value management perspective. However, it was claimed that in the actual implementation, incentive is purported to exploit short-term profits instead of long-term value creation (Blume, 2015; Martin et al., 2009).

Therefore, to overcome the common misinterpretation of value-based management as a synonym for greed, efforts in strategic communication and effective investor relationship are amongst the critical steps to manage market perception which impact the organisation's value management system. This is confirmed by Licandro et al. (2024) and Yu and Zhou (2015) that their research findings revealed a positive relationship between stakeholder satisfaction and firm's financial performance and long-term value. Similar to literature reviews made on Stakeholder Theory, value management system trend nowadays takes into account corporate social responsibilities initiatives as societal investment which becomes one of the most powerful elements in value measurement. It

can be argued that this is a good business strategy for a firm to deploy to gain wider acceptance which benefiting the organisation strongly. Having said that, Elgharbawy and Abbel-Kader (2013) supported the argument that in pursuit to have a strong corporate performance and sustainable growth, it requires a robust corporate entrepreneurship. In their Contingency Model as depicted in Figure 15 below, it describes the connections between corporate performance and corporate entrepreneurship through organisational performance and value-based management where improved corporate governance will increase motivation and enable the achievement of efficient capital management and hence sustainable growth.

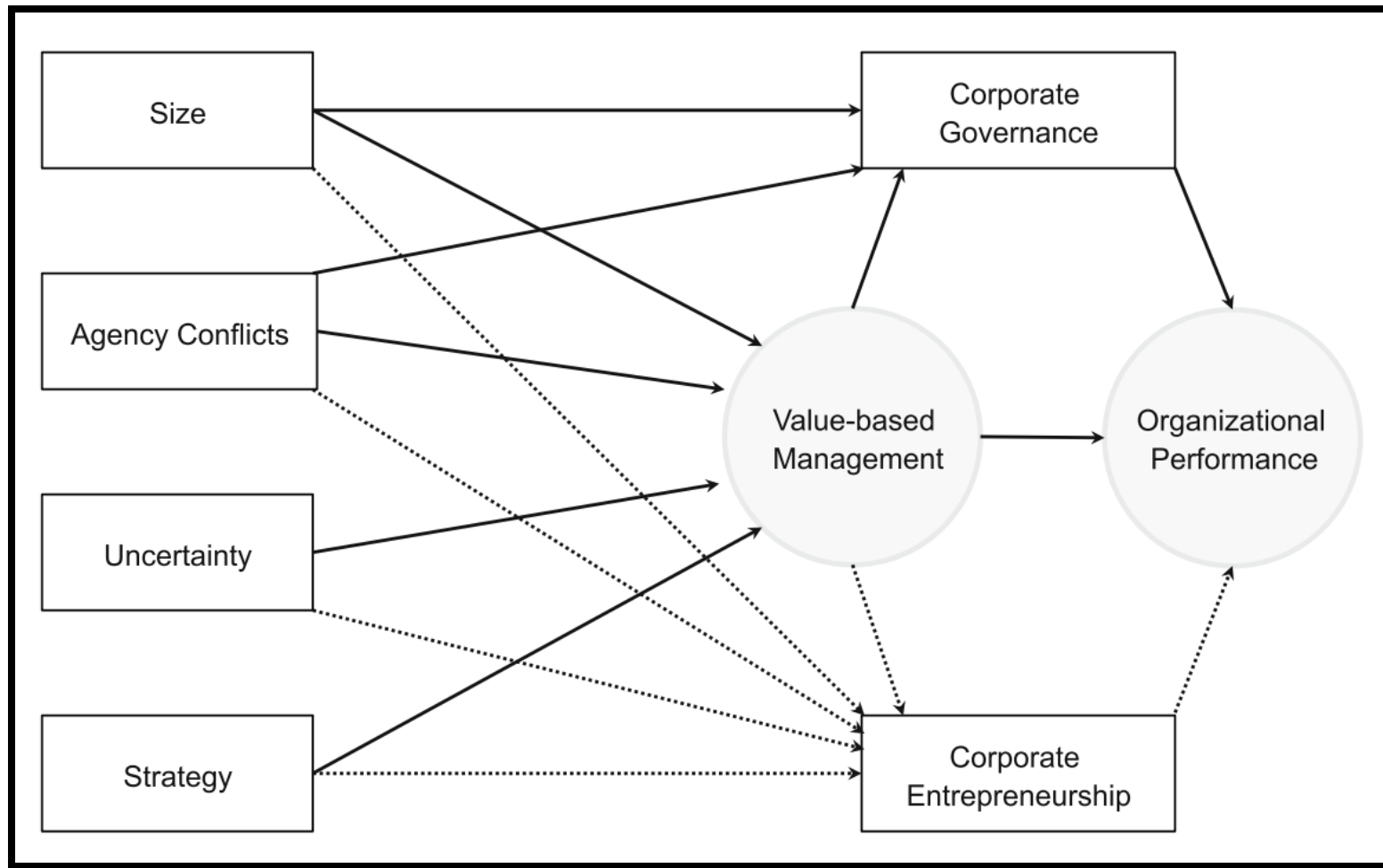


Figure 15: Contingency model for enterprise governance and value-based management.

Source: Elgharbawy and Abdel-Kader (2013)

Valuation and Performance Metric

In addition to the financial and non-financial performance of the company, the aspiration to create a long-term value in its vision and mission, the company's market price will follow suit to reflect the company's intrinsic and extrinsic worth (Mauboussin, 2012). Therefore, he suggested long term benefits via maximising the long-term free cash flow and effective stakeholder investment including employees, customers and shareholders should be set as part of the company's goals. For smaller companies that are not traded in the stock exchange market, alternative value management system is essential to gauge the value of the company for funding and market capitalisation exercises. EVA has been used as the alternative valuation as it capture the value-added elements of the business through its ordinary operations by adjusting the distortions of cash flow and investment capital charges as the risk to shareholders has also been factored in during the accounting period (Spivey and McMillan, 2001). Panigrahi and Azizan (2014) revealed that their comparative analysis study on EVA and traditional accounting measures in Malaysia, showed that EVA was more effective in measuring shareholder value. Other measures than EVA and SVA, MVA, Cash Value Added (CVA) and Total Shareholder Return (TSR) are also useful as the methods take into account the return on invested capital, business economic and time factors i.e. present and future value (Trifan and Suciu, 2015). Nevertheless, Largani et al., 2012 suggested to have value management measurement that reflect both financial and non-financial components where a holistic measurement of the organisation's value can be presented to shareholders.

As such, organisational value is not limited to elements that merely benefiting shareholder value. Amongst others are societal value, reputation, technological advancement, organisational behaviour towards innovation culture and customer services. Firms which are investing on societal fulfilment and respond to any issues and at the same time continue achieving economic viability are seen to have competitive benefits over their competitors (Hillman and Keim, 2001). However, this led to additional costs to the firm and reducing the shareholder wealth. This argument has been criticised by Christensen and Raynor (2013) who argued that should have long-term vision to win on the firms 'strategic growth

through sustainable innovation for a successful exploitation and business opportunities in the pipelines. Despite that, Mocsary (2013) claimed some managers often adopt decisions that is in the favour of non-shareholders interest and hence may affect shareholder value. Therefore, he urged for regular monitoring and reporting of value performance which supposedly to be in alignment with the organisation strategic goals and long-term growth. In addition to the importance of value performance and its measurement, although Rapport SVA does not directly take into account branding, it appears to softer element they boost firm's value. Stronger brands value create better value or worth of the firm and account for premium yields over other player with lower branding image. Therefore, Madden et al. (2006) suggested to increase brand equity through long-term investment in its branding program is as it stands as a powerful risk management tool to mitigate risks of vulnerability and uncertainty of cash flow management. This can be seen with larger organisation such as Apple, Amazon, Google etc as shown in Figure 16 (Retail SEE Group, 2022).



Figure 16: The World's Top 10 Most Valuable Brands 2022

Source: Retail SEE Group (2022)

Brand equity may also include intellectual capital which represent non-financial firm's value measurement as it does play critical role in boosting market value. There is positive correlation between corporate intellectual ability and firm's market value (Chen et al., 2005). Likewise, Kaplan and Norton (2005) also agreed that this create sustainable value creation through sustainable corporate competitive advantages. With the recent movement of lifestyle change in view of sustainable livings for future generations, valuation of value management in a company also include ESG reporting and climate related information to showcase their advocate for societal investment although quantitative measurement was quite challenging (Zumente and Bistrova, 2021). Additionally, Gómez-Bezares et al. (2016) stated organisation that adopt this strategy will secure better acceptance by investor and hence increase its shareholder and corporate value.

Governance and Risk

Connell (2004) introduced Enterprise Governance Framework with the fundamental notion that good corporate governance and its conformance are not sufficient to make the organisation successful. Performance aspect with the emphasis on executing strategy and value creation is vital. Likewise, Blume (2015) claimed that organisation would gain added advantage from value-based management when they improve their corporate governance structure as well as capital management. Additionally, Busco et al. (2006) suggested to add knowledge-based governance for better value-based management impact. Notwithstanding, overemphasis of corporate governance activities such as monitoring, reporting and internal control processes have been claimed to hinder the entrepreneurial activities and subject to higher costs and longer time are required (Filatotchev and Wright 2006). Therefore, Elgharbawy and Abdel-Kader (2013) urged to appreciate the outcome of governance on firm's performance so that any policy or standards established are clear of accountability and responsibility for everyone in the firm is aware and not forgoing enterprise objectives. One of the key benefits of corporate governance in the institution is to overcome agency conflict which may arise between shareholder and employee which has been discussed extensively in Agency Theory. Rappaport SVA as one of value-based management system is being used as a tool to

govern employee towards achieving the set strategic objectives by shareholders (Aguilera et al. 2008; Dey 2008). Eccles et al. (2014) found that organisations with distinct corporate governance are highly sustainable where their value management system or performance metric linked to fulfil both shareholders and other stakeholders' interests and requirements.

In doing so, managers are exposed to make decisions with uncertainties and therefore, putting shareholder value at risk. Therefore, it is essential for the establishment of risk management framework which integrates the establishment of risk policy, mandate and management's pledge to maximise shareholder value, strategic planning within the risk appetite mandated by shareholders (Gjerdrum and Peter, 2011). In fact, the revised version of ISO 31000 Risk Management (2018) emphasises this integration of guidelines, principles, framework and process at all levels i.e. from strategic, tactical right down to operational level. The establishment and implementation of corporate and risk governance will increase confidence and trust in shareholder as well as stakeholders. This SVA model is also claimed to provide a robust framework for aligning managerial incentives with shareholder interests and enhancing transparency and accountability in corporate governance (Rappaport, 1998) although Ballwieser (2009) criticised that its application in modern corporate organisations is limited by its potential to encourage short-termism and its narrow focus on financial metrics.

Furthermore, Rappaport SVA model advocates the implementation of risk management although its primary focus is on financial related risks, such as market volatility, interest rate fluctuations, and credit risk. While these are important considerations, Blume, 2015 stated that the model may not adequately address non-financial risks, such as reputational risk, regulatory changes, and technological disruptions. The exclusion of non-financial risks can lead to sub-optimal risk assessment as it leads to potential exposure which may have significant impact on their long-term growth and sustainability (Largania et al., 2012). Modern organisations need to adopt a more holistic approach to risk management that considers both financial and non-financial risks. To fully leverage the benefits of the SVA model, organisations need to adopt a more balanced approach that incorporates both

financial and non-financial considerations in their governance and risk management process (Mauboussin, 2012; Largania et al., 2012). Daud (2020) proposed an enhancement to Rappaport SVA model to include both financial and non-financial elements in the value drivers with the aim for more comprehensive and holistic management system. On top of that, she suggested for the embedment of strategic and risk analysis into the business process so that appropriate risk reward trade-off considerations can be made at respective level of decision-making. It also acts as an independent party to provide second pair of wholesome value management system. Figure 17 below depicts the Enhanced Rappaport SVA Model.

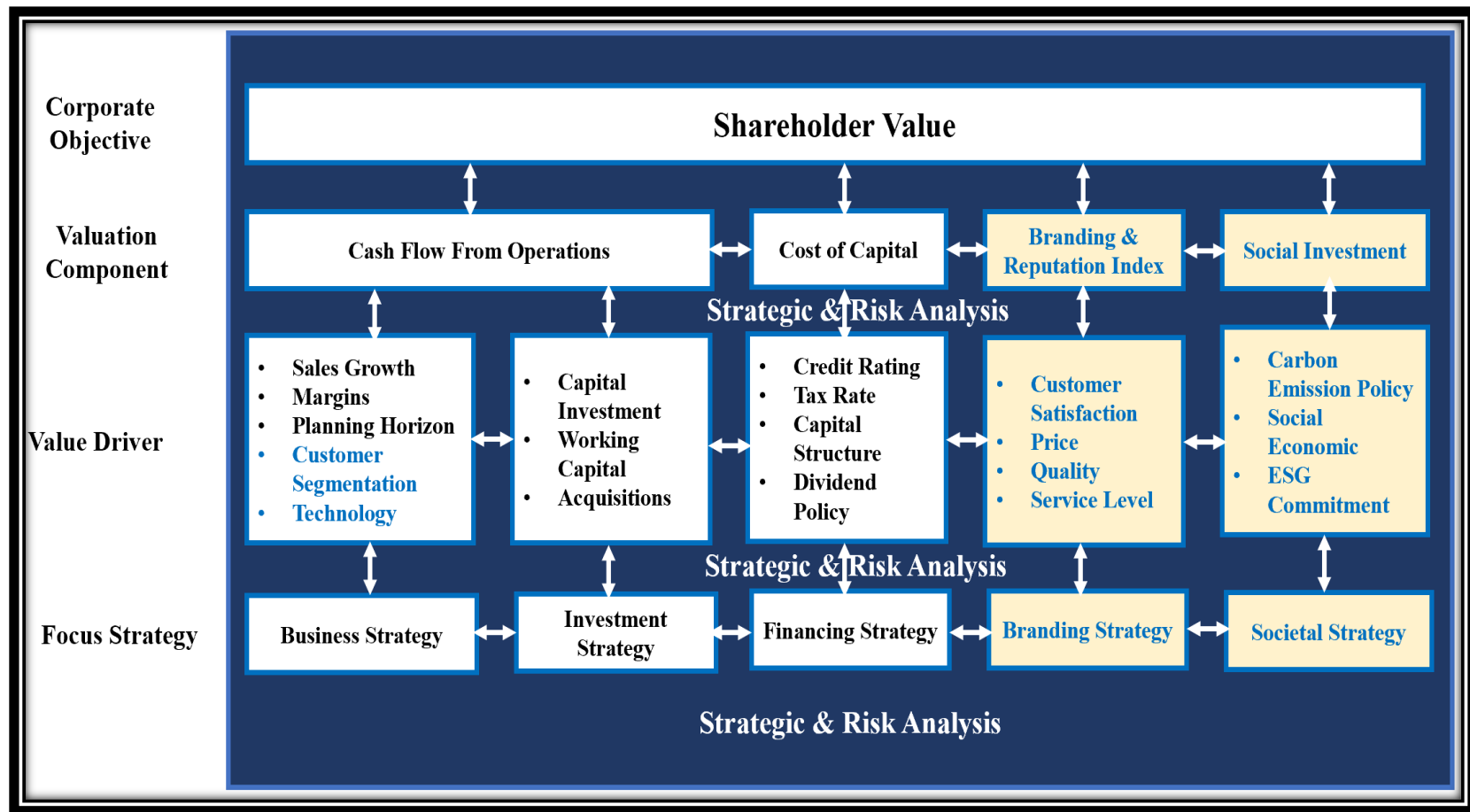


Figure 17: Enhanced Rappaport Model

Source: Daud (2020)

Mango (2007) supported that the risk management aspect in the organisation helps the achievement of organisational strategic goals through careful planning, effective implementation and deployment of resources. In order to consider both financial and non-financial elements in the risk assessment, Figure 18 below depicts the five steps in risk assessment in minimizing threats and maximising opportunities for informed strategic decision making (Effective Risk Management in 5 Steps - Project Management Insight, 2018).

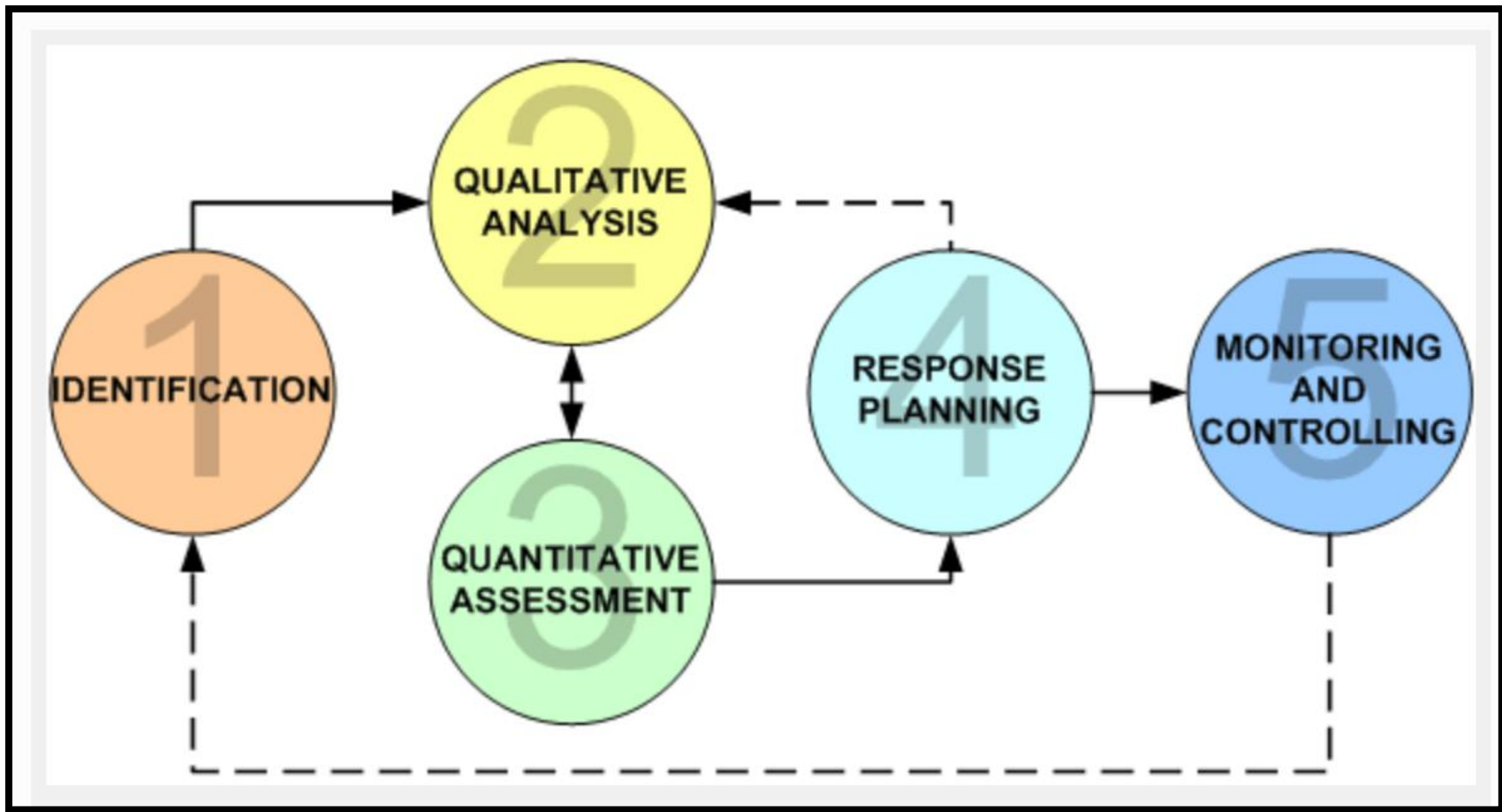


Figure 18: Five Steps Risk Management Steps

Source: Project Management Insight (2018)

Similarly, Shah et al. (2022) developed a structured and integrated elements in their Green Governance Framework as depicted in Figure 19 with the focus to achieve the firm performance. This was in pursuit to assist the organisation to be proactive in handling challenges in potential exposure management as well as having transparent and clarity of the ability to meet their bottom-line target which has been pressured by their stakeholders.

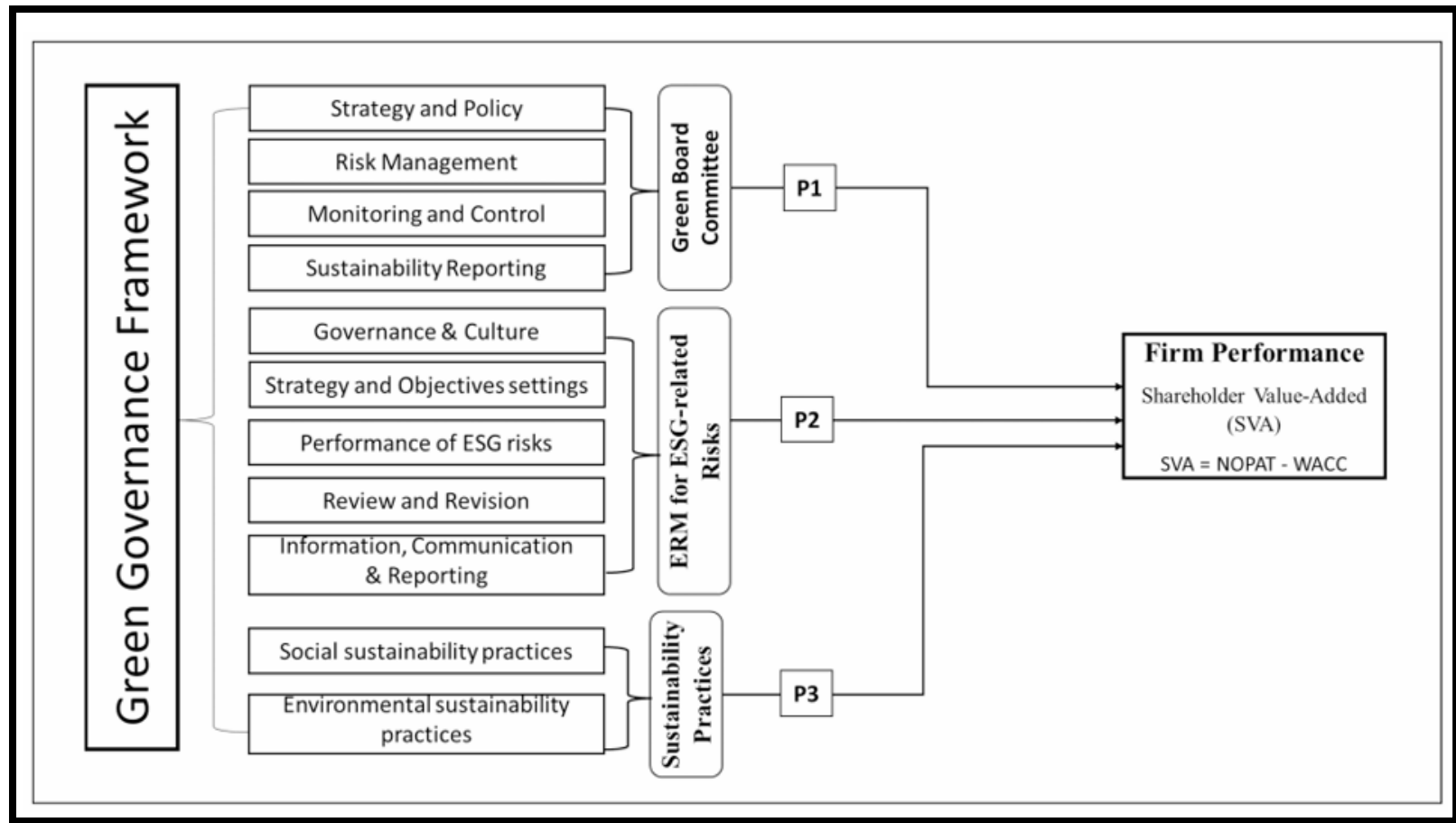


Figure 19: Green Governance Framework

Source: Shah et al. (2022)

Embedding governance and risk management as part of value-based management system able to rally all efforts in the organisation towards achieving overall firm's objectives. This aligns with well-known industry risk framework and standards such as COSO and ISO 31000. Their objectives are to enable and support the maximisation of shareholder value in an organisation.

Summary

Aligning to findings noted in the earlier literature reviews where managing value creation to achieve long-term viability and sustainability is regarded as one of critical drivers to ensure the generation of future cash flow from operation and increased market valuation of the firm. Rappaport SVA model depicts the structure of value drivers that help the organisation to connect them to the respective strategy in order to achieve the strategic objectives set for them. Blume (2015) suggested for further study to examine other motives or aspects such as organisational culture in adopting value-based management system beyond using corporate governance and incentives to motivate employees. Other factors such as leadership commitment, clarity in communication, clear process and procedures, and capability management can be explored to examine their contributions to value-based management system in organisation.

2.4.4 Decision-Making Models

To progress further in any activity, it requires decision making by authorised parties in the organisation. This process serves as a critical and plays a significant impact on the organisation goals and objectives (March, 2010). It involves the steps of choosing the available options after going through the steps of knowing what areas of decision to make, making that decision, collecting data and information, and evaluating potential other alternatives when the initial decision is not working as intended (Howard, 1968). Lunenburg (2010) highlighted the vital role of decision-making in the functioning and success of organisations. Additionally, Yazdi et al. (2020) suggested to structure the decision-making processes according to the level of criticality and impacts to the business where a process risk management approach can be added especially in high-stake decision

areas such as safety and hazard management. Virlics (2013) suggested to perform a proper evaluation prior to making a decision based on economic theory is centred on setting an objective, having timely and useful analysis of the areas for decision-making, forecasting possible results from the decision, expecting computed incentives from the decision, and a subjective viewpoint from the decision-maker. Therefore, a decision-making framework that depicts the connections and interdependencies of the risk factors and their sources is essential (Yazdi et al., 2020). Figure 20 describes the process decision making is a course concerning choices where it consists of several steps namely problem identification, establishment of alternatives, evaluation of alternatives, selection of alternatives, implementation of the selected alternatives, and review and monitor the effectiveness evaluation of the alternative undertaken according to Schoenfeld (2011).

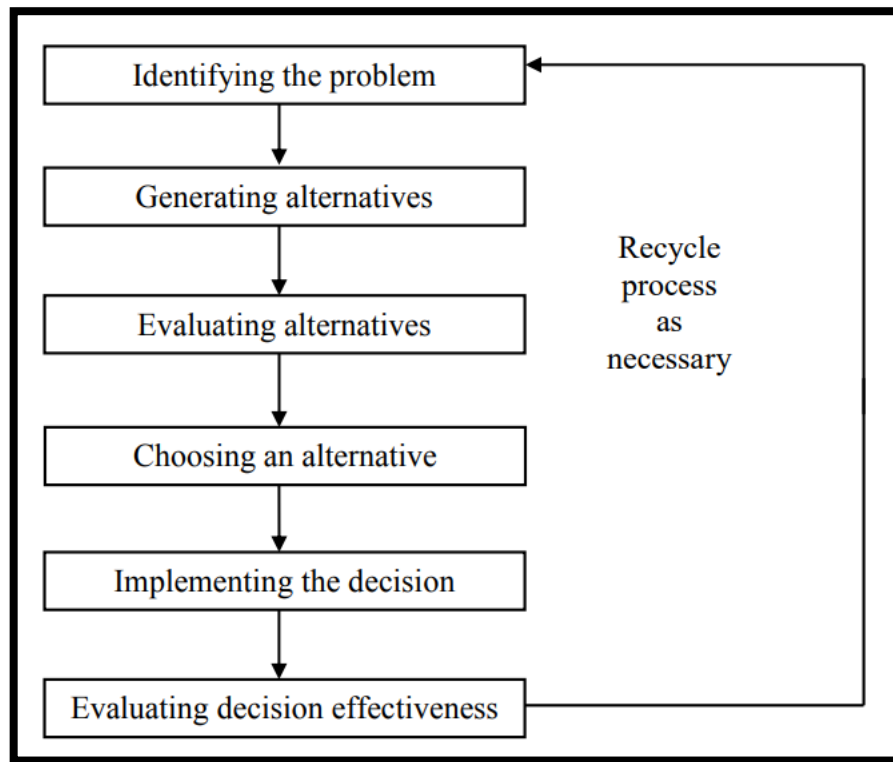


Figure 20: The Decision-Making Process

Source: Schoenfeld (2011)

Similarly, Kepner and Tregoe (2005) agreed that the first step is problem identification, where setting the objective of decision-making is the crucial and most important step as it

leads to clarity of the whole structure of the decision-making process. Not only does it lead to better clarity for the decision-makers, but also for the managers who will be analysing and proposing ideas, performing risk assessments, and providing available alternatives, potential outcomes, and implementation strategies. Johnson (2019) advocated to apply scientific management principles and theories to real-world business decisions to facilitate the decision makers to make decisions. Besides having a structured process, it also involves extensive other human skills such as problem-solving, creativity, durability, skill, liability, goodwill, and action (Brown, 2020). In the unstructured realm of decision-making, decision-makers are viewed as knowledgeable, creative, thoughtful responders to their natural environment, and as problem-solvers seeking long-lasting and thoughtful solutions (Lee, 2017). In a complex and multifaceted process in high risks industry, a structured decision-making process is crucial. The research by Sulasi (2021) on the Malaysian oil and gas industry revealed that the industry highlights specific importance of decision-making process which is viewed as a critical aspect of corporate culture, emphasising its increasing importance within organisations. The aims of market participants to go through all these processes and requirements are to achieve business sustainability and growth (Taylor, 2016).

In summary, decision-making in a high risk and uncertainty environment can be a delicate process where it may involve human's instinct and intuition although facts and data are available. Massa et al. (2017) urged managers to explore and understand decision theories or decision-making models for guidance and foundation in making decisions for the organisation. In general, Athearn (1971) claimed that decision theory concerns on the manner decisions are made where the alternatives are discussed and the decision is made on when there is more than one option. There are two basic decision-making models founded by researchers i.e. Rationality Decision-Making Model and Bounded Decision-Making Rationality Model (March, 2010).

Rationality Decision-Making Model

Applying certain principles in the decision-making process should be understood and agreed upon based on the organisational governance requirements. This is because the

decision-making process is not only applicable at the business strategy level but at all levels and functions in the organisation especially in hazard and fire processes (Pietser, 2014). The Rationality Decision-Making Model regards the decision makers have all relevant information and fully rational to make decision to maximise the outcomes. Scott and Bruce (1995) described this model as an inclusive analysis and rational assessment of options in the decision-making process. Other the benefits of Rationality Decision-Making Model are clarity and logical of decision-making framework, motivation to perform analysis to which available alternatives are considered, support informed decision-making based on facts and information at hand. Oliveira (2007) argued that it is impossible to weigh all alternatives without considering other non-related information. Extending from this perspective, this model is subject to some limitations such as assumption of availability of perfect information, lengthy process where the structured process can be time and resource consuming and not considering subjectivity factors such as human emotion and biases. Notwithstanding with the time and effort involved, Uzonwanne (2016) indicated that Rationality Decision-Making Model posits more objective and functional results than when decision making is done based on perception or intuition basis.

However, from a practicality standpoint, access to perfect information for managers to make decision especially in oil and gas industry is not possible. Howard (1968) asserted that one of the issues with the decision maker is to make a choice of action especially in ambiguous, dynamic and complicated environments. These inherent limitations lead to decision makers' inability to process information for making difficult and complicated decision. Hence the idea of bounded rationality model has been coined to describe the best decisions made based on the most information available for the decision maker (Simon, 1982). Simon supported this idea in view of limitation of resources such as capability, access to current or updated information for extensive or real-time analysis or even time to process that information. This in fact true for high risks, volatile and complex industry such as oil and gas companies where the information is keep changing and updating for each part of the business value chain (Saad, 2016).

Bounded Rationality Decision-Making Model

In contrast to Rationality Decision-Making Model, Herbert Simon who invented Bounded Rationality Decision-Making Model in view that decisions are not always be done with perfect information and thus decision makers will never be able to generate all possible alternatives for decision making. He further added that the available alternatives are always assessed incompletely due to impossibility to predict all impacts associated with each alternative perfectly, and as a result, the ultimate decision is impossible to determine whether the alternative is optimal. Therefore, Gigerenzer and Selten (2002) proposed a concept of using the most available information through a rational method of decision making to achieve an optimal option. Nonetheless, these have not sufficiently addressed actual issues of making decisions in a complex condition (Adair et al., 2001). It becomes trickier and difficult to handle when the process involves biasness and emotion even when the information is ready and sufficient.

When the decision makers have challenges in making decision, there could be some occasion where they make sub-optimal decisions. Often the concepts of satisficing and in Bounded Rationality Decision-Making Model considers the first choice of alternatives that meet the minimum standards of acceptability without exploring all possibilities (Sent, 2017). In fact, Simon (1982) found that on most occasion, decision making is made with selection of satisfactory alternatives and only isolated cases with selection of optimal alternatives. Ben-Haim (2012) also argued that this happens under uncertainty where managers focus on robustness instead of optimal performance and hence the strategy of satisficing is usually used. Sent (2017) also argued that satisficing is one of the outstanding parts of Bounded Rationality Decision-Making Model due to simple and using the best possible information which is limited to infer the most optimal decision making (Gigerenzer and Todd, 1999). However, Eisenhardt and Zbaracki (1992). In addition, Kehman (2003) discovered a managerial behaviour which make decisions on rational-agent models basis. It emphasises the behavioural factor of agents to act intuitively and see at a given moment and not because they compute or reason poorly. This proposition was on the notion to predict behaviour and identify the course of action to respond to this

heuristic question “What course of action seems most natural in this situation?” which suggests the concept of “the power of the situation” where course of action being identified to which most people will be attracted to (Ross and Nisbett, 1991).

In a complex and uncertainty decision-making area where satisficing concept cannot be easily applied, heuristic approach is usually used. The basic concepts of this approach are that most decisions or choices are made intuitively and the rules that govern intuition are generally similar to the rules of perception (Kahneman, 2002). Managers employ heuristics using various ways to land into their final decisions such as based on availability, representativeness and judgements through “elimination by aspects” (Tversky and Kahneman, 1974); Kahneman et al., 1982). Practically, as an example of decision-making process, the decision to choose options to mitigate financial risks of business investments involve entering into financial derivative contracts such as options, futures, or forward contracts, depending on the investment risk mitigation needs, to reduce uncertainty for the business, which can be more flexible and allow businesses to take a dynamic investment approach (Amram et al., 1999). This allows the decision-maker to make a decision first and take a dynamic approach to reduce the risks in a timely manner. The decision maker acts as the ‘risk owner’ and needs to ensure their decisions are backed and mitigated from any exposure to ensure they achieve the intended objectives. Eeckhoudt (2005) argued that some decision makers can be in a dilemma, either making a decision without proper information to ascertain the level of risk or making a decision immediately. This approach of decision-making is not entirely perfect rational at the first instance, the managers are following bounded rationality approach as the availability of perfect information is limited and various other elements are used including intuition and emotions. Although emotionally intelligent manager can also make mistake in their decisions but it strikes a balanced approach of weighing all possible available information (Alzoubi and Aziz, 2021). Slovic et al. (2006) argued that it will be favourable experience if the managers that use their experts and knowledge and able to predict accurate consequence of their decisions but they fails miserably if the consequences turn out to be varied from their anticipation. Aligning to this perspective, Yazdi et al. (2020) found that there is still lack of decision-making method which decision making is typically achieved

based on sources of information often elicited from subject matter experts. This leads to the argument that a structured process in decision making or a guidance need to be in place. Nocco and Stulz (2006) argued that for a decision maker to decide whether to proceed with a business proposal and accept the risk or minimise the risk taking through the transfer risk effect, the organisation should be guided by a comparative advantage principle so as to ensure their decisions have taken into account all possible causalities and effects by comparing all possible options. This allows managers to take understand the risks, deploy risk management appropriate plan to manage the risk, implement the proposal, monitor, report and review the results accordingly. Hence, Slovic et al. (2006) claimed the scientific study of affective rationality is still immature which warrant further investigation to understand the key elements affecting the process. Despite all these critiques and limitations being discussed, Bounded Rationality Decision-Making Model remains a valuable decision-making framework which set as a foundation for a more practical insights and realistic assumption of rationality in decision-making process especially under complex and uncertain situations.

Summary

In summary, based on findings of literature reviews on the two basic decision-making models, Rationality Decision-Making Model being one of the most basic decision-making models posits the decision-making process structure namely; problem identification, establishment of alternatives, evaluation of alternatives, selection of alternatives, implementation of the selected alternatives, and review and monitor the effectiveness evaluation of the undertaken alternatives where do some adjustments if the requirement arises. The model also emphasises the maximisation of benefits in decision making which lead to several arguments on limited and imperfect information to achieve it. Time and lengthy process of decision-making process may also affect the agility in planning and responding to market environment especially in a complex and risky business structure. Bounded Rationality Decision-Making Model on the other hand has been coined by Herbet Simon to overcome some challenges which identified from Rationality Decision-Making Model such as limited information, time constraints and cognitive limitations.

The concept of satisficing amongst the decision-making behaviours being observed in this model where first choice of alternatives that meet the minimum standards of acceptability is considered in decision making. This aligns with its approach of optimisation instead of maximisation. Heuristic is another popular concept in this model which can be used in a complex and high-risk business environment. The concept focuses on simplicity, effectiveness and practical based method without exhausting too much time and resources to stay agile and competitive in the market. Past experience and functional experts are useful in this concept to support for optimal decisions. However, this concept of decision making is prone to systematic biases although quicker decisions can be made.

2.4.5 Enterprise Risk Management Framework

Gjerdrum and Peter (2011) stated that the risk management framework provides the integration of risk management into the organisation, which includes the establishment of a risk policy, mandate, and top management commitment. Risk management has become a crucial and significant topic in all business activities in recent years. COSO has also released a new Internal Control Integrated Framework in 2013, focusing more on risk-based internal control to face the robustness and volatility of the current business environment, replacing its 1992 original version of the framework (McNally 2013). In fact, ISO 31000 (2018) outlines the enhanced guidelines incorporating the above elements such as risk management principles, framework, and process for organisations to use as a guide for their implementation. The standards encourage the development of a modern approach to organisational risk management for enhanced risk management, which includes continual improvement effort as risk evolves all the time, full accountability where ownership must be clear and coordination across the organisation must happen, risk management in decision-making where consideration of risk assessments both upside and downside are included, and continual communications where connection, collaboration, and communication are paramount for effective implementation. Full integration, where seamless integration from the governance structure to the operational practises has respective roles to play in risk management, and cultural consistency, of which the incorporation of this soft element of risk management is fundamental as it sets the mental

model of an organisation towards embedding risk in their business activities (Hampton, 2015). All these enhanced frameworks and new developments are aimed at protecting and creating value for the organisation, where risk is defined by ISO 31000 as “an effect of uncertainty on objectives, and an effect is a positive or negative deviation from what is expected”. In the classic example of the COVID-19 pandemic event, having a preparedness and on-guard business recovery plan that is planned and simulated prior to the event would enable the business agility to respond and recover. At this juncture, companies with proper risk management in place seem to be more valuable with competitive advantage than those that are unprepared and vulnerable (Settembre-Blundo et al., 2021).

COSO

COSO published Enterprise Risk Management: An Integrated Framework in 2004 with the aim of helping organisations or business entities to protect and increase firms' value under the philosophy that value is maximised when management sets strategy and objectives to strike an optimal balance between growth and return goals and related risks and efficiently and effectively deploys resources in pursuit of the entity's objectives. Figure 21 describes the ERM Framework prescribed by COSO, which integrates business processes from strategy setting, operationalization of the business, reporting of business performance, and checking on the compliance of process control of the business process cycle with the ERM Framework core elements. COSO ERM Framework emphasises a three-pronged integration between the organisation structure, business activities, and risk management steps that are required to be in place, i.e., the internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communications, and monitoring. Literally, it means the risk management steps must be integrated into all business activities and at all levels of the organisation to ensure ERM implementation is effective. Scannell (2013) agreed that the COSO ERM Framework offers a reasonable context or outline for an organisation to integrate their business structure and strategy with risk management activities.

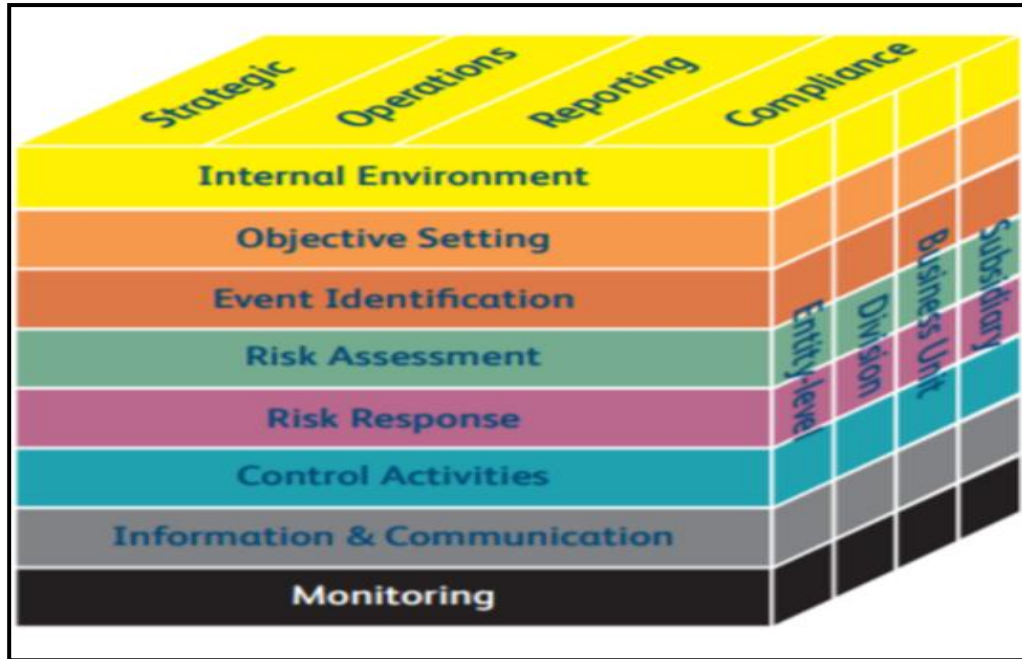


Figure 21: 2004 COSO ERM Framework

Source: Enterprise Risk Management – Integrated Framework, COSO (2004)

Gates et al. (2012) commented in their studies that COSO has started to reinforce its strategic approach by emphasising the contribution of its framework to an organisation’s strategic goal in four ways i.e. risk management philosophy and risk appetite conversations and dialogue; risk management practises comprehension and understanding; review and monitoring of the organisation’s portfolio risk vis-à-vis its risk appetite; and lasty, communication and appraisals of significant risks and risk responses.

ERM allows the deliberation of a risk management philosophy for improved strategic decisions in relation to operational efficiency and strengthens competitive advantage (Beasley et al., 2005; Hoyt and Liebenberg, 2011; Schiller and Prpich, 2014; Bharathy and McShane, 2014; Haywood et al., 2017). Nevertheless, some studies highlighted the challenges in risk management that impact the capability to discover new and emergent risks and pose a critical challenge to organisations managing their business risk management (Bromiley et al., 2015; Haywood et al., 2017). The evolution of market behaviour and business landscape, which keeps changing and has recently rapidly evolved with the “Internet of Things” and “Volatility, Uncertainty, Complexity, and Ambiguity”

(VUCA) worlds, makes risk complexity and predictability more difficult to anticipate and analyse. These caused additional pressure and higher systemic risk due to various reasons such as climate change, oil and gas supply and price volatility, shifts in consumers' behaviour, and economic recession, which led to business complexity and a variety of the organisation's risk behaviour (Lalonde and Boiral, 2012; Bharathy and McShane, 2014; Van Der Vegt et al., 2015; Haywood et al., 2017). This warrants an update of the ERM framework prescribed by COSO, whose updated version was released in 2017 with the new title Enterprise Risk Management: Integrating with Strategy and Performance, which emphasises the integration of risk even at the strategy-driving process and driving performance. Bromiley et al., (2016) claimed organisations which their ERM being integrated with their strategy-setting process or at the strategic level were more effective in their business management. Notwithstanding, there are challenges in implementing ERM such as costs and commitments from managers, vigorous changes in the external environment which warranted for some revisions to the framework since its first establishment (Bromiley et al., 2015).

The updates on the framework were also to strengthen further the philosophy of maximising value for the firms' stakeholder values by not just focusing on negative risks but also potential positive risks to the business such as sustainability risk, in which the risk assessment must be incorporated in the business strategy decision-making process and highlight potential implications for the organisation's performance achievement (Korkmaz, 2022; Bâtcă-Dumitru et al., 2023). In addition, Rubino (2018) stated that it aids the organisation to have a better understanding and be able to prioritise the management of their risks and measure the impact of those risks on them. Major highlights of improvements made in the ERM framework by COSO in 2017 were amongst others include greater insight into the value of enterprise risk management in strategy setting and execution; strengthen performance and enterprise risk management alignment in the pursuit of improving target setting and understanding of the impact of risk on their performance; accommodation of expectations for governance and oversight; recognition of the globalisation of markets and operations and the need to apply a common, albeit tailored, approach across geographies; presentation of new ways to view risk in relation

to setting and achieving objectives in the context of greater business complexity; expansion of reporting to address expectations for greater stakeholder transparency; consideration of evolving technologies and the proliferation of data and analytics in supporting decision-making; and lastly highlights of core definitions, components, and principles for all levels of management involved in designing, implementing, and conducting enterprise risk management practices.

Subsequently, COSO has further enhanced the framework to take into account several more areas which are aligned with Development Sustainable Goals (DSG) by United Nations (COSO, 2020) with the emphasis on ESG movements. They are categorised into strategic risk (e.g., customer relations, reputation, technical innovations), financial and reporting risk (e.g., credit, tax, market), compliance and governance risk (e.g., regulatory, international trade, ethics, privacy); and operational risk (e.g., supply chain, IT security, privacy, natural disasters, labour issues). While traditionally the emphasis more on governance element of ESG, progressively nowadays, the view of the inter-connections between strategy, risk and corporate sustainability have become more her ESG elements i.e. environment and social being factored in (Deloitte, 2019).

The Taran et al., (2013) and Shad et al., (2019) also agreed that ERM using the COSO approach will create value and avoid pitfalls or surprises in doing business with its approach to identify potential events that may impede the business objectives within its risk appetite and provide reasonable assurance of an organisation's ability to meet their objectives after identifying, analysing, treating, controlling, and monitoring their risks. On the other hand, Power (2009) criticised the COSO ERM Framework for being more focused on management, which emphasises detailed controls with audit trails such as Sarbanes-Oxley legislation, which require evidence of effective controls. This approach may shape behaviour as 'compliance-based' or 'box-checking' instead of 'critical imagination of alternative futures' or 'more robust and proactive thinking'.

ISO 31000

Another commonly and globally practised guidelines on risk management by most organisations is ISO 31000, a publication made by International Organisation for Standardisation. ISO 31000 was established through concerted and collaborative efforts by various parties, backgrounds, and industries in presenting a generic standard on risk management, which contributed to an important accomplishment in the risk management area (Gjedrum and Peter, 2011; Pillay and Jefferies, 2015). ISO 31000 has been updated in 2018 since its last update in 2009. The enhancement of documents is necessary to make them more concise and clearer for easy comprehension and to reflect additional emphasis in line with global and technological evolutions and changes. Rubino (2018) stated the guidelines were updated to assist its users in enhancing their risk planning and assessment and enabling an effective decision-making process by incorporating risk management.

To manage the challenges, it is essential to fully understand not only the risk drivers but the whole ecosystem of risk context for the organisation to predict and anticipate signals of potential and present risks (Beermann, 2011; Whitten et al., 2012; Van Der Vegt et al., 2015). The enhancements highlighted the importance of senior management and risk management integration into the organisation's structure, processes, objectives, strategy, and activities, where emphasis should be put in place for better application and practices. Rubino (2018) also claimed that it keeps the revision simple by emphasising the requirement of top management presence and support, the iterative process of external environment assessment, and the interactive process of risk management to be in place. A review of the guidelines application is crucial to avoid a failure to support its users, as a malfunction of the system may subsequently disrupt the whole organisational risk management system through its weaker functions and structures (Van Der Vegt et al., 2015).

ISO 31000 has been prescribed for guidance and not mandatory requirements; hence, it is not intended for certification purposes like most standards issued by ISO. By applying this, the organisation will be able to develop an appropriate risk management strategy, including risk treatment and mitigation, after following the risk management process

prescribed by them, which will enhance value creation by increasing the likelihood of meeting their objectives and increasing the value protection of their investments and assets. In addition to the adoption or adaptation of the guidelines, a risk culture must be developed and inculcated amongst employees and stakeholders; hence, leadership and commitment are critical to the overall establishment of a supportive risk culture. This will increase awareness, understanding, and ownership of risk management in their respective business areas. Interconnections of ISO 31000 principles, framework, and process are fundamental to a company's risk management implementation, regardless of the type of industry, variation of business activities, and different stages of processes.

Figure 22 below illustrates the seamless integration of those elements. The whole connection starts with setting the principles set in clause 4 of ISO 31000, which need to be read and applied together with the organisational framework and risk management process. To complete the connectivity, the risk management process and organisational framework must also be integrated to form a total loop of these elements to ensure they are seamlessly integrated. However, Haywood et al., (2017) argued that the systematically integrated elements in ERM limit the ability to go beyond the organisation's boundaries as it is constrained by its purpose of protecting the internal structures and processes towards achieving its business goals. The drawback of emphasising structured approaches and methods in managing risks may pose challenges in facing the readiness and preparedness of the organisation towards unfamiliar and outlier events that may impact the organisation significantly. Appendix B details these principles, framework, and process.

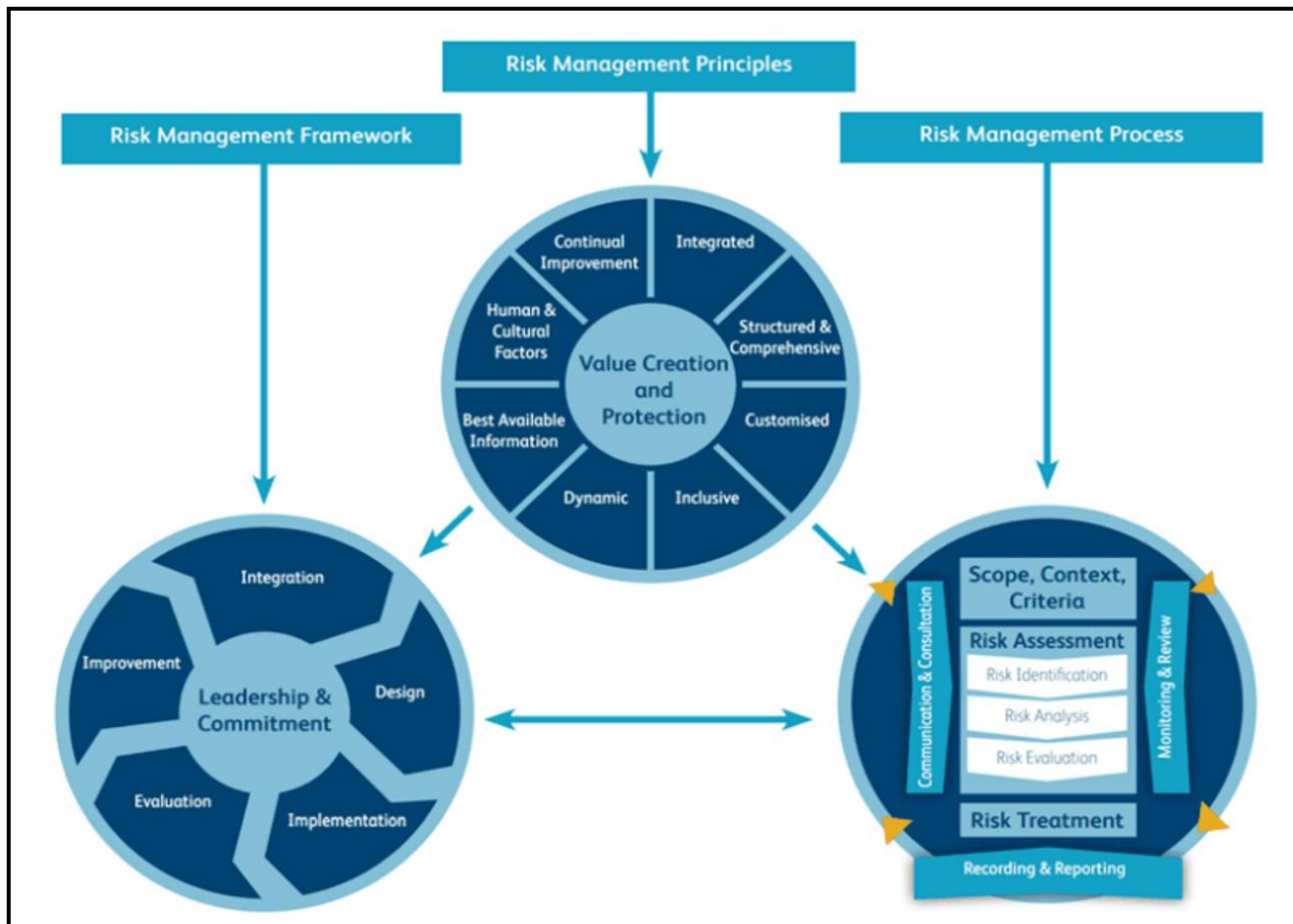


Figure 22: ISO 31000 (2018) – Risk Management Principles, Framework and Process

Source: ISO 31000 (2018)

2.5 Theoretical Framework

Theoretical Framework for this research is developed based on the agency theory, stakeholder theory, Rappaport Shareholder Value Analysis model and decision-making models. The theories and models shape the key elements in the Risk-Based Decision-Making Framework – Value Creation Approach as discussed in the literature reviews as illustrated in Figure 23 below. In summary, this research's theoretical framework outlines the key elements namely risk governance, integration of risk assessment into decision making, involvement of relevant parties, risk management system, SVA and performance measurement, and capability and knowledge management as key elements and other enablers in the proposed risk-based decision-making framework.

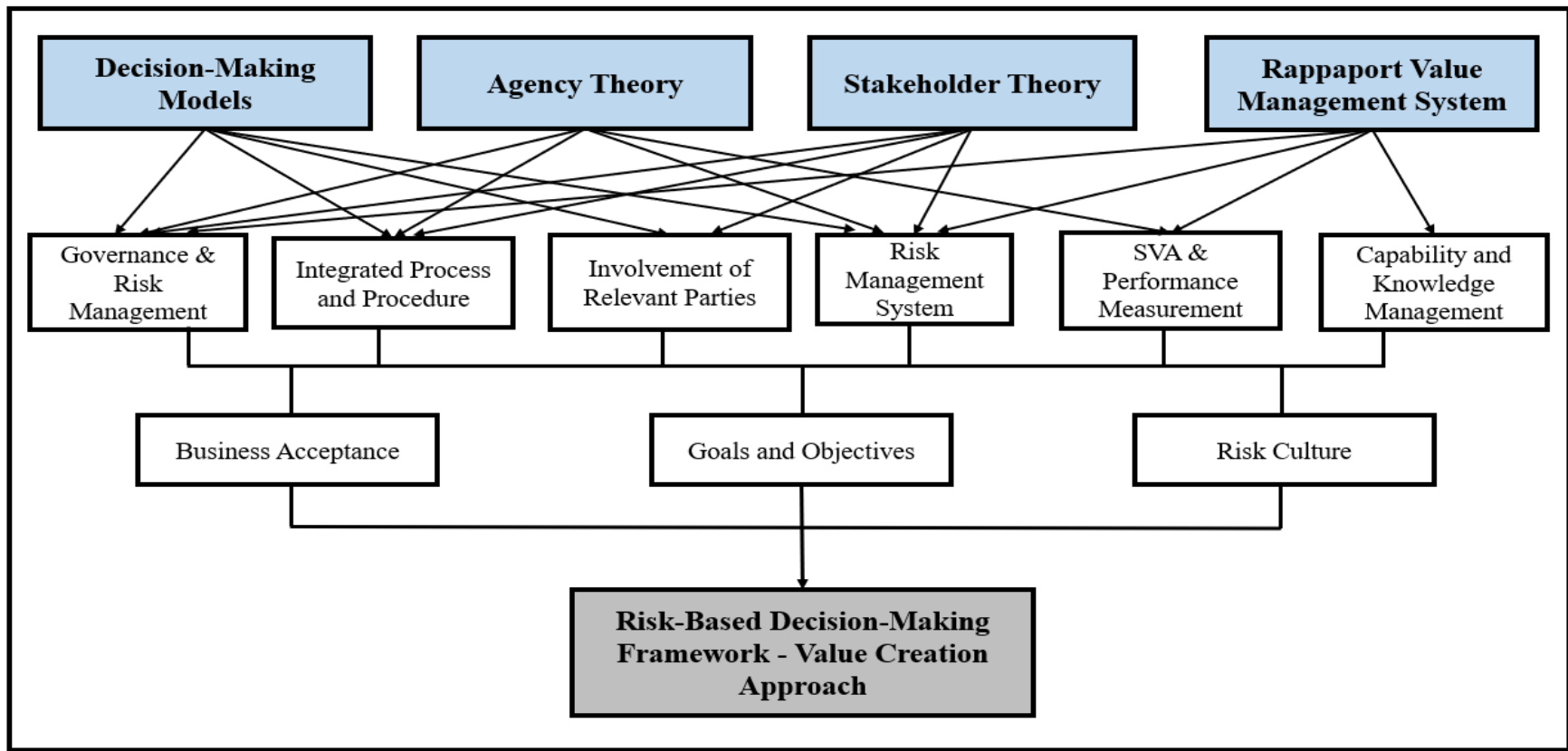


Figure 23: Theoretical Framework for Risk-Based Decision-Making Framework – Value Creation Approach

Source: Agency Theory (Ross, 1973); Stakeholder Theory (Freeman, 1984); Rappaport Value Management System (Rappaport, 1986) and Decision-Making Models (Simon, 1982)

Risk Management Framework issued by COSO is also being infused to supplement this theoretical framework as the structure and organisation of the framework has been commonly used and practised by organisation globally. The reference made is to ensure the practicality and applicability to industrial practices are in checked. In addition, the ISO 31000 Risk Management is another well-known and practised standard internationally. It prescribes risk management principles, frameworks, and processes that are used in the industry in shaping and guiding respective organisations' risk management practises and mindsets, as well as for establishing sound corporate governance to achieve long-term goals (ISO, 2009; ISO, 2018). The use of these framework and standard must go beyond its international certification purposes; it needs to be internalised and used to create real value for the organisation. Furthermore, shareholder value creation is particularly challenging in venturing into oil and gas industry due its complexity and exposure from various sources (Barbosa et al., 2020). Investment decisions in this industry require comprehensive analysis and assessment prior to making sound decision making as it involves enormous amount of capital investment. Sajjad et al. (2020) also claimed in their studies on New Zealand corporations including companies from oil and gas industry, a great importance on internal approaches has been placed to manage risk and understand value drivers. These cases demonstrate that modern corporations including oil and gas companies have implemented some relevant theories into their business operations. There is a need to understand the relationship between shareholders and managers, governance in the agency relationship, incentives to achieve the target objectives, value drivers of growth, risks to the businesses, processes and procedures, performance measurement, impacts to stakeholders and those relevant parties involved along the process value chain to ensure the long-term value creation and growth sustainability can be achieved by the organisation. The theories and models discussed in this literature review, including Agency Theory, Stakeholder Theory, Rappaport SVA Model, and Decision-Making Models, have the potential to enhance the Risk-Based Decision-Making Framework – Value Creation Approach for application in the oil and gas industry and the general corporate sector.

2.6 Debates and Gaps on Literature

According to Barbosa et al. (2020) research on oil and gas industry after COVID-19, by late 2030s, the industry outlooks anticipate even more challenging macro-environment due to lower demands for hydrocarbons will start to decline as a result of energy transition. This consequently led to product oversupplies, unfavourable price downward movement and pressure on profits, whilst on-going geopolitical risks continue putting the industry on high risk and volatile business condition. Similarly, oil and gas industry is subject to uncertainties although Ministry of Finance Malaysia (2023) reported the significant contributions of oil and gas industry to the nation's revenue and growth. Thus, a comprehensive understanding of the importance of oil and gas industry in Malaysia and its associated risks has explained the need for an effective risk management strategy and robust frameworks to support business decision-making processes. The insights gained from these studies form a critical foundation for analysing the specific key elements, highlighting areas for improvement and the necessity for continued attention in risk management practices with better articulated and interpreted (Jardine et al., 2003; Krewski et al., 2022). Testorelli et al., (2024) also urged further studies to be conducted to identify variables for emerging risk management framework that can effectively foster value creation for stakeholders. Reviews on relevant theories and models relating to risk based decision-making frameworks revealed the rationale behind managerial behaviours and business systems surrounding decision-making principles and processes.

Agency Theory, Stakeholder Theory, Rappaport SVA Model and Decision-Making Models have gained practical importance in the operations of modern corporations, including oil and gas industry. However, there are some arguments which have been critiqued by academicians on these theories. Agency Theory is criticised for its over emphasis the primacy of corporate principals or shareholders and maintains its narrow and simplistic interpretation. Agency Theory has significant differences from Stakeholder Theory on their main assumption on separation of ownership and control concept as the main source of economic problems in modern corporations. Nonetheless, Agency Theory provides clarity of the relationship between principals and agents with the critical elements

supporting the institution built around the relationship, more robust empirical validation is still required so as the application to the modern business corporation can be done (Eisenhardt, 1989; Panda and Leepsa, 2017). It serves as the key relationship between owners and managers based on a hierarchical and rule-based principal frame and defines managerial performance as the maximisation of the owners' wealth. This key assumption led to moral and ethical considerations are completely irrelevant in the ideal capital market from Agency Theory perspectives. In addition, the theory posits the concept of managers' unwillingness to take risk which is hard to measure and test under the premise that the managers will behave rationally and agency contracts will bind the responsible agents to behave appropriately. The implied systems of decision-making processes are equally important and being considered in the Agency Theory as the "ownership gap" where conflicting interest in the agency relationship has led to the importance of setting governance, monitoring and rewards system in place.

In contrast to Agency Theory, the stakeholder approach insists on integrating the variety of stakeholder interests into organisational objectives and strategies. The definition of stakeholder as any individual or group who has an interest in the organisation is insufficiently defined to which party should be involved and given priority in that relationship as opposed in Agency Theory. However, the modern Stakeholder Theory suggested a much broader spectrum of stakeholder conflicts, interests, and obligations and consequently focuses on criteria such as corporate survival, corporate ethics, societal sustainability, and moral business legitimacy which change their behaviour and ethical conducts. The measurement of interests and managerial performance plays key roles in modern corporations. Therefore, having an effective value management system would facilitate the shareholder value of the organisation being achieved through the identified value drivers that will rally the actions including decision-making process towards the organisation's goals and objectives. Stakeholder Theory has also been doubted by many researchers, as the concept of social contract is vague in nature for practical application in the corporate world.

Rappaport SVA Model as the performance measurement system of value management

aligns managers with the target setting made by shareholders through financial value drivers. This value management system has its limitation as it does not cover non-financial value drivers such as societal investments which currently has been identified as one of the most critical value drivers in business planning and strategy due to the strong demand and lifestyle change on ESG. Another limitation of Rappaport SVA Model which has been discussed earlier is its overemphasis on governance and processes which include monitoring and reporting may lead to high costs and less agile processes. This has connection to the way decisions are made by managers.

Behavioural concept of decision making by managers have influence over organisation make choices and alternatives on their businesses. Rationality Decision-Making Model has set foundation as to where decisions are made with perfect and accurate information that are available for the maximisation of benefits. It posits a structured process in decision making and assume the information is available for the decision maker to make the decision. Herbert Simon argued the inflexibility and inability of the model to cater for decision making in complex, uncertain, dynamic and robust situations where he proposed Bounded Rationality Decision-Making Model which overcomes the limitations identified with the earlier model. Satisficing and heuristic are amongst the concepts identified in this model on based on the situation that they are in and managerial behaviour they undertake.

Comparatively, Agency Theory, Stakeholder Theory, Rappaport SVA Model and Decision-Making Models lead to the requirement of governance in place so that monitoring and reporting can be done regularly to ensure the behaviour of managers can be controlled although this has been criticised as costly to the organisation. Yusof (2016) argued that although corporate governance practices in emerging economies including Malaysia are dominated by Agency Theory, there are still requirements to explore alternative perspectives so as to establish a better framework beyond the traditional institutional context and non-economic factor as compared to advanced countries. This decision-making process however needs to be done in heuristic manner in view of robustness and dynamism in the business environment (Sent, 2017). As for multinational companies where there many subsidiaries being established internationally, Yadav (2021)

proposed for review and further study of Agency Theory for the MNCs in view of multinationals' culture and behavioural differences. He identified gaps in understanding Agency Theory governance issues in multinational firms due to differences in respective country contexts so as he suggested to explore both hard skills such as strategic and soft skills such as culture in future studies. On top of that, the role of trust and collaboration amongst various parties in the organisation in mitigating these Agency Theory issues can be further explored in the effort to improve the organisational behaviour and overall dynamics in the organisations (Syafriadi et al., 2023). In fact, other areas to be explored as suggested by Chen et al. (2016) were on factors influencing director's social and human capital to overcome agency issues particularly in the firm's decision-making process. Furthermore, Slovic et al. (2006) urged further investigation on key elements impacting affective rationality in decision-making. On the context of incentives and rewards, Zogning (2017) also recommended to explore more on the alignment of objectives, encouragement of entrepreneurship instead of opportunistic behaviour and participation of senior management to reduce information asymmetry between principals and agents. This additional cost including the principals' consumption and competence issues which may cause the organisation (Zajac and Goronova, 2024). Finally, Razak et al. (2024) suggested for future research to also investigate elements or other unexamined factors such as organisational resources, capabilities and risk management system. These areas can be the supplementary areas for this research to focus on.

In sum, value relevance of the identified theories and models in this literature review justifies for further investigation and studies especially on the key elements to support risk-based decision-making framework. Aven (2017) asserted that the foundation for risk assessment and risk management requires deeper understanding and review for both theoretical work and its application where the existing perspectives and principles could extremely mislead managers in making decisions especially in complex and high-risk business environment.

2.7 Summary

This chapter provides an initial understanding of the main focus of the study, particularly on risk management, embedding risk management into business practices and decision-making process, underpinning theories, as well as theoretical framework of this research. Following that, the next chapter discusses the methodology used in this study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology and method used in conducting this study. It covers the details of data collection and the best methods used to collect it, followed by discussions, explanations and rationales connected to the identified research methodology in exploring an analysis on key elements for effective implementation and practices among selected few oil and gas companies towards meeting business value creation in Kuala Lumpur, Malaysia. A detailed justification and elaboration of the research design, philosophy, strategies, approach, planning, execution, study population and sample size is prescribed in this chapter to articulate the research process. This includes data collection procedures, data processing, and data analysis for this study. In addition, ethical considerations are spelled out to ensure the research is carried out in compliance with the university's ethical consideration policies, which include data confidentiality and security. Details of respondent demographics and criteria for this study are shown for better comprehension of the scope and context of research outcomes.

3.2 Research Approach

This section details the underpinning research philosophy, approaches, assumptions and beliefs to be applied in the generation of knowledge. It also explains the method of research used in discovering new knowledge in this study. As research design is a vital component of research methodology, this study undertakes the concept of 'Research Onion' developed by Saunders et al. (2009) as depicted in Figure 24 below as the overall guidance.

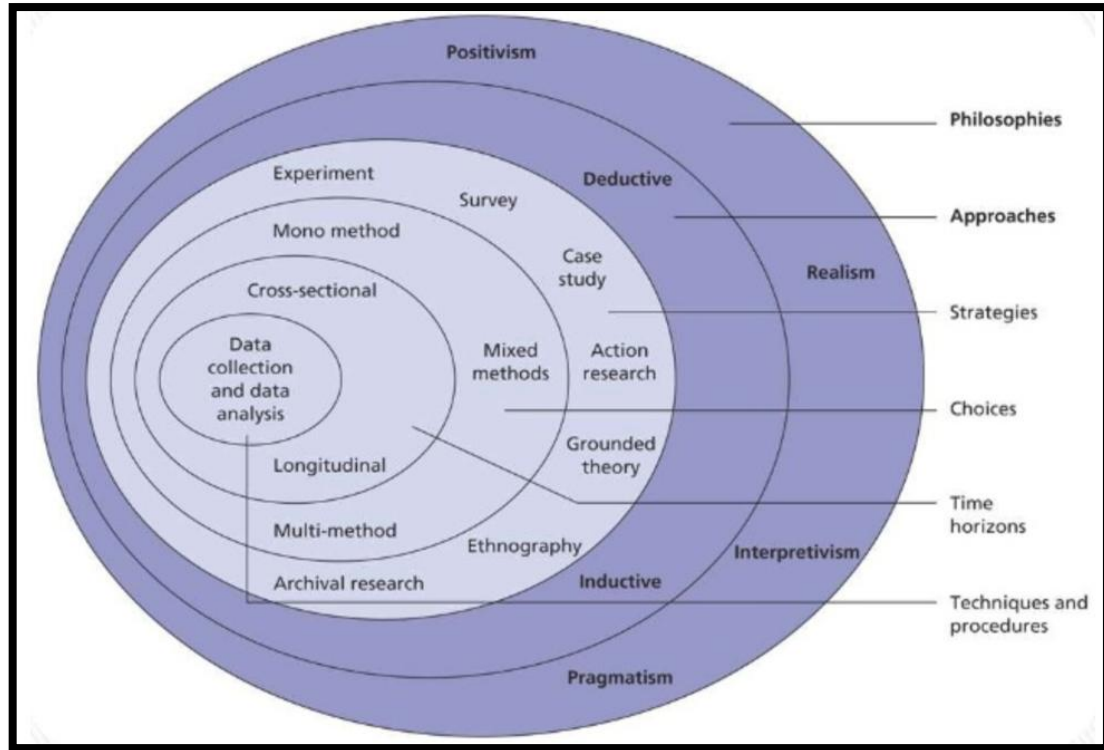


Figure 24: Research Design Adopted from ‘Research Onion’.

Source: ‘Research Onion’ by Saunders, Lewis and Thornhill (2009)

In research method, it is vital to ascertain its "research philosophy" which denotes the set of beliefs and assumptions on how knowledge is being developed. It also sets forth a critical foundation in any research work as it underpins the important assumptions about the research to be conducted (Saunders et al. 2009). Johnson and Clark (2006) also suggested for a researcher to be aware of the philosophical commitment of the research, as it influences the way research is being conducted. As this research study is to explore or analyse key elements of effective implementation and practices of risk-based decision-making framework towards meeting business value creation, it requires richer insights and perspectives in data gathering. It relates to social phenomena studies, which may focus more on the value of circumstances or individuals and how they view the subject of research. This refers to interpretivism research philosophy where the method of collecting and analysing data is more qualitative, which allows for more insights and greater understanding (Saunders et al., 2009). Easterby-Smith (2008) shared that choosing the

right research approach is critical to allow the researcher making a better decision of appropriate research techniques, structure and method as well as flexibility in research design in the event further extension or change is required.

This research study used exploratory research, which requires investigating further into the research questions and to gain in-depth knowledge of research domain. Curiosity and the discovery of the new elements of thought or phenomenon where identification of patterns or ideas are used to induce the development of new framework. Furthermore, qualitative research is the best exploratory method to analyse social or human problem with words, opinions and perspectives in a natural context (Creswell, 1994).

Pratt and Bonaccio (2016) also mentioned that research questions determine the choice of research method. In this research, qualitative method is used where collection of data is done through semi-structured interviews with business managers and risk managers in the selected few oil and gas companies as well as focus groups with experts and business managers. An inductive research approach is deployed in this research to detect patterns through observations of key findings and develop general conclusions as a result. Bitektine (2008) claimed that qualitative research inclines to deploy the inductive approach as it stresses the development of theory from the findings gathered during the study with greater inputs and understand from worldview of the people. This research approach is also more flexible and open-ended and suitable for this research study where probing during interviews and focus groups to provide better clarity and understanding. With this, stronger emphasis on practical solutions and outcomes can be achieved although Woiceshyn and Daellenbach (2018) argued that a well-balanced research approach should consider both inductive and deductive research is important.

Researcher of this study is an industry practitioner where seeking practical solution is key for future industrial practises and applications. Therefore, the study also employs the pragmatism research philosophy as the topic of inquiries are relatable to researcher's professional experiences. It helps to provide insights and considerations by engaging and discussing with interviewees comprehensively and closely during data collections which

provides practical and valuable findings of the investigation (Kaushik and Walsh, 2019; Greene and Hall 2010). Reflexive process of investigation based on researcher's experience and industry knowledge can be used to re-enforce and re-affirm whenever there is doubt during the inquiry process (Elkjaer and Simpson, 2011). This will lead to a more focused research strategy to attend to answer the research questions. According to Gillespie et al. (2024), the pragmatism research approach helps to gain better output of inquiries by gathering abundance of qualitative data, into opportunities where the emphasis of the quest for practical consequences is one of its key attributes. Nonetheless, pragmatism research approach is taking into account more than one opinion. It considers various viewpoint and shared generalisations to form a nature of reality and knowledge (Kuhn, 1970). In the quest of exploring the various elements in risk-based decision-making framework, gathering shared beliefs and values from industry experts and practitioners are essential. Data collection and analysis methods can be varied on the condition that the research design used ensures data reliability and relevance are in place.

As the inquiries and analysis of data require interpretation and pragmatic approach to gain greater understanding on the responses and findings narrative analysis approach is also adopted. Locke and Golden-Biddle (2002) agreed that qualitative research which are communicated in a non-quantitative manner require narrative analysis to further examine contexts of the findings by focusing on themes and language used in written texts and oral conversations. For the purpose to derive general principles from specific observations, instances, patterns, themes and findings, the research approach of inductive reasoning will generate untested conclusions as the fundamental aspect of this study (Esin et. al., 2014). By doing so, risk-based decision-making framework can be built upon as the enhanced frameworks based on outcomes of the generalisation of observations and findings as well as from literature reviews.

The aims of this research is to garner views and perspectives from experts and specialist in the oil and gas industries to answer the research questions on identifying key elements of effective implementation of Risk-Based Decision-Making Framework. In order to do that, qualitative research is used as the method allows gather in-depth understandings in

the subjects. This method allows the researcher to seek further clarification and understanding the research area holistically through iterative process such as discovering, assuming, constructing, interpreting and interacting on the topics during inquiries and investigations (Denzin and Lincoln, 2017; Creswell, 2005; Guba and Lincoln, 1981; Merriam, 1988). It allows the gathering and analysis of data through the interpretation of words and further meanings of the topics (Rubin and Rubin 1995), whereas the statistical method may not be suitable (Darlington and Scott, 2002). Furthermore, openness and thoroughness of data analysis can be compiled as the method permits richer collection of data as respondents can narrate their life experiences and expression of feelings (Warr, 2004). Agreeing to this perspective, Patton (2002) and Grix (2004) claimed that qualitative method is used to yield a plethora of specific information as well as support more practical and pragmatic outcomes of the study. With the use of this method in this study, detailed evaluation of data pertinent to the research area can be achieved. Therefore, the research questions and method will be interpretive and qualitative respectively.

3.3 Research Design

The research design establishes the inquiry's overarching structure and strategy. According to Rose et al. (2014), the research process should be formulated to cover the rigours of defining the research problem, designing the research project, collecting the relevant data for the research, analysing the data, and finally communicating the findings of the data analysis. Adapting with this approach, this study employs research design and process as depicted in Figure 25, started with the planning and design stages, followed by documentation and data collection, data analysis, and lastly, drawing conclusions and presenting the conclusions in the summary findings. At the planning and design stage, the formation of research questions stands as a very critical step, as it serves as the key element to be answered to solve the gaps found in the studies and the directions or guidance that led to how the research is to be carried out.

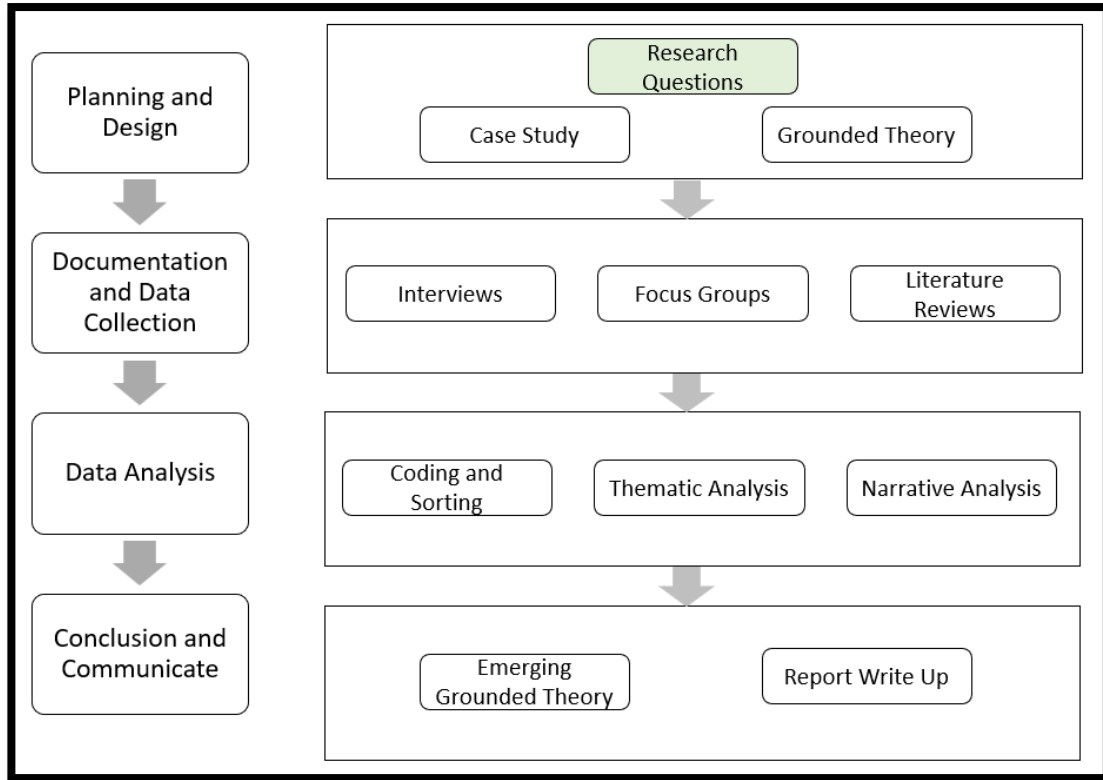


Figure 25: Research Design and Process

Source: Self Developed by this Study

Researcher use the identified strategies and techniques as described in Figure 3.2 to gather data, analyse, generate the enhanced risk-based decision-making framework and document the research accordingly. The data collection tools for exploratory research includes literature reviews, one-to-one interviews which semi-structured questionnaires are being used yet flexible and open-ended relating to the topic of research and lastly, focus groups are being conducted with a size of five participants being guided by facilitator, where the participants are encouraged to share their perspectives freely and spontaneously about themes considered imperative to the inquiry. Krueger (1997) and Berg (2001) suggested that size of focus group should not more than seven participants especially for complex as to allow participants actively engaged and involved during the sessions.

The next step in the research design is to ascertain the strategy of the research. The research requires an understanding of the practises and experiences of industry

practitioners. It requires the collection of data with greater depth and breadth on the subject matter and the testing of the available theories or frameworks on risk management. This includes specific description and interpretation through a qualitative research approach. In this study, we consider qualitative research methods as data collected is not usually measured or counted. It is to investigate inquiries on behaviour, experience, meaning, and perspective, mainly from the viewpoint of the research respondents. King (2004) suggested interviewing is the most usual method with the aim of understanding the research topic from the interviewee's stance and rationale for the chosen standpoint. Additionally, Gill, and Baillie (2018) also agreed interviews and focus groups as the method to collect evidence-based practices data and in the era of digitalization, the utilisation continues to evolve. Hence, this study uses interviews and focus groups with the aims to gather data experiences, discuss further on perspectives, allow deeper analysis and understand the topic of research comprehensively. Triangulation technique will be applied to validate the findings in interviews and focus group. This allows the researcher to observe if there is convergence, divergence or a mixture of both attributes. Greene et al. (1989) and Steckler et al. (1992) described this process as confirmation, disconfirmation or corroboration.

Blended strategy of using both case study and grounded theory in the research is deemed to be appropriate. This research study will start with a case study to explore the meaning, experience and perspective, and describe the context and specific instances of the phenomenon of the topic of research. At the same time, researcher will collect these detailed data through interviews and focus groups discussions as well as literature reviews. Thereafter, the case study data is analysed to identify key themes, patterns, and insights. This provides a foundational understanding of the case. The insights and findings identified from the case study as a starting point for grounded theory development. Thereafter, grounded theory method is used by using coding and categorizing the data to develop theoretical concepts and frameworks. The findings from the case study with the grounded theory framework will be integrated to provide a comprehensive understanding of the phenomenon. This has been advocated by Dahwa (2024) where the adapted version i.e. exploiting case study techniques to support grounded theory is claimed to be able to

overcome the issue of costly and time-consuming methods of grounded theory. The author also suggested that the combination of both methodologies enables a more holistic understanding of the research problem, capturing both detailed, context-specific information and broader theoretical insights.

3.4 Case Studies

Case study method has been used widely by researchers in variety areas including social science studies to investigate actual practices and provide practical theories for the concept application and method enhancement (Hartley, 2004). This type of research method provides in-depth inquiry of a phenomenon in real-life experiences and from the viewpoint of the individuals involved (Gall et al., 2007). The aim is to find answers to how-and-why issues by concentrating on the viewpoints from them. Meredith (1998) shared that case study research posits prominent strength in practical and theoretical contributions to management fields such as generation of relevant theory from observing actual practices and better understanding of the nature and complexity through case method allows the questions of why, what, and how. This research method can be deployed to provide explanation, description and exploration of everyday context of events. It helps to provide greater understanding and explanation of causal links and pathways which lead to establishment of new policy or framework (Crowe et al., 2011). Besides, it also focuses on the experiential knowledge of the case and close attention to other elements which may have influence on the responses where experience and tact by the researcher to influence respondents or interviewees to respond appropriately is key (Njie and Asimiran, 2014). In addition, the case study method also allows for theory testing on the previous tested theories and predict for future results, and further refinement for better theories (Voss et al., 2002).

3.4.1 Types of Case Studies

According to Yin (2018), there are various ways to conduct case studies in a research project. Types of case studies can be exploratory, explanatory or causal, and descriptive case studies. Each type of case study have its specific features and methods of application

in conducting research study as summarised in Table 2 below.

Table 2: Types of Case Studies
Source: Extracted from Yin (2018)

Approach	Purpose	Focus	Data Collection Methods	Outcome
Exploratory Case Study	Explore a new or unclear phenomenon	Broad exploration of an issue	Interviews, observations, documents, archival records	Initial insights, hypotheses, and understanding
Descriptive Case Study	Provide a detailed account of a specific case	Detailed description of a case	Interviews, observations, documents, surveys	Comprehensive and contextual understanding
Explanatory Case Study	Explain the causes and effects of a phenomenon	Understanding causal relationships	Interviews, observations, documents, quantitative data	Explanatory framework and identification of causal mechanisms

Yin (2003) stated that case study approach can be claimed as the foundation of social science study. A case study involves defining research framework which includes constructs the frameworks and establish questions, choosing cases, developing research instruments and protocols, conducting the field research and finally perform the data analysis (Voss et al., 2002). It is an in-depth inquiry of a person, a group of people, or a unit with the goal of generalising across multiple units (Yin, 2003). It can also be done in one or more approaches and is not intended to analyse cases solely, but more for defining cases and exploring a setting to gather meaningful findings for practical theories contributions (Thomas, 2011). Cases could be categorised by the purpose and nature of the final report conforming to the type of case study (Merriam, 1988).

Yin (2018) described exploratory case studies as a type of case study that tests initial assumptions and provides a structured approach to investigate a phenomenon in depth within its real-world context. The author claimed that it is useful when there is scarce information about the situation being studied, and they help to clarify the context and identify key variables. In the event that the research requires a causal inquiry, explanatory case studies are more suitable way to explain. This type of case study investigates causal

relationships and is primarily used for theory testing which requires internal validity that assures the researcher that the results can be accepted based on the research design (Quintão, 2020). Whereas, for research which requires the phenomenon to be investigated and described comprehensively with contextual understanding would be classified as descriptive case study. Under descriptive case investigation, the researcher should present a descriptive theory which serves as its foundation (Berg, 2011).

Yin (2003) suggested three criteria of case study i.e. the research explores current events of real-life experience, subjects to unclear boundaries of phenomenon and context, and utilises wide range of sources such as archival documents, interviews and observations. The author also stated that the results of case studies are used to validate research. This research phenomenon of an analysis of key elements for effective implementation and practices of risk-based decision-making framework among selected oil and gas company has been examined using multiple sources of evidence in the context of value creation to the organisation. Employing case studies in qualitative research method is recommended when it involves dynamic phenomenon and context investigation, where research questions are used to gather more accurate research findings and outcomes. These attributes reflect the research study attributes and therefore, case study approach was used to steer the research's implementation.

On top of that, an exploratory case study type was employed to investigate the research questions and governed the feasibility of the research as the researcher is seeking to investigate a phenomenon in depth within its real-world context. Therefore, case study organisational framework is to be designed as the prerequisite prior to conducting the exploratory case studies for more systematic and effective. Components of framework consists of research objectives, case selection, data collection, data analysis and reporting. This well-organised framework helps the research to stay focused and gather findings that are meaningful and reliable (Ebneyamini et al., 2018). Prior to establishing research questions in exploratory case studies, information and data gathering need to happen.

3.4.2 Design of Case Study

There are four types of designs in case studies methos as suggested by Yin (2003). Type 1 is a single case with holistic designs; Type 2 is a single case with embedded designs; Type 3 is a multiple case with holistic designs; and lastly, Type 4 is a multiple case with embedded designs. Table 3 below describes each case study design.

Table 3: Case Study Designs

Source: Yin (2003)

Aspect	Type 1: Single-Case (Holistic) Design	Type 2: Single- Case (Embedded) Design	Type 3: Multiple-Case (Holistic) Design	Type 4: Multiple-Case (Embedded) Design
Purpose	To explore a unique or extreme case with one unit of analysis	To explore a unique or extreme case with multiple units of analysis	To compare across multiple unique or extreme cases with one unit of analysis each	To compare across multiple unique or extreme cases with multiple units of analysis each
Research Question	"What" and "How" questions to explore or describe phenomena	"What" and "How" questions to explore or describe phenomena within sub-units	"What" and "How" questions to compare phenomena across cases	"What" and "How" questions to compare phenomena within and across cases
Unit of Analysis	Single unit (e.g., an organisation)	Multiple units (e.g., departments	Single unit for each case (e.g., different	Multiple units for each case (e.g.,

		within an organisation)	organisations)	departments within different organisations)
Data Collection	Comprehensive data collection for one unit	Data collection for each sub-unit within the single case	Comprehensive data collection for each case	Data collection for each sub-unit within each case
Analysis	Holistic analysis of the single unit	Analysis of each sub-unit within the single case	Holistic analysis across multiple cases	Analysis of each sub-unit within and across cases
Outcome	In-depth understanding of the unique or extreme case	Detailed understanding of the unique or extreme case within sub-units	Comparative understanding of phenomena across cases	Comparative understanding of phenomena within and across cases
Example Use	Studying a singular event or organisation	Studying different aspects of a single organisation (e.g., departments)	Comparing similar events or organisations	Comparing different aspects of similar events or organisations

Kitay and Callus (1998) stated that multiple case study enable the ability to compare and contrast the data in various situations which seems to provide stronger and richer findings and analysis. Based on Yin's guides, the research study employed a single case with embedded designs, where the case study narrowed down into one particular industry in Malaysia i.e. oil and gas, although the case selection covers selected few oil and gas companies in Malaysia as the population sampling. Units of analysis being embedded in the study are the identified departments involved in the decision-making process which are business managers (risk owners) and risk managers (risk controllers). Data collection involved analysis from literature reviews, interviews and focus groups. A triangulation

approach shall be used to ascertain and confirm the interview data with focus groups data. Comparative data analysis will be used to identify common patterns and differences. Stouffer (1941) agreed that a single-case design can offer useful findings and recommendation similar to other complex and complicated research studies. In addition, Yin (2003) also stated that it is usual for new researchers to perform research by focusing on sub-units with more major or significant issue instead of covering extensive and larger issue than the initial intents. Hence, this research study uses Yin's Type 2 single-case case study with embedded design.

3.4.3 Grounded Theory

Grounded theory is founded by Glaser and Strauss (1967) and one of the most popular qualitative research strategies, as it is used to establish a theory or framework based on findings. Social phenomenon theory is derived at higher level understanding that is “grounded” by analysing data systematically. This theory is appropriate when the study of social interactions or experiences aims to explain a process, not to test or verify an existing theory. As this research study is a conceptual thinking in building a framework instead of proving a hypothesis, this study is focused on a grounded theory approach. The conformation and validation of predictions through data collection shall form the enhancement or building of theory (Saunders et al., 2009). Mfinanga et al. (2019), on the other hand, said that case studies should be used to look at the existing theory or framework that forms the basis of the research questions. Hence, in this study, research questions were built based on the observations and gap findings of literature reviews. Case studies were done through interviews and focus groups. The results of the case studies will help to form emerging grounded theory. According to Andersen et al. (2013), a grounded theory study permits any applicable theoretical perspectives to emerge inductively. The results of the research analysis will then suggest ways to make the framework better.

3.5 The Population Sampling

This research study aims are to explore key elements for effective implementation and

practices of risk-based decision-making frameworks in pursuit of business value creation for Malaysian oil and gas companies. This is due to the criticality of the industry to the nation as one of major revenue contributors to country GDP. Hence, Perry (1999) stated the need to do the case selections on purposeful, focus and not random manner to form population sampling in the study. This is supported by Eisenhardt (1989) to ensure the case selection is not done on random as the author also highlighted the inappropriateness of such approach although qualitative case studies sampling can be information richness (Patton, 1999; Crabtree and Miller, 1999). The criteria case selection does not depend on representativeness but the guarded choice to either anticipate similar results or contrary results for predictable reasons to form literal replication or theoretical replication respectively (Perry, 1998).

Moreover, the research study employs a purposive sampling approach, also referred to as judgmental or selective sampling. This non-probability sampling technique is widely utilised in qualitative research especially in selecting respondents with specialised knowledge (Ahmad and Wilkins, 2025). They also advocated that this method promotes flexibility, inductive and coherence principles of qualitative inquiry. In this approach, researcher uses her expertise to deliberately choose participants who are most likely to provide comprehensive, pertinent, and deep insights based on their knowledge, experience, or characteristics that correspond with the study's objectives. Furthermore, Suri (2011) asserted that purposeful sampling necessitates access to key informants within the field, who can assist in identifying cases that are rich in information, particularly when employing the case study research method.

In this approach, the population sampling is also guided by data saturation point where no new information or themes can be further identified in the data collection. It indicates that further data collection is needless because additional interviews or observations are unlikely to provide new insights. Saturation is a conceptual threshold rather than a fixed number, as it depends on the topic's complexity, the sample's diversity, and the depth of inquiry (Corbin and Strauss, 2008). Likewise, Charmaz and Belgrave (2012) and Duffy et al. (2004) agreed that there is no specific number of samples to be taken as once data

saturation is attained, it indicates that no additional new information is being provided by the findings.

As the research's scope covers oil and gas companies in Malaysia as outlined in Chapter 1, the selection criteria of respondents focuses on employees with working backgrounds and experience from oil and gas companies. They were from a few selected oil and gas entities incorporated in Malaysia and involved in decision-making. The respondents were business managers, and risk managers or finance managers who act as the first line of defence and second line of defence in managing risks in the organisation respectively. Each of them was sent a participation request via email or phone call, seeking consent and agreement to participate in this study. Once the agreement was received, appropriate appointment with more details, such as time and venue, were set.

The appropriate level of respondents allows for deeper discussion and engagement in the business decision-making process and experience during the data gathering process. Selected candidates should be familiar with their organisation's decision-making process and with the associated control requirements involved to ensure the process is well managed and covered from risk assessment aspects. The composition also considers gender diversity to promote inclusiveness in perspectives and levels of seniority and to understand challenges and experiences from these varying levels, i.e., from the middle management level to the higher management level.

For this research study, agreement from respondents who are employees of selected few oil and gas companies incorporated in Malaysia have been obtained. The accomplishment of the studies are based on respondents' willingness to participate with the research study (Lansbury and Macdonald, 1992; Kelly, 1999; Baird, 2004). The target population sampling for the study must be with the right knowledge and working experience as the source of information that can contribute to the knowledge of research area willingly and able to spare time to be part of the research study (Morse, 1991). Hence, in this study context, the population sampling are business managers and risk managers from a few selected oil and gas companies incorporated in Malaysia. The rationale of the population sampling selection is because the research study is investigating the key elements for

effective implementation and practices of risk-based decision-making framework in Malaysian oil and gas companies towards the achievement of business value creation. The few selected oil and gas companies are amongst well-known oil and gas products and services providers. The companies either involved in fully integrated oil and gas production or downstream trading and marketing businesses such as retail stations business in Malaysia. As advocated by scholars such as Eisenhardt (1989) and Perry (1999), the selection must be purposeful and not random and hence the selection of appropriate population sampling amongst business managers and risk managers in the few selected oil and gas companies as a reliable case study can represent Malaysian oil and gas companies. Maxwell (1992) and Geertz (1983) acknowledged that although small size of qualitative research population sampling is done, the respondents feedbacks and responses to the inquiries provide richness of information and descriptive details and meaning of context and research topic for further analysis. As this is qualitative research study where the sample is relatively smaller but more focused on the chosen field of areas (Patton. 2002). The emphasis was made on obtaining the wealth of information from a few selected oil and gas companies through interviews and focus group.

As suggested by Yin (2011), the research study undertakes strategic purposive sampling in order to maximise data collection quality and quantity. In doing so, researchers have better control to limit the scope of the study when it is detailed and spelled out in case studies recommendations which serve as their parameters. These can be generated from literature reviews, professional experiences, observations and theories. Hence, in this research study, the samples were selected deliberately and accordingly. Samples for this research involved business managers and risk managers who are involved in decision-making process in the selected few oil and gas companies incorporated in Malaysia, who are pertinent to the research objectives. The recommended participants are between five to twenty-five participants as suggested by Creswell (1998) although Morse (1994) suggested a minimum of six participants. In addition to interviews, two focus groups were organised to strengthen the data collections. The sessions were recorded through Microsoft Teams application, and followed the procedures as guided by Kruger and Casey (2000). The respondents are all managers working for oil and gas companies who involved

in business decision-making process in their organisation. The selection of respondents aligns with the research objectives and information and data collected from them are useful and purposeful in these areas of research. Hence, in this research study, fourteen respondents were selected business managers and risk managers for interviews and followed by another ten participants of the same job positions through two focus groups. The main objective is to gather perspectives, experiences, views and information from them on the research topic and establish a framework for an effective implementation and practice of risk-based decision-making framework for oil and gas companies that enable the business value creation to the organisation.

3.6 Case Study Protocol

Rashid et al. (2019) stated the importance of case study protocol as it includes a structured process and guides for the research to be executed. It outlines the research questions, the scope and focus of the study. Other pertinent matters like data collection, preparation of interview guide, research question, research method, permission seeking, ethical considerations, interpretation process, and criteria for assessment are also discussed in the case study protocol. It is a formal document covering the process of empirical material collection of the study which serve as the direction for the researchers to gather evidences, analysis of the gathered data and report the findings accordingly (Yin, 2009; Yin, 1994).

The case protocol's main objective it to provide guidance for the research inquiry to be carried out. This research study follows this following case study protocol to achieve the research objectives and ensure the consistency of handling the case study inquiries by researchers. Similarly, Rahim and Bakash (2003) advocated to carefully establish the case study protocol as besides it serves as a useful framework for conducting case studies, is to ensure the data being collected, presented and analysed in repeatable, reliable and effective manner while preventing biases from interviewer. The following is the case study protocol for this research study which entails the purpose of the study, data collection procedures, selection procedures and interview guidance to handle interview in professional, attentive and effective manner.

Purpose of the Case Study Method

The main objective of the case study is to meet research objectives as listed below:

- 1) To explore the key elements of organisation's risk management practices in incorporating risk into the decision-making process.
- 2) To investigate the implication of risk assessment in business decision-making framework implementation and practices on business value creation.
- 3) To analyse the other determinant factors and any other emergent properties that may provide a greater impact of risk assessment in decision-making to create value for the company.

Data Collection Procedures

In this research study, the unit of analysis is companies in oil and gas industry in Malaysia based in Kuala Lumpur. Based on Yin's guides, the research study employed a single case with embedded designs, where the case study narrowed down into one particular industry in Malaysia i.e. oil and gas, although the case selection covers selected few oil and gas companies in Malaysia as the population sampling. Units of analysis being embedded in the study are the identified departments involved in the decision-making process which are business managers (risk owners) and risk managers (risk controllers).

Prior to the interviews, respondents should be informed on the protocols, for instance that they have right to withdraw from the interview if they are uncomfortable, the collected data will be handled with strict confidential and their anonymity will be kept. At the beginning of the interview, the researcher should provide the respondents the objectives of the interview, the process of data will be handled and maintained, and the anticipated results of the research will be debriefed. While conducting the interview, the researcher should also seek for permission from the unit analysis i.e. respondents or interviewees on potential additional follow up questions or clarification on the answers they have given

during the session. This is to ensure meaningful understanding of the answers can be achieved for the purpose of data analysis of the research. At the debriefing sessions the respondents should be asked for consent form to be signed. All forms are to be kept and filed securely and confidentially. An email to be sent to each respondent to share back the verbatim transcriptions, analysis including the interpretation of the answers and report of his or her feedbacks during the session. In addition, the researcher should include the appreciation message to the respondents for their participations.

Selection Procedures

As this research study is a single case with embedded designs, the following are the criteria of selection process:

- 1) For each case, it covers fourteen respondents from a selected few companies in oil and gas industry in Malaysia. The companies are either involved in fully integrated oil and gas production or downstream trading and marketing businesses such as retail stations business based in Kuala Lumpur, Malaysia. The respondents are business managers as the risk owners of the business decisions and risk managers or risk controllers who are the functions supporting business managers in making decisions for the organisation. The respondents are experienced and experts in their respective areas which are useful for the research study as the researcher is undertaking a purposive sampling to ensure the relevance of the data collection to answer the research questions.
- 2) For appointments, the researcher is to contact them individually to seek agreements and appointments. Upon agreement, the necessary arrangement such as scheduled date and time should be handled accordingly.
- 3) Consent forms should be shared beforehand and received back with their signatures.
- 4) The estimated time for the interview is about one to two hours at the scheduled time agreed by both researcher and respondent. Where necessary, a follow-up

session, calls or emails may be pursued to clarify interpretation of the answers during the case study interview.

Guidelines for semi-structured interview questions are listed in Table 4 below and built based on the research objectives:

Table 4: Guidelines for Semi-Structured Interview Questions

Source: Self Developed by This Study

Research Question (RQs)	Research Objectives (ROs)	Questions	Expected Answers
How does the organisation incorporate a risk management into their business activities and what are the key elements in performing the risk-based decision-making process?	To explore the key elements of organisation's risk management practices in incorporating risk management into the decision-making process.	1) Can you share how does your organisation adopts risk management frameworks and implements them into business activities? 2) Is there any risk policy, framework, governance structure and process in place? 3) Is the risk assessment in the decision-making process needed to be framed in the organisation's policies and standards to enable the process to be better? 4) Do risk management activities such as risk assessments embed in business processes, especially business decision-making? 5) To what extent is the process being embedded into their business processes, especially in the business decision-making process?	The expected answers would be the description or explanation on the manner their respective organisation adopts and implements risk management framework and incorporates risk management process into business decision-making process.
How the risk based	To investigate the	1) How and why would business managers and risk	The expected answers

decision-making process affects the organisation from business value creation perspectives?	implication of risk assessment in business decision-making framework implementation and practices on business value creation.	managers view the importance of risk assessment in the decision-making process? 2) Does risk assessment create value for them and ultimately for the organisation? 3) How does risk assessment create value for them? 4) How do they understand the meaning of value creation in their business context? Is there any measurement of value creation in the business or organisation? 5) Can value protection be considered value creation? 6) What is the level of business acceptance of embedding risk assessment in decision-making? 7) What are the challenges faced by businesses in incorporating risk considerations into their decision-making? 8) What would be the factors that would increase the level of business acceptance? 9) What is the area for process improvement to increase the level of value creation?	would be the description or explanation on implication of risk management being incorporated into business decision-making on the achievement of business value creation
What are other	To analyse	1) What are other enablers to support the incorporation of	The expected answers

determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company?	other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company	risk assessment in the decision-making process? 2) Who is involved in the overall process? 3) Are they clear about their roles and functions in the process? Is segregation of duties and independent checks required? How can we enhance the clarity of the roles and responsibilities of the stakeholders involved? 4) What are the roles of risk management in supporting risk assessment in the business decision-making process? 5) Do they need an independent risk management structure to govern this process and other risk management processes? 6) Who is the risk owner? Who is the responsible party to mitigate risk? 7) What is the level of business and risk knowledge required? 8) What are the required capability developments for both business and risk managers in contributing value	would be the description or explanation on other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company.

		to risk assessment in the decision-making process? 9) How is the communication of inculcating risk culture cascaded from top to bottom? 10) Does risk have to be embedded into business and function KPIs? 11) Do they share business KPIs to ensure full ownership and collaboration commitments? 12) Is there any tracking, monitoring, following up on mitigation strategies, and reporting done? 13) How can they further shape the culture of embedding risk in their business decision-making process to achieve a pervasive risk culture? Does top management drive and shape this culture?	

Interview Guidance

Interview should be conducted in a conducive manner, a freewheeling in nature, conversational and focused. Below are several items to be considered when conducting an interview:

- 1) The interview is semi-structured where interview questions are used to guide discussion and conversation. The researcher is encouraged to freely use own style in conducting the session to best gather the expected data from respondents.
- 2) Listening attentively to respondent's views and sharing is very crucial in an interview session as to allow researchers to probe and enquire more information from the respondents. Therefore, the researcher must allow respondents to speak freely without interrupting them
- 3) Utilise electronic tools or items to record or capture the discussion. Nonetheless, permission must be sought beforehand from the participant prior to recording
- 4) Note taking should be done during the session to assist the next stage of data analysis in the research study
- 5) Make sure the coverage of the interview topics and items are covered before concluding the session with the respondent

3.6.1 Documentation

Documents received and collected from the organisations involved includes organisational structures, vision, mission, performance reports, annual reports, press releases and briefing about the organisation's business activities. If the data cannot be disclosed, the researcher refers to other supporting documents and sources as substitute and supplementary documents and followed by a brief description report. These documents are to be securely stored and filed to protect the confidentiality of the companies. In addition, other documents including transcriptions, data analysis reports, findings reports and consent forms which contain confidential information should also be filed, stored and kept confidential to protect the anonymity of the respondents and

organisations involved as part of following the University's ethical considerations and the prescribed case study protocol.

3.6.2 Site Visit

Site visit is a crucial part of data collection in research, particularly in case studies. It provides researcher with actual experience and understandings that are often unattainable through other data collection methods (Yin, 2009). Being present at the site allow researcher to observe the interactions, activities, and surrounding conditions which provide greater understanding of the situation (Lawrenz et al., 2003). One of the significant benefits of site visits is the ability to gather rich and comprehensive data which include the nuances, non-verbal cues, and contextual variables that are often missed in remote data collection methods (Ghauri and Gronhaug, 2005). The researcher had opportunities to perform site visits to most of the respondents' sites. Interview sessions were conducted on face-to-face physically and virtual electronically basis depending on availability and convenience of the respondents.

3.7 Focus Group Discussions

Beside case study interview, focus group serves as a powerful data collection method to gather in-depth insights from participants (Wilkinson, 2004; Kitzinger, 1994). Through focus group session, respondents feel less threatening and at the same the method is encouraging open sharing, engagement and discussions of ideas, views and perceptions amongst themselves (Wilkinson, 2004). Additionally, Creswell (2005) stated that the focus group goal is to collect information from a dedicated and selected group on matters and issues that are important for the research. The discussions and sharing amongst the respondents are to on experiences, views and insights on a particular topic or phenomenon which are qualitative in nature. Onwuegbuzie et al. (2009) also advocated to use focus group discussions to explore respondents' views, values, and behaviours as they can freely voice out their thoughts and at the same time, researcher is having the opportunity to probe and seek further confirmation to gain deeper understanding of their views and points of

arguments. Furthermore, conducting focus group discussions can strengthen the reliability and validity of the data by validating the findings from interviews. This step is also known as triangulation process to confirm or challenge the findings gathered during interviews. Caillaud and Flick (2017) suggested that using focus groups in triangulation context help researcher to gain greater understanding of the matters and findings from the social interactions and participation enable meaningful construction. This is because the experts and experienced managers who have grouped to share their collective understanding of social knowledge and everyday knowledge which will enable a more thorough understanding of the research topic.

Kruger and Casey (2000) has outlined procedures in conducting a focus group which involve a proper planning of the focus group study with the determination of objectives, target audience, and number of focus group. They also emphasised the need to ensure the selection of participants consider diversity, right size of group and relevancy of their expertise where a moderator need to be able to facilitate the discussion effectively and keeping the participants on track. In addition, the recording of the group discussion need to use audio or video recording to capture the discussion and all contributions or ideas are documented and thereafter the results are to be analysed and summarised after the recordings being transcribed. Common themes, patterns and insights identified must be analysed and lastly, the results and findings are to be presented and reported in a clear and concise manner, emphasising the key insights and recommendations for the development of a framework, new product, business model, policy or even to enhance the existing ones. Nevertheless, it is essential to note that focus group discussions should not be used as a replacement for individual interviews. It is a complementary tool to strengthen the data collection and provide a more comprehensive understanding of the research topic. In this research study, these results were used to support or complement findings from interviews to develop risk-based decision-making framework towards business value creation for oil and gas companies

The size of the focus groups in this research was set to be five participants in each group. Two of focus groups were done to collect data from the immerse discussions between

experts and managers pertaining risk-based decision-making process in their respective organisations. Hence, in total the participants for the two focus groups is ten participants. Although six to eight being the ideal size recommended by Krueger and Casey (2000) for the focus group, this research study undertook to deploy five participants in one focus group to ensure for a few reasons namely to allow the depth of discussion can be achieved with fewer participants, more comfortable and intimate setting for participants to share more as well as manageability of moderator to handle the focused discussion better. The moderator of the focus is the researcher herself in view of the researcher is also a risk expert and experienced in involving decision-making process in her work profiles. The researcher undertook strategies suggested by Roald et al. (2024) in conducting the focus group. The three strategies consist of creating conditions before the interview; creating conditions at the beginning of the interview; and active interventions during and end of the focus group discussions. The focus groups were done via Microsoft Teams a two-hour audio and video recording. The details of focus group participants are listed in Chapter 4.

3.8 Data Collection

3.8.1 Interviews

According to Creswell (2008), the goal of using interview in collecting data is to come to a conclusion or description of a phenomenon based on the results that have come together and the similarities in the real-life experiences of the people who took part in the study. It is used in a qualitative research method as a technique for seeking further clarification and understanding on the topic of the research area. It allows the gathering and analysis of data through the interpretation of words and further meanings of the topics, whereas the statistical method may not be suitable. This research study is collecting data that is not measured and counted. Therefore, Denzin and Lincoln (2017) suggested a qualitative research method should be used and even more suitable when the researcher may be a part of the study environment which provide expert and specialist views on with the analysis and interpretation of the research results. Using this method, this study comes up with questions about the topics, chooses how to ask the questions and gets answers from

participants, uses inductive analysis on the results by drawing conclusions from a bigger picture, and then makes decisions or arguments about what the data means (Creswell, 2008).

King (2004) suggested that interview is the most usual method with the aim of understanding the research topic from the interviewee's stance and rationale for the chosen standpoint. This research study is collecting qualitative data through semi-structured interview sessions. Charmaz and Belgrave (2012) suggested that researchers use semi-structured interviews and collect and analyse data in a step-by-step way. Duffy et al. (2004) also advocated that robustness in inquiring and collecting data can be achieved when a semi-structured interview for grounded theory research is held loosely. By doing so, emerging themes can be identified during the collection process stage, and the researcher can decide whether to continue or stop the process (Wimpenny & Gass 2000).

The interview sessions were recorded upon permission, transcribed, referenced, and filed systematically using NVivo 12 Plus qualitative data analysis software. Data collection went through the process of selecting respondents, planning and ascertaining the case study protocols, shortlisting the interview topics and semi-structured interview questionnaires to drive the session, going through the interviews to gather the data, and lastly transcribing and translating the data gathered for the next step of data analysis.

Semi-structured questionnaires as drafted to guide in the interview are particularly required to extract further understanding in deploying case study and grounded theory research approach in the theorising and visual mapping processes (Langley, 1999). The feedbacks and views gathered were used in the data analysis for identification of key elements for effective risk-based decision-making framework implementation and practices. These questionnaires have been attested and validated by two industry risk experts to check on the relevance to the research objectives as per Appendix C. The semi-structured questionnaires, as listed in Table 4 were developed to guide the interview for focused and deliberated discussions with respondents. Interview sessions were conducted at respondents' convenient locations either virtually, electronically or physically where they are deemed appropriate for observing the ethical considerations imposed in the

university's policy and standards. The sessions were recorded upon consent received from the respondents; otherwise, notes are taken for the next steps of data analysis to ascertain the outcomes of this study.

3.8.2 Interview Planning, Technique and Protocol

Research activities such as carrying out interviews, coding analysis, and document reviews were carried out by the researcher, which required additional resources at researcher's own costs. Planning involved the following steps:

- 1) All selected respondents' information and details, such as full name, company name, email, and phone number, are kept in a proper soft copy file for easy tracking and recording.
- 2) Emails were sent with a participation request message for them to acknowledge and grant their acceptance of the request. An appropriate follow-up email was sent out after a week-long lapse period if there was no response from the candidates.
- 3) Once the response was obtained, planned the appropriate date, time, and venue for the session. All communications were done via email for easy tracking. As they may have constraints on their calendar, researchers need to be flexible to accommodate any sudden changes in plan and timing. A few candidates opted for virtual sessions and electronically where software applications, namely Microsoft Teams, was used for the virtual meeting.
- 4) Shared researcher's profiles, the background of the research, its objectives, and a list of semi-structured interview questionnaires for them through email to prepare beforehand.
- 5) Obtained relevant supplementary documents, such as an annual report or financial statement and from the respective company's website.
- 6) Sent a gentle reminder email to remind them of the interview session. Provided the important information, such as date, time, and venue, again to minimise potential disruption.

- 7) Each session was planned for at least two hours and recorded only when agreement from the respondent is sought. Interview transcripts are used for respondents who prefer not to be recorded.
- 8) Once the interview has been conducted, an appreciation email is sent out to the respondents with a transcript of the interview sessions. Reverse confirmation mode was used through email, and the respondents were requested to revert back if there were any points shared in the emails that require amendment or clarification.

As this was a semi-structured interview session where the questionnaires for the sessions have been shared earlier prior to the actual session, probing techniques were also used. This helps the researcher to gain more insight into the breadth and depth of the answers given by the respondents during the interview. Also, conformation and confirmation of elements in deriving appropriate conceptual frameworks can be achieved.

Yin (2011) advocated the advantages of using research protocols as mental frameworks to facilitate researchers in their pursuit of finding answers to their research questions. As guided by Yin, the following steps cover the interview protocol:

- 1) The interviewer introduces herself as part of the opening of the interview and provides the objectives of the research, its research domain, scopes and boundaries, and the process flow of the interview. On this occasion, it is very essential to seek permission from interviewees to record the interview conversation. The audio recording can only be done when an agreement is obtained. The confidentiality and anonymity of respondents' details will also be communicated to them in accordance with the university's ethical requirements.
- 2) The interviewer commences the engagement by asking the interviewees to introduce themselves so as to collect more information about the respondents from the search earlier.
- 3) The interview starts with semi-structured questions that will be used to get more information and specifics, such as proof, personal experiences, and ways of talking about the topics.

- 4) When all the questions have been asked and addressed, the interview ends by asking respondents to share their opinions on improvements to the research gap and research area.
- 5) The interviewer shares the next steps and potential further inquiries that may take place should further validation, verification, or confirmation be needed. A follow-up inquiry may happen either through email or another meeting request based on the respondent's convenience and availability.

According to Yeong et al. (2018), the above protocol is in line with their four-step Interview Protocol Refinement Framework. This framework includes making sure that the questions are aligned, using open-ended questions to get people involved and talking, reviewing the interview protocols through feedback, and evaluating the interview questions ahead of time.

3.8.3 Interview Topics and Questions

Topics to be covered in the interview are value creation, risk assessment and involvement in decision-making, risk culture, risk governance, organisation structure, business acceptance, risk culture, and capability in risk management aligning to the conceptual framework that has been proposed and structured in the earlier chapter. Elements that have been incorporated as part of the proposed research framework are used to guide the interview sessions. The interviews' semi-structured questionnaires cover specific topics and sub-topics and how these elements hinge towards achieving business value creation that is aligned with the organisation's strategic objectives developed as per Appendix D.

3.8.4 Conducting Interview Session

On the day of the interview session, the researcher needs to stay composed, calm, and confident about the research topic, questions, and objectives. Preparation for the interview, such as documentation, questionnaires, and information about the respondent and the company where she or he is or was working, needs to be ready prior to the engagement. Once both respondent and researcher have settled down in an appropriate

venue or virtual meeting, depending on the convenience of the respondent, researcher will start by introducing herself briefly, the research topic, and objectives, although these have been shared via email earlier. Also, the researcher recaps the other information shared through email, i.e., interview scopes, processes, and ethical considerations imposed by the university as part of the interview context setting. As the researcher has performed studies on the respondents' organisation and positions, this information can be used in probing and counter-discussion during the interview.

As timing is crucial for both parties to ensure effective time management and meaningful insights from the discussion, the researcher needs to tactfully manage the time and move on to the next questions or inquiries should the requirement arise. Interpersonal and negotiation skills are required at this juncture, and some of the discussions may have been covered in the earlier questions, which may be skipped as they have been covered earlier. At the end of the interview session, the researcher seeks the respondent's last input or question that she or he wants to add that may not be covered in the discussion, which can be for the next research topic or study. To end the session, an appreciation note must be given to them verbally to acknowledge their time and commitment to supporting this study and to inform them of the next step as per the interview plan and case study protocol procedures.

3.8.5 Verbatim

Verbatim transcription in case study interviews refers to the process of replicating verbal discussions into scripted text exactly, without making any alterations or omissions (Davidson, 2009). This means capturing everything for instance, every single word uttered, filler expression used such as "um," "uh", any non-verbal like pause in the discussion and also sounds of laughter. The objective is to create a written record transcribe the original audio exactly, protecting the speaker's precise words and the manner the discussion has been carried out (Poland, 1995). In this research study, the interview data has been transcribed with verbatim and used further in data analysis. Dale (1993) suggested that by doing so, it enables the researchers to analyse the data better and

hence able to conclude the research successfully. Sample of case study interview transcript is as per Appendix E. By incorporating each detail, verbatim transcription serves information ready at hand that can be used for comprehensive analysis. Furthermore, verbatim transcription improves reliability and validity of the research findings and therefore allows for accurate coding and thematic analysis, which is critical for qualitative research.

3.9 Data Analysis

Bernard (2000) detailed various techniques employed in qualitative data analysis, including thematic analysis, narrative analysis, and content analysis. Alternative data collection techniques, including ethnomethodology, discourse analytics, and semiotics, are extensively employed in traditional research methodologies. Qualitative data analysis aims to interpret data based on participants' descriptions by identifying patterns, themes, and categories (Cohen et al., 2011).

In this research study, the researcher undertook thematic analysis and narrative analysis as the method to analyse the data. Thematic analysis method improves the data explanation systematically and also comprehensively cover numerous themes that emerge (Boyatzis, 1998). Additionally, Riessman (2008) explained that narrative analysis methodology offers various approaches to interpreting texts, even when they convey the same meaning or storyline. Wang et al. (2020) also noted that narrative analysis offers deeper insights by continuously evolving during research. It is widely used to study various aspects of the social world.

NVivo 12 Plus was used to analyse collected data in this research study. Interviews' transcripts and focus groups discussions transcripts were imported, coded, reviewed and analysed for patterns and until it reaches the saturation points where no additional new significant discovery identified. In NVivo 12 Plus, this is identified by recognising when further coding or data collection ceases to provide new insights (Alam, 2021). Transcripts that have been coded were summarised and examined to conclude the overall discoveries of qualitative data collection from interviews and focus groups discussions in accordance

with research questions and themes.

3.9.1 Transcription and Translation

The responses and outcomes from the semi-structured interviews and focus groups were transcribed and analysed using coding or a thematic basis. Using NVivo 12 Plus analysis software enables the study of phenomena and behavioural patterns from respondents' experiences. Corbin and Strauss (2008) stated that qualitative data to generate theory can be collected through theoretical sampling which allows the research itself to drive the data collection where the thematic concept might emerge, get elaborated and further data are collected which are guided by these emerging concepts, until all the themes or classes are exhausted. Although collected data are lesser than the minimum level but when they have reached the data saturation, it indicates that the findings are no longer yielding any new additional information (Charmaz and Belgrave, 2012; Duffy et al., 2004).

The transcription requires understanding, and confirmation of that understanding requires further confirmation, if any, for the researcher to translate them into meaningful findings for consideration in the research. Clarification needs to be done either via email or face-to-face based on the availability of the respondents. The next step is to code and analyse the findings and outcomes from the interviews, where the research questions such as risk assessment in decision-making practices, risk management involvement, risk capability, and business acumen capability, among others, stand as the key factors impacting business performance and value creation for the business entities.

3.9.2 Coding Strategies

As described in Figure 26, coding strategies were used to perform data analysis on the findings obtained from the interviews and focus groups. This strategy is adopted from Saldana (2015) to derive from conforming and concluding the conceptual frameworks. This enables the process of validating the elements of the proposed elements, which can be applied and used in the enhanced theoretical framework as an outcome of this study.

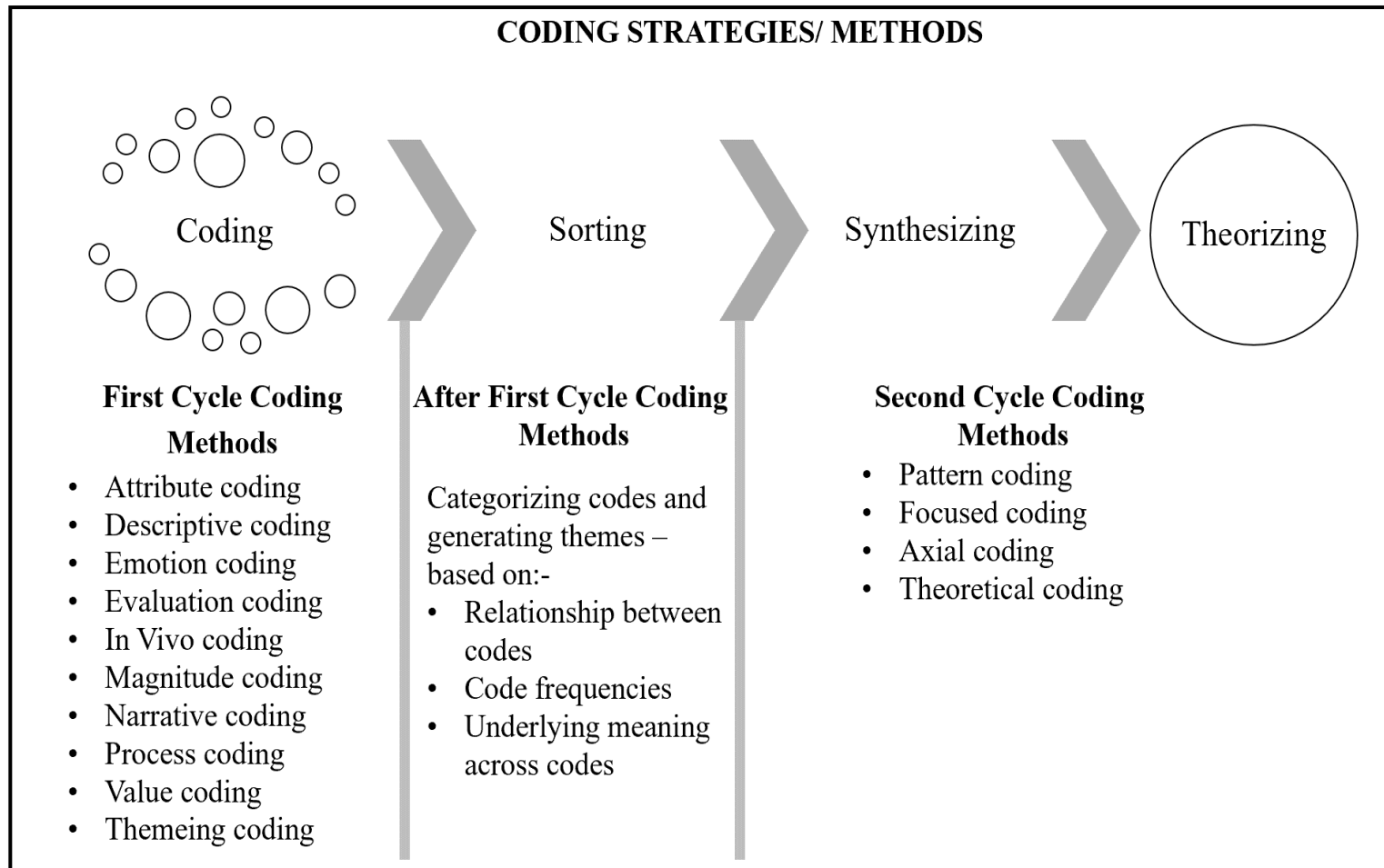


Figure 26: Coding Strategies

Source: Saldana (2015)

The research study deployed coding process using the NVivo 12 Plus software, where the process of identifying the frequent words and elements being discussed surfaced from respondents. These codes were captured and used in the later coding category to form themes for further analysis to ascertain their significant contributions to the research subject. An analysis of the codes for each research questions, the frequency of codes being referred to, and a further description of their meaning can be interpreted. Thereafter, a synthesis of the codes and themes was conducted to understand their patterns and concentration before they could be used to be incorporated into a framework. Prior to performing this analysis, the research process must be handled with care to make sure the sampling used in the research is reliable and relevant to provide representation for deducing the outcome and development of framework.

3.9.3 NVivo 12 Plus Software

In performing data analysis, using a software tool or system application will increase efficiency and productivity. This approach enables the researchers to find common themes and related data quicker. At the same time allow for easy drilling down process to have deeper understanding of identified data for better understanding of the contexts, patterns and connections which can be tricky if it is done manually. The software also permit them to import data from other sources for comparative analysis and advanced query. Visualisation tools can also be activated to present the connectivity of the data collected and emerged findings. The repository of data where easy data retrieval can be done easily and effectively. Friese (2013) stated that transformation of data into valuable knowledge can be done through proper information management. Therefore, thematic analysis is used to identify the essential themes for each case study category by using software tool.

One of the most commonly used qualitative research analysis tools is QSR NVivo Software (Mohd Tobi 2019). Researchers have gone through a few analysis tools on the market and identified NVivo Software as a friendly tool to use. In addition, Hutchison, et al. (2010) said that this system of qualitative data analysis should be used to code and create thematic concepts from the interview data and findings to make the data analysis

more reliable. Based on practical experience and user friendliness to assist in the data analysis, NVivo 12 Plus was used in this research study.

3.10 Reliability

The reliability of a qualitative research method should not be different from that of a quantitative research method. Essentially, it refers to consistency in the approach to analysing the data (Noble and Smith, 2015; Gibbs, 2007). The objective of the reliability test is to certify a reliable and reasonable research procedure and methods (Miles & Huberman, 1994). Golafshani (2003) also argued that reliability in data analysis also refers to the results and observations made during this stage, even with the same constraints and constructs that can be replicated and repeated. In order to overcome any apparent errors made during transcription and coding process and analysis, researcher shall review the transcripts diligently. Furthermore, Quintão et al. (2020) commented that the researcher must understand the requirements of case studies research design where the results of the research has gone through methodological rigor and accepted in the field of research area. As a result, a case-study protocol was used as a guide which contains field procedures, case studies and a case-study report guide adopted from Yin (1984;1994).

Noble and Smith (2015) espoused that the actual truth discovered in the research must be recognised, and the respondents' perspectives and experiences shared must be clearly and accurately reflected in the research findings. Therefore, regular checking and rechecking the data and ensuring that emerging themes and interpretations are consistent with the data collected. Qualitative data analysis software was used to analyse data into emerging themes and codes and eventually relationships of data collected from interviews and focus groups. Code-recode strategy was used to check for consistency of the findings. In this research, triangulation approach was undertaken to compare findings from interviews and focus group on the research topic. Moon (2019) suggested to perform triangulation method which help the research to improve the data validity and reliability of research findings. Ensures that the findings are coherent and logically connected to the data where phenomena be viewed and explored from multiple perspectives (Baxter and Jack, 2008). Quality of data can be enhanced with the principles of convergence and the confirmation

of findings (Knafl & Breitmayer, 1989).

3.11 Validity

Validity in research refers to data and findings credibility and accuracy (Willet, 2000). Likewise, Creswell (2005) also commented that the accuracy of research findings is heavily dependent on its validity where the emphasis on comprehensive description is essential. Findings should be presented with reliable, relevant and credible data. As this research study employ exploratory case studies, making sure validity in research is necessary in order to come up with reliable and credible results. Quintão et al. (2020) stated that validity is usually consist of internal and external validity. In this research study, external validity is more pertinent to exploratory case studies as the theoretical propositions guide data collection and analysis which aim for analytical generalization (Yin, 2009). Interviews and focus groups are commonly used data collection techniques in exploratory case studies (Hassan, 2023). These methods help to ensure that data collection is thorough and comprehensive, contributing to the validity of the research findings.

In addition, there are a few strategies that can be employed such as triangulation by having multiple sources, audit trail through keeping the detailed records to provide transparency and replicability and reflexivity by acknowledging and reflecting the researcher's own biases and influence on the research process. In this research study, data collected from focus groups were used to validate data collected and findings identified from case studies interviews. Moon (2019) advocated to perform this triangulation approach by having multiple sources to improve data validity and reliability. Furthermore, the interview questions and responses were reviewed and acknowledged by two industry risk experts, who are Head of Risk Management and General Manager in Risk Management Department in well-known oil and gas companies in Malaysia. The research study involves individual interviews with fourteen respondents and followed by two focus groups with ten participants of business and risk experts. They are all managers, senior managers and senior management members, involved in business decision-making

process in their respective organisation.

3.12 Ethical Considerations

Meriam (1988) shared that ethical conundrums may happen during data collection in qualitative research methods such as interviews and focus group. Hence it is crucial to ensure participant feel safe and secured in sharing data during the data collection process. Ethical consideration in any research and research presentation is crucial and essential to preserving the integrity of the data and research content. Saunders et al. (2009) defined ethics in research as the behavioural appropriateness of the researcher towards the rights of individuals in the research and those who are affected by it. The following procedures have been adopted from Gradewell (2004) and Beauchamp (2008), to provide assurance of the participant's rights are protected. Firstly, participants were given a comprehensive briefing about the purpose of the study, the motivation and justification on the application of the study, the results of their participation in the research study. Secondly, the participants were asked to give consent to continue the study as an article and free to withdraw if they were not comfortable. Lastly, the participants were notified on the data collection. Fairness and mutual respect and fairness are key to be uphold throughout the process. As the research design and method are required to be relevant, appropriate, and defensible. Palacios-Alfonso (2018) stated that it is crucial and fundamental for any research project to prioritise ethical considerations in conducting the research project.

The interviewee details are anonymised and not shared to public to protect the confidentiality of the interviewees and the companies they are working with to protect their intellectual property rights. To ease the tracking of data and its audit trail and assure respondents' anonymity, every recorded interview was assigned or labelled with a reference code name to assure the anonymity of the respondent. The same reference code name was used on the interview protocol sheet and in any further mention of the interview. To ensure the accuracy of the transcripts, an email was sent to the interviewee for verification and any further amendments or comments. The data management of this study shall be managed, recorded, and kept properly to protect data integrity and accuracy. As

such, the data which includes details of participants, their companies and responses were stored on a password-protected personal computer. This study follows University of Wales Trinity Saint David's Research Ethics and Integrity Code of Practice, which is published by the university on its official website, as shown in Appendix F.

As this study is in the business management area and not in the area subjected to health and safety hazards, a full risk assessment from the university's health and safety officers may not be necessary. However, an appropriate risk assessment in relation to the research work, such as potential risks to data management, confidentiality, human rights, ethnicity, religion, race, and gender, must be carried out to ensure they are properly understood and mitigated. Saunders et al. (2009) also stressed the importance of ensuring confidentiality and anonymity intact for any request by the organisation and individuals upon gaining access to the information, including interviews and hard data. The responsibility is placed on the researcher to uphold trust, objectivity, and integrity. The data collection shall be kept strictly confidential, and used for the research purpose only as one of the key objectives of conducting research is to contribute valuable insights and knowledge to the sector while maintaining the lowest possible risk (Beauchamp, 2008).

3.13 Conclusions

This chapter explains at length the manner in which the research is to be carried out. It includes the overall research methodology, identified research approach and design, the types of research applied, population and sampling, case study protocol, focus group discussions, the process of data collection, the data analysis strategy, and using NVivo 12 Plus as a qualitative analysis tool, as well as ethical considerations. From the research questions and further understanding to be sought to gain more in-depth meaning and understanding, the qualitative method using case studies interviews and focus groups discussions would be the best approach for this study being undertaken. Next chapter presents the research findings achieved from the deployment of research methodology discussed in this chapter.

CHAPTER FOUR

RESEARCH FINDINGS

4.1 Introduction

This chapter discusses the findings of the data analysis on the research exploratory on key elements for effective implementation and practices of risk-based decision-making framework among selected few oil and gas companies incorporated in Malaysia and the implications to the companies' business value creation. The presentation of the findings in this chapter is based on three research questions from the study. It begins with a discussion on the demographic analysis of respondents who participated in this study. It provides the background of respondents, which is based on the scope of research areas and the desired data to be acquired. Subsequently, thematic analysis is used to analyse the findings based on the coding strategies discussed in Chapter 3 on research data analysis strategy. This enables the categorisation of the findings and identifies the emergent properties to be considered in framing the elements for the proposed risk-based decision-making framework. In addition, narrative analysis is also used to further interpret the findings for better understanding in the practical context of business applications.

4.1.1 Background

Bernard (2000) shared that there are several techniques used in qualitative data analysis such as thematic analysis, narrative analysis and content analysis. Thematic analysis is a commonly research method used which cover the process of identifying, analysing, and interpreting patterns found in qualitative collected data such as interview transcripts, focus group discussions, and textual data (Braun and Clarke, 2006). The other commonly used technique is narrative analysis which allow deeper understanding in people's narration of experiences and therefore able to connect and interpret in better context (Riessman, 2008; Wang et al., 2020; Stapleton and Wilson, 2017). Besides that, content analysis is another technique deployed to analytically examine and explain the content of text, images, or audio. It breaks down key points into manageable data groups to identify patterns, themes, and meaningful information

in both qualitative and quantitative analysis (Strauss 1987). Although Thayer et al. (2007) advocated that content analysis is an effective empirical method for analysing text, Creswell and Poth (2016) viewed narrative research method as an effective method to explore the complexity and nuance of the collected experiences and voices that may be overlooked by other techniques. As this research study was analysing the data from various perspectives namely its research objectives, the underpinning theories of the study, and suitable methods in analysing and interpreting the meaning of the data, thematic and narrative analysis techniques were used in the data analysis to derive at research findings of this study.

4.1.2 Thematic Analysis

The common method used for analysis in a qualitative study is thematic analysis. According to Braun and Clarke (2006), thematic analysis involves the method of identifying, reviewing, and reporting trends and themes in the collected data. In their studies, they also concluded that the method would define and enlighten the data; thematic analysis is essential in order to achieve better interpretation and discussion of qualitative research findings. Boyatzis (1998) stated that thematic analysis method helps to explain the data comprehensively and also cover numerous themes that emerge. In addition, the method enables the researcher to analyse the data and findings analytically and systematically through a better understanding of the various factors, relationships, and connections identified during data collection. These help to answer the research questions and hence fulfil the research objectives using a systematic approach.

In a case study inquiry, a comprehensive description of individuals and profiles is analysed to identify themes or issues (Stake, 1995). The process of thematic analysis usually based on an inductive approach by researcher to identify themes and even narrowed details of respective theme as sub-themes through coding process and recognising patterns in the data. The researchers should immerse themselves with the data by reading the transcripts multiple times to get a sense of the general content. For the purpose of coding, original words and expressions found in the transcripts formed the key terms. These words appeared interesting or relevant where the initial codes were derived. This method was repeated indefinitely until no new patterns are

discovered. These codes were grouped into broader themes based on their similarities and relationships. Other way to form themes was through visual presentation of the codes such as mind mapping and frequency of words count and phrases used in the data transcription. It was critical to assess the themes to check their relevance to the coded data and overall data to check their accuracy and applicability. Next step was to establish meaningful descriptions for each theme and sub-theme to capture the substance of what each theme denotes. This was followed with findings write up which explained how the themes and sub-themes were identified and supported by quotes or examples from the case study interviews.

In this research study, the researcher started with case study interviews transcripts where an iterative thematic coding was used via NVivo 12 Plus program. Results from the codes and themes generated from NVivo 12 Plus were used for thematic analysis as well as narrative analysis for deeper understanding of the findings. This chapter discusses one case study of companies in oil and gas industry in Malaysia from data interviews of fourteen units of analysis of managers from a few selected companies and two focus groups discussions held with ten managers who are working in oil and gas business as business managers or risk managers.

Appendix G lists three main areas of research: key elements that make people start implementing and practising risk-based decision-making process; the implications of practising this process; and other determinant factors and any other emergent properties that help with greater implication to create value for the company. There are three research questions to be discussed and analysed to form the conclusion of this research. This later supports the conceptual framework for risk-based decision-making in oil and gas organisations in Malaysia.

4.1.3 Narrative Analysis

In analysing the interview and focus groups transcripts collected case study interviews with fourteen respondents as well as focus groups with ten participants, it requires deeper analysis to gain a better understanding and meaning. Riessman (2008) shared that using narrative analysis methodology provides many approaches to understanding texts, even if they carry the same meaning or storyline. This is crucial, as the nomenclature used by one respondent for another can be different and used for other requirements. This approach also provides fresh viewpoints from the respective respondents. Wang et al. (2020) also agreed that narrative analysis is able to provide deeper analysis as it is continuously progressing in the process of analysing the topic of research and commonly used to study every aspect of the social world, such as religion, literature, and history, as well as public services.

Through narrative analysis, the transcripts are able to guide the behaviour and thinking processes of researchers (Baker 2006). Hence, it serves as a more realistic communication analysis based on the transcripts gathered from the interviews with respondents. Stapleton and Wilson (2017) also suggested it will guide people's explanation of experiences and help them connect better with the audience from a sociological perspective. Similarly, it refers to an insight into "human interaction in relationships and the daily stuff of social work" (Riessman and Quinney, 2005).

This study used both thematic analysis and narrative analysis approaches in reviewing and analysing the transcripts in a way that makes sense based on the research questions that were included in the semi-structured interview questionnaires. There were similar terms that may carry the same meanings in the interviews and focus groups discussions that were considered to have similar meanings and can be grouped into the identified themes. On the other hand, there were also similar terms used that refer to different meanings. This can be probed further in the interview session or clarified with a bigger context or view of the discussion.

A combination of thematic and narrative analysis can be used to provide deeper assessment and analysis in a systematic way. Having these approaches produced a multidimensional analysis in research that provided a variety of perspectives and

understandings (Floersch et al., 2010). So, the first step in this study was to pull out the main ideas from the discussions and organise them into codes, patterns, themes and sub-themes. Findings were gathered using both thematic and narrative analysis to provide more clarity and different points of view at the discussion level.

4.2 Demographic Profiles of Case Study Interview Respondents

Table 5 shows the demographic profile of respondents gathered during the case study interviews. These included background information on the subjects' years of working experience, gender, and position held in the respective organisation. Data was gathered from a total sample of fourteen respondents ($N = 14$) from various roles and levels of positions in a few selected oil and gas organisations in Malaysia. These oil and gas organisations are incorporated in Malaysia and conducting various oil and gas services ranging from upstream, downstream, marketing and trading as well as functions at corporate offices. There were 14 interviews being conducted with selected respondents through strategic purposive as suggested by Yin (2011) to maximise data quality. The respondents comprised business managers, risk managers, and finance managers who serve as the first and second lines of defence in managing organisational risks and are actively involved in the decision-making process. Their seniority and extensive experience enabled the researcher to engage them in in-depth conversations, thereby gaining a deeper understanding of the research area.

The transcripts of interviews were imported into the qualitative analysis tool, NVivo 12 Plus, for further analysis. A summary of the transcripts exported is listed in Appendix H.

Table 5: Demographic Profile of Respondents

Respondent ID	Gender	Position	Working Experience	Roles in the Decision-Making Process
Respondent 1	Male	Chief Operating Officer	26 years	Business Manager/ Proposal Owner
Respondent 2	Female	General Manager, Industry Shaping & Collaboration, Group Procurement	30 years	Business Manager/ Proposal Owner
Respondent 3	Male	General Manager Strategy & Planning, Group Risk	26 years	Business Manager/ Proposal Owner
Respondent 4	Male	Head of Finance, Commercial Fuels Malaysia and Singapore	26 years	Risk Assessor/ Controller
Respondent 5	Male	General Manager Integrated Governance & Assurance, Group Risk	21 years	Risk Assessor/ Controller
Respondent 6	Female	Manager, Enterprise Risk Management, Group Risk	17 years	Risk Assessor/ Controller
Respondent 7	Male	Manager, Asset Risk Management, Upstream	15 years	Risk Assessor/ Controller
Respondent 8	Male	Manager Strategic Alliance, Corporate Strategy	13 years	Business Manager/ Proposal Owner
Respondent 9	Female	Senior Manager Enterprise Risk Manager, Group Risk	20 years	Risk Assessor/ Controller
Respondent 10	Female	Principal Foreign Exchange, Interest Rate and Liquidity Management	16 years	Risk Assessor/ Controller
Respondent 11	Male	Asset Manager/ Senior Manager	26 years	Business Manager/ Proposal Owner

Respondent 12	Female	Senior Manager Commodity Management, Group Treasury	21 years	Business Manager/ Proposal Owner
Respondent 13	Male	Principal Financial Risk Management	21 years	Risk Assessor/ Controller
Respondent 14	Female	Principal Counterparty Credit Risk Management	21 years	Risk Assessor/ Controller

A summary of the demographic profiles of respondents is tabulated in Table 4.2. By reading together both Table 5 and Table 6, 93% of the respondents have working experience of fifteen years or more. It can also be concluded that respondents with less than 20 years of experience are in managerial positions, those with 20 to 25 years of experience are in senior managerial positions, and those with more than 25 years of experience are mostly in general managerial positions. This denotes the seniority and breadth of working years that involved in business decision-making process at their respective position level in this purposive sample collection. In addition, there are two groups of position roles being selected in case study interviews in this research study which consist of risk assessor or controller who provides risk management, governance and internal control perspectives in decision-making process as well as business manager or proposal owner being the person who owns the business proposition for authorised parties to make business decisions.

Table 6: Summary of Respondents' Demographic Profiles

	%	N
Summary Gender		
Male	57%	8
Female	43%	6
	100%	14
Summary Position		
Manager	21%	3
Senior Manager	43%	6
General Manager	36%	5
	100%	14
Summary Years of Experience		
< 20 years	28%	4
Between 20 and 25 years	36%	5
> 25 years	36%	5
	100%	14
Summary Roles in Position		
Risk Assessor/ Controller	57%	8
Business Manager/ Proposal Owner	43%	6
	100%	14

Following that, 28% (N = 4) work below 20 years of working experience, although the lowest number of years of working experience is 13 years; 36% (N = 5) work between 20 and 25 years; and 36% (N = 5) work above 25 years. 21% (N = 3) of the respondents are managers, 43% (N = 6) are senior managers, and 36% (N = 5) are general managers. In this study, female respondents are 43% (N = 6), while male respondents are 57% (N = 8). Finally, 43% (N = 6) of respondents consist of business managers, who are the frontliners,

and proposal paper owners, who require decision-making from the decision-makers or approvers. They are also responsible for the mitigation plan and proposal execution in order to achieve the objectives. The other 57% (N = 8) are controllers or risk assessors. It is their job to look over the risk assessment requirements and the governance process that goes with them. They also have to question some of the proposals in order to add value or protect business value from any potential risks that may impede the achievement of proposals' objectives. These respondents are all Malaysians, and the interviews and data collection were held in Kuala Lumpur, Malaysia.

4.3 Demographics Profiles of Focus Group Discussion

Two focus groups discussions have been conducted after the researcher completed individual case study interviews with fourteen respondents. These focus groups were participated by oil and gas managers and risk managers to provide further in-depth understanding on the overall research topic collectively. The data collected from the focus groups discussions are used to validate and strengthen some of the primary data collected earlier during interviews sessions. Besides, focus groups discussions were used to study the same phenomenon where the findings can be analysed robustly. The researcher used a triangulation method to strengthen the credibility and validity of the research findings. Researcher also gained supplementary information and description of leadership, issues on the ground with the risk-based decision-making framework implementation and practices and communications. This information help researcher to propose a conceptual framework for risk-based decision-making process for oil and gas companies in Malaysia. A group of five members were arranged through Microsoft Teams meeting which were recorded and transcribed for further data analysis. Focus groups were divided into two groups with five participants in each group. The arrangement of the focus groups are summarised in Table 7 below:

Table 7: Arrangement of Focus Groups

Focus Groups Members with Code Name	Explanation
FG1Zul, FG1Nab, FG1Dil, FG1Zar, FG1Sul	Focus Group One and Two sessions were facilitated by the researcher and guided by a semi-structured interview question. The setting of the sessions were set as open-ended discussions. The sessions began with introduction by the researcher, brief recap of description and objective of the focus group, followed by introduction session by each member about their name and current position. Thereafter, the researcher was using exploratory questions on the research topic and closed the session by seeking for their suggestions or recommendations. Duration: approximately 2 hours (5.00 p.m. – 7:00 p.m.) Participants are having more than fifteen years of working experience in oil and gas companies in Malaysia.
FG2Yus, FG2Zak, FG2Azr, FG2Mar, FG2Yok	

Demographic profiles of participants involved in the focus groups are summarised in Table 8 below. They are managers who involved in decision-making process in oil and gas organisations as either a business owner or risk assessor. They are well experienced related to the research topic where the discussions were conducted freely and guided by the interview questions to initiate conversation on each topic.

Table 8: Focus Groups Participants Demographic Profiles, Background and Working Experience

Focus Group ID	Gender	Position	Working Experience	Roles in the Decision-Making Process
FG1AZul	Male	Manager, Land Management, Strategic Advisory, Governance & Strategic Relations	15 years	Business Manager/ Proposal Owner
FG1BNab	Male	Business Development Manager, New Energy Start-Up Business	16 years	Business Manager/ Proposal Owner
FG1CDil	Female	Staff (Manager), Foreign Exchange, Liquidity and Interest Rate Management	18 years	Business Manager/ Proposal Owner
FG1DZar	Female	Manager, Governance & Risk, Strategic Planning & Business Excellence Division	14 years	Business Manager/ Proposal Owner
FG1ESul	Male	Manager, Risk Management, Gas Business	17 years	Risk Assessor/ Controller
FG2AYus	Female	Principal (Senior Manager), Commodity Risk Management	20 years	Risk Assessor/ Controller
FG2BZak	Female	Manager, Strategic Risk and Planning, Renewable Energy	17 years	Business Manager/ Proposal Owner
FG2CAzr	Female	Manager, Portfolio Risk Management, Gas and Clean Energy	15 years	Risk Assessor/ Controller
FG2DMar	Female	Manager, Operational Risk Manager, Downstream Marketing	20 years	Risk Assessor/ Controller
FG2EYok	Female	Manager, Governance and Risk Assurance, Group Risk Management	28 years	Risk Assessor/ Controller

4.4 Findings from Case Study Interviews and Focus Group

Verbatim transcriptions collected from case study interviews were done for the next step which was the qualitative data analysis. Interviews were transcribed carefully to ensure the details are captured with authenticity, and richness of the original data and transferred to qualitative data software analysis. NVivo 12 Plus was used to analyse the qualitative data from case study interviews. A software was used to ease the data analysis of rich qualitative data collected with the aim to achieve this research study's objectives as stated below:

- 1) To explore the key elements of organisation's risk management practices in incorporating risk management into the decision-making process.
- 2) To investigate the implication of risk assessment in business decision-making framework implementation and practices on business value creation.
- 3) To analyse the other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company.

Therefore, findings of this research study are structured according to three research questions as follows:

- 1) Research Question One (RQ1): How does the organisation incorporate risk management into their business activities and what are the key elements in performing the risk-based decision-making process?
- 2) Research Question Two (RQ2): How the risk based decision-making process affects the organisation from business value creation perspectives?
- 3) Research Question Three (RQ3): What are other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company?

The results from the data analysis which have been examined and analysed in detailed manner are reported in this chapter to offer findings and answers to these three research

questions. There were several themes identified to provide better comprehensions to all three research questions. There were also a few sub-themes being identified for each theme to explain and elaborate further the meaning for each of them that emerged for better understanding. Respondents of the case study interviews were given a numerical label ranging from 1 to 14 as their pseudonym name to safeguard their confidentiality and at the same time to create a distinct identity for instance Respondent 1 and Respondent 10. These names will be used repeatedly in the finding analysis reports and conclusions.

The following sub-sections of this chapter discuss the themes and sub-themes of the data analysis results where the identified extracts and quotes from selected participants' interviews are presented. Accordingly, the diagrams are also tabulated to summarise the themes and sub-themes that emerged as a result of this research study for further discussion and development of proposed risk-based decision-making framework towards business value creation.

4.4.1 Findings on Research Question One (RQ1)

In this sub-section, answers to RQ1 are discussed based on qualitative data extracted from case study interviews transcripts as well as focus groups discussion transcripts. Themes discovered during the qualitative data analysis are noted and presented for detailed discussion in the next section. The manner in which these findings are organised is in accordance with the research objectives and research questions, which become the main anchors of the presentation of this study. The findings on key elements of implementation and practices of risk management in the organisation and risk-based decision-making process in oil and gas companies in Malaysia are further elaborated into three new sub-themes, which are risk governance, risk practices, and lastly, collaboration and partnership as illustrated in Figure 27 below.

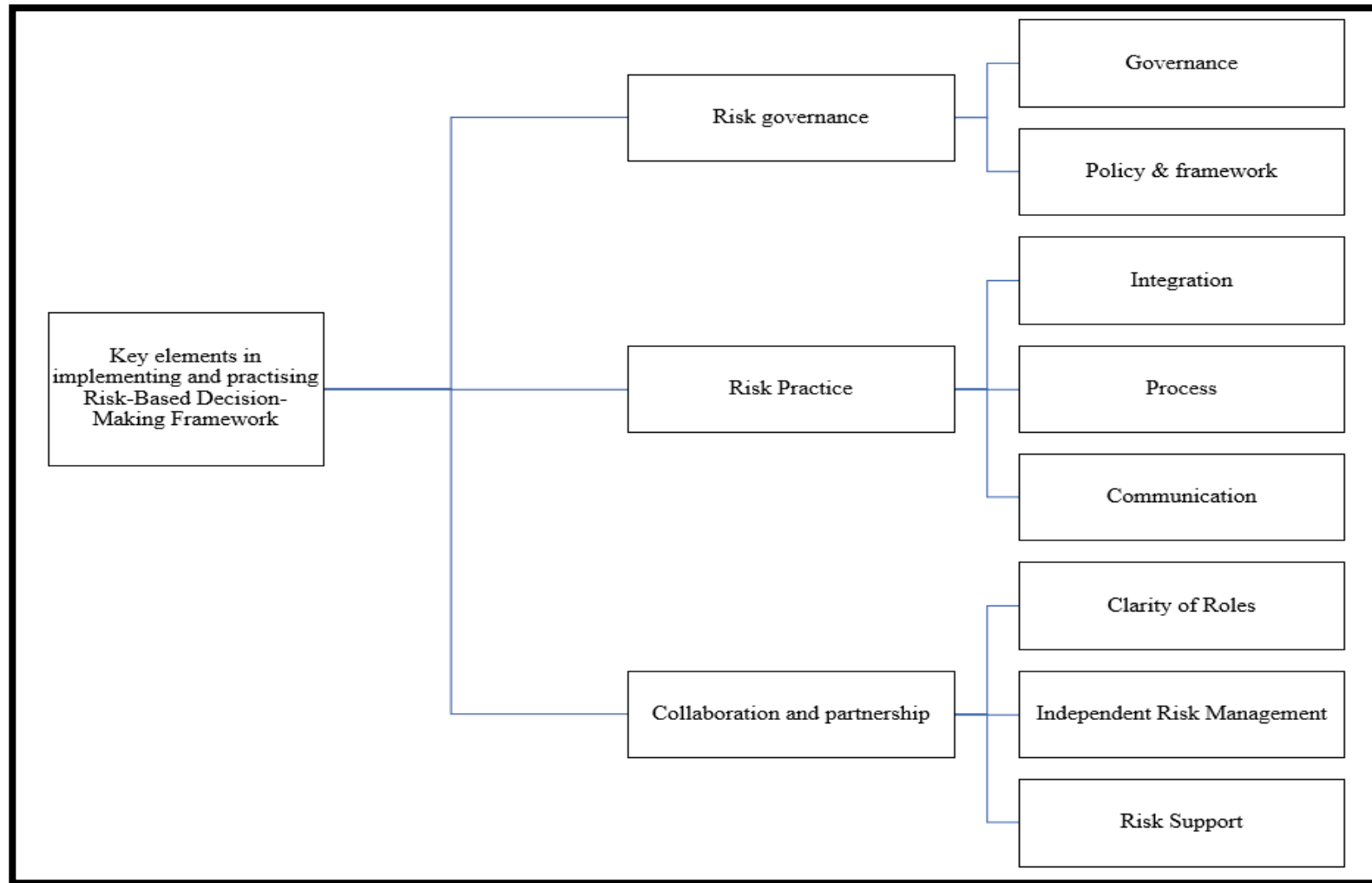


Figure 27: Summary of RQ1 Data Findings

Risk Governance

From the data analysis, this theme is divided into two sub-themes, which are governance, and policy and framework. Governance refers to the overall governing structure and processes in the organisation. This has been identified as one of the sub-themes, as this is the fundamental factor in establishing risk management practises and behaviour in the organisation. This sub-theme was highlighted and discussed by eleven respondents.

Respondent 2 mentioned:

“It is at a mature stage. Risk governance is centralised and empowered, with risk management governance and practises embedded across the business. The oversight structure is well defined, with a Board Committee overseeing the implementation of risk management across the organisation.”

Respondent 3 stated:

“The organisation’s risk management governance structure includes three stages: the development stage, the sign-off stage, and the approval stage.”

Respondent 4 mentioned:

“The organisation has a structured framework and governance process for risk management as well as decision-making. Risk-based decision-making has been very mature in the organisation and has been embedded in the very basic concept of decision-making.”

Other than Respondents 2, 3, and 4, Respondent 5 also highlighted that a proper governance structure to manage risk should be established and it should be embedded across all levels in the organisation. He stated that:

“Setting the tone from the top, our risk management and internal control system is driven by the Board and its sub-committees, namely the Risk Committee (RC) and Audit Committee (AC) as well as the Executive Leadership Team (ELT). In addition to the above committees, risk oversight is supported by the Risk Management Committee (RMC) and respective Risk Management functions.”

This is also supported by Respondent 6, where the governance structure is established at every level of her organisation, as stated below:

“The overall risk management governance structure in the organisation is established at every level of the organisation. Starting at the board level, one of the core responsibilities is to ensure sound risk management and internal control practises across the group. The board is further supported by the Risk Committee, which assists in providing guidance, steering, and direction on risk management. At both the board and management levels of the organisation, risk management matters are discussed thoroughly, especially in key decision-making areas.”

Respondents 7, 9, and 10 also shared that their organisations have dedicated committees governing the process, which include, among others, the Board of Directors, the Board Risk Committee, the RMC, the Asset Liability Committee, and the Liquidity Management Committee. In addition, Respondent 7 stated the formation of a risk management team and CRO in his organisation.

Respondent 7 stated:

“My organisation’s risk management governance structure involves a board of directors, a risk management committee, a chief risk officer, and a risk management team.”

Respondent 9 shared:

“In my organisation, we have a Risk Management Committee at the corporate and selected entity levels that discuss risk before any strategic decision is made at the board level and provide a sounding board to ensure that risk has been properly discussed and deliberated.”

Respondent 10 commented:

“My organisation has several risk committees at different levels, such as the Board Risk Committee, the Risk Management Committee, the Asset Liability Committee, and the Liquidity Management Committee, among others.”

Respondent 12 mentioned:

“We have a Risk Committee that discusses the risk agenda; risk conversations and discussions happen well before any strategic decision is made at the board level, thus providing assurance to the board that risk has been properly considered.”

One of the critical roles played by the respective committee is to provide direction for the organisation with regards to risk management practises. This sets forth the core requirements for governing the philosophy of risk management in the organisation. Respondent 14 mentioned:

“Direction setting, including a high-level philosophy on risk management, is developed at the corporate centre for group-wide implementation.”

Respondent 11 mentioned that his organisation has only started the implementation of the enterprise risk management process as per the direction of the holding company.

“There is no enterprise risk management process in the organisation. Recently, the holding company gave its direction to implement risk management in my organisation and has taken a few rounds of sessions to facilitate the prescribed method or methodology to be used by the entities to identify and measure risks in the form of a risk matrix with certain levels of likelihood and impacts to the business.”

Respondents described governance, as a sub-theme, plays a crucial role in supporting risk governance by establishing a clear, structured oversight and board committee process within organisations. It involves the well-defined oversight structure and board committees to oversee the entire implementation of risk management in the organisation including the incorporation of risk management into decision-making process. Gerken et al. (2019) also mentioned that this is a critical requirement as it allows for informed decision-making process which require approval by the authorised decision makers to make a dynamic management and response in any organisation. Furthermore, respondents shared that through this governance structure, board committees able to establish direction, risk mandate and risk management philosophy in the organisation. Effective establishment of governance structure would enable the

organisation to enhance its resilience and long-term value (Bhatti et al., 2023).

Policy and framework was identified as one of the critical sub-themes to support the risk governance theme. Through policy and framework, the board and top management's aspirations can be communicated and implemented. Policy and framework are established through a proper governance process, i.e., approvals from respective authorised committee bodies. There were ten respondents discussing this matter.

Respondents 2, 5, and 9 shared that in their organisation, policies and frameworks are established to set the direction and to be embraced and complied with in accordance with the requirements set in the documents.

Respondent 2 stated:

“Risk management has to be accepted as a way of life. A framework was introduced to be fully embraced. The mindset of people in the organisation has to be viewed as a way of life, not an encumbrance.”

Respondent 5 stated:

“The organisation's risk policy outlines the general principles and guidelines for making risk-based decisions. Through this policy, we continuously strive to implement risk management best practises to protect and create value. The policy also ensures a balanced and holistic view of exposures to achieve business objectives, thus strengthening our position as a risk-resilient organisation.”

“This policy is complemented by the organisation's resilience model, which provides an integrated and holistic view of the overall strategy for more effective risk management. It focuses on three (3) areas of business resilience, namely enterprise risk management, crisis management and business continuity management.”

Respondent 9 shared:

“At the corporate level, there are also risk policies, frameworks, and guidelines being prescribed to provide clear risk direction and

commitments for ensuring practises throughout the group and organisation are consistent.”

The policy and framework also state the mandatory requirements for embedding risk management in business activities, namely business decision-making, as mentioned by respondents 3, 8, 10, and 13.

Respondent 3 mentioned:

“The risk management practises are being embedded in the organisation's business activities. It is embedded in a framework, which is the Company Enterprise Risk Management Framework. This framework establishes regulating principles and processes as the fundamental basis of ERM practises for risk assessment, treatment, monitoring, and evaluation”

“In the Risk Division, there is Risk Assessment in Decision Making which adopts risk management practises in decision-making.”

Respondent 8 mentioned:

“The framework acts as a governing document for initiating and ending an alliance. Risk management is embedded in our process. particularly in selecting alliance partners. The process is that when we want to select a partner, we will first need to evaluate their risk through our Standard Group Know Your Counterparty.”

Respondent 10 mentioned:

“My organisation has also established a risk policy for the group, which is supported by relevant standards, frameworks, and guidelines on the application of risk management activities. This would include embedding risk assessment in the respective decision-making platforms.”

Respondent 13 commented:

“Risk assessment is mandatory for business decision-making. This has been embedded as part of the enterprise risk management framework, which needs to be practised by all operating units in the organisation.”

In addition to policy and framework, other policy documents, such as memoranda of authority and decision-making matrix, are also forms of ‘mandate’ documents for employees to undertake in operationalising the activities in the organisation, as mentioned by Respondent 4:

“Risk-based decision-making has been very mature in the organisation and has been embedded in the very basic concept of decision-making. There is a memorandum of authority that requires the finance or controller to sign off prior to any conclusion of business decision-making. It is crucial and critical for business managers to adhere; otherwise, it will be regarded as non-compliance and affect performance measurement.”

Respondent 6 mentioned:

“...Independent risk assessment is also a key requirement for critical decision-making areas across all levels, guided by relevant risk in the decision-making matrix and the organisation’s parameters for approving authority...”

“Businesses may view risk assessment primarily as a compliance exercise driven by regulatory requirements rather than a strategic tool for decision-making. This narrow perspective can limit the full potential and value that risk assessment can bring to the organisation.”

However, there is also a circumstance where an organisation may not have its own specific governing document at the subsidiary level but leverage on its holding company’s policy document, as shared by Respondent 1.

Respondent 1 mentioned:

“Currently, there are no specific governing documents or policies at the entity I am working with. The entity is leveraging our Holding Company policies and standards prescribed by the Risk Management Department.”

Findings collected from respondents revealed that policy and framework serves as one of the important components in risk governance. It sets forth the directions,

requirements and aspirations of the board and top management. The requirement set includes the incorporation of risk management into business activities namely decision-making process. Board of directors are responsible to approve risk policy, risk appetite, and oversee the risk management activities in the organisation (Alshebli and Alhajri, 2023). Similarly, Respondent 4 and 6 highlighted their encounters that authority and mandate have been part of policy and framework document coverage. Policy and framework is essential for directing and guiding employees to refer to, in managing risks in their business transactions (Shakatreh et al. 2023). Nevertheless, if this formal document is not available, employee can make reference to their Holding Company's policy and framework as experienced by Respondent 1.

In summary, the analysis reveals that governance and policy and framework provide a structured approach and clear mandate to enforce risk-based decision-making process in the organisation. Hence, these become significant pillars to support risk governance as one of the key elements to effectively implement and practise the incorporation of risk management into decision-making process.

Risk Practices

From the data analysis, this theme is divided into three sub-themes, which are integration, process, and communication. Incorporation of risk into business activities is identified as a sub-theme as it is a crucial element in practising a risk-based decision-making process. There were eleven respondents discussing about the integration and incorporation of risk into decision-making process in their respective organisations. One of key contributions of incorporating risk into decision-making process is to allow proper assessment of the potential risks of the business. The following are excerpts collected from the case study interviews held with the respondents.

Respondent 1 mentioned:

“We do have KPIs tagged with value creation, but we do not incorporate a risk management process into them. However, by tagging value creation, we are biased towards ensuring all areas are assessed and covered so that we can achieve the intended value creation.”

Respondent 2 commented:

“Risk governance is centralised and empowered, with risk management governance and practises embedded across the business.”

Respondent 5 mentioned:

“My organisation outlines the requirement for any strategic, tactical, and operational decision-making to be supported by a proper risk assessment to facilitate effective and informed decision-making.”

“In my opinion, every authority should consider all information, which includes risks, performances, and issues, prior to making a decision. But this needs to be well supported with appropriate processes and mechanisms to better facilitate the decision-making process.”

Respondent 8 confirmed:

“Risk management is embedded in our process. particularly in selecting alliance partners.”

Respondent 9 mentioned:

“In my view, they may feel the process of incorporating risk assessment into decision-making is a compliance-based approach; however, without them realising it, they already do this process by identifying some pros and cons from their proposal by maybe using the SWOT method in their assessment. That may not be called risk assessment in its form, but in substance, it is a form of risk assessment.”

“Risk management has been embedded in our business decision-making process; there is a requirement in the process for guidance catered around the authority, for example investment proposal and approval by the president, business and corporate risk managers need to assess and provide their sign-off for decision-makers to make an informed decision-making process.”

Respondent 11 mentioned:

“We do have substance.”

“In fact, I welcome having this embedded in the process; this is the process that will make informed decision-making possible.”

Respondent 14 stated:

“Risk management is becoming such an important element in business decision-making that the requirement for proper and comprehensive risk assessment, followed by the act of monitoring, reporting, and periodically reviewing the risk exposures, is embedded in key governance documents and processes.”

In addition to Respondents 1, 2, 5, 8, 9, 11, and 14 comments on the integration of risk management into the decision-making process and value creation for businesses is also discussed by Respondents 4, 6, 7, and 10.

Respondent 4 shared:

“Risk-based decision making has been very matured in the organisation which has been embedded in the very basic concept of decision making”

“The value created from the process is indeed one of the key drivers for incorporating risk into the decision-making process in addition to complying with the requirements set by the company’s standards and framework.”

Respondent 6 mentioned:

“Clear context for each strategy and the justifications behind each strategy’s objectives must be defined to ensure every business operation will manage to provide the expected value creation in my organisation. Each business must be able to define and match their internal KPI against the top-down strategy set at the management level.”

Respondent 7 stated:

“Risk management is embedded in the organisation’s decision-making processes through the incorporation of risk assessments and analysis into business planning, project management, and strategic initiatives. Risks are considered alongside potential benefits, enabling informed decision-making.”

Respondent 10 stated:

“Where the risk assessments get deliberated also plays an important criterion to assess whether the activity from the risk assessment is indeed value-added to the decision-making process.”

“The process of incorporating risk assessment in decision making is critical and proved to be value added to the decision maker”

“The management believes that having a risk-based decision making provides a balanced and holistic view of exposures to be managed in order to achieve its business objectives.”

The eleven respondents have agreed that the integration of risk management into their business practices particularly decision-making process has been established in their respective organisation and seen the process as important to support that risk practices as the key element in the implementation of risk-based decision-making framework. This integration provide more comprehensive understanding of organisational behaviour from Agency Theory perspective (Kiser, 1999). Other significant mentions about this sub-theme by the respondents were the benefits of the integrated process such as enabling informed decision making, value creation and complying to standards and requirements. In the case of complying to statutory requirements, Power (2009) commented that insertion of risk ownership or accountability can be part of the formalisation of requirement to integrate risk management into business activities.

Process is another sub-theme that supports risk practice, as the requirement needs to be spelled out and communicated. Nine respondents commented on the importance of having a process in place.

Respondent 1 mentioned:

“Introduction of explicit processes in the decision-making process but balancing the agility of the processes and their practicality. What drives business managers to accept the process should not be showstopper or lengthy; that will eliminate the potential value that we, business managers, want to seize.”

Respondent 3 added:

“In my opinion, business managers and risk managers would likely view the process of incorporating risk assessment in decision making as a crucial component of their roles. Risk assessment assists in identifying potential difficulties and hazards that may have an influence on an organisation’s operations, strategic growth and business goals.”

Respondent 4 mentioned:

“The organisation has structured framework and governance process in risk management as well as decision making.”

Respondent 8 mentioned:

“Risk management does embed in our process. Particularly in selecting for alliance partners”

“The process is, when we want to select a partner, we will first need to evaluate their risk through our Standard Group Know Your Counterparty. By adopting the risk-based decision-making method in assessing value creation, it shaped the management's decision-making process through a structured process of making decisions to meet the set goals and objectives.”

In addition to having an explicit and structured process for incorporating risk into decision-making processes, Respondents 2, 5, and 9 mentioned agility and not being too rigid to enable an effective decision-making process and also increase business acceptance.

Respondent 2 stated:

“Controls should not be too rigid so as not to create a rigid environment; internalisation of the importance of risk management is key”

Respondent 5 mentioned:

“The right process, right system, and right ecosystem, supported by a good foundation on risk competency and capability, will enable the risk ecosystem to function effectively at each level within the organisation.”

Respondent 9 stated:

“...see some values, as they may miss some blind spots in the process of analysing the proposals. However, there are needs for more process improvement, more flexibility, and not rigidity in the process, especially in terms of agility, time, and resources for meeting the value. Currently, it seems the process has captured the integration of various parties to be involved in RADM, but there are challenges in practising as it is really effective, especially when there are too many people and the lines get blurred. A smaller organisation is easier to handle RADM as the same people execute and manage the risk.”

Accountability, clarity, and consistency in the process are also important, as mentioned by respondents 10 and 12.

Respondent 10 stated:

“...important is the monitoring of the risk indicators that the business manager needs to take on to ensure the risks identified are minimised. This may be something that is lacking in the organisation, i.e., the accountability to assign the right party for the monitoring of the approved business proposal.”

Respondent 12 mentioned:

“Depending on how mature the organisation is in terms of its risk culture, the process is important to provide clarity and ensure consistency in its practices. And once this is inculcated, it will become second nature to the business, and everyone can play the role of risk managers themselves.”

Nine respondents have discussed about having process in place to support risk practices as one of the key elements in the implementation and practices of risk-based decision-making framework. They agreed the need to have the process being spelled out explicitly and documented. This is important to ensure accountability, clarity and consistency as per a few of respondents feedbacks. Nevertheless, Respondent 2, 5 and 9 argued about balancing the process rigidity with process agility in order to achieve

effective outcome along with greater business acceptance. Organisations need to adopt a more balanced approach in their risk management process (Mauboussin, 2012; Largania et al., 2012).

In institutionalising risk practices, communicating to employees on the requirements to practise is essential. Seven respondents provided their experiences and views on this sub-theme.

Respondent 2 stated:

“Communication is key in ensuring the process is fully understood, and the other is acceptance at all levels within the organisation.”

Respondent 7 stated:

“To enhance the clarity between the stakeholders through collaboration and open communication among stakeholders involved in the risk assessment process. Regular meetings, discussions, and workshops can help ensure that everyone understands their roles and responsibilities and can provide input and insights from their respective areas of expertise.”

Respondent 12 shared:

“...continuous upskilling and sharing or awareness session must be done by the risk managers to ensure pervasiveness of the practices and to inculcate the risk culture”

It is not only for ensuring the constituents understand the requirement, but also to ensure everyone is aligned and aware of the significance of the process to them. Respondents 3, 5, and 8 shared about these matters.

Respondent 3 commented:

“One of the main areas for improvement in order to promote business acceptance is to raise awareness and educate staff about the importance of risk management and its influence on business performance.”

“It is critical to have clear communication among all stakeholders engaged in the decision-making process, including decision-makers, the risk management team, and other relevant departments. When it comes to identifying and analysing risks, this helps make sure that everyone is on the same page.”

Respondent 5 mentioned:

“Cascading the need for and importance of risk assessment, providing necessary upskilling as well as communication via various levels of platforms within every level of organisation will provide better understanding and appreciation, especially at the front line.”

Respondent 8 mentioned:

“The knowledge about risk management and the importance of risk assessment in decision-making has to be widely shared and inculcated in all employees. It has to achieve a level similar to HSE, where everyone recognises the importance of safety, for example.”

Respondent 9 mentioned that improvement in communication can be part of continuous efforts to improve risk practises in any organisation.

“Improvement can be more focused on communication and capability in performing risk assessment, especially when it comes to new business strategies and areas of opportunity where knowledge is limited within the organisation itself.”

Respondents shared their views that communication which includes awareness sharing is one of the important components in institutionalising risk practices in their organisations. It provides clarity of the required policy and processes for them to practise at their respective level and department in the organisation. Besides the clear information and awareness, having effective communication aligns respective party to practise and work together as mentioned by Respondent 3, 5 and 8. Communication needs to be a continued effort as emphasised by Respondent 12. This is even critical when new business strategy is to be carried out, communication need to be expediated and improved into to establish an effective risk practice for the implementation of risk-based decision-making framework.

This sub-theme finding analysis highlights the critical role of communication in institutionalising risk management practices within organisations. Respondents emphasised that clear and continuous communication is essential to ensure that all stakeholders understand and appreciate the importance of risk management. Similarly Alshebli and Alhajri (2023) stated that with proper communication, stakeholders will understand and manage identified risks properly. This communication should cover the necessity of risk assessment and provide the necessary upskilling across various levels of the organisation. Key findings indicate that effective communication aligns all parties involved, and facilitating a cohesive approach to apply risk management in decision-making process. Respondents noted that awareness sharing and clarity of required policies and processes enable departments to practice risk management effectively at their respective levels. In fact, Shakatreh et al. (2023) also supported the notion that risk management will be managed better if effective communication among all levels is achieved. Additionally, when new business strategies are introduced, enhancing communication is crucial to establish an effective risk-based decision-making framework. The findings suggests that continuous efforts in improving communication and capability are imperative for fostering robust risk practices in organisations.

Overall, the findings analysis underlines the necessity of integrating risk management into business process in this case decision-making process, establishing a clear process and procedure on the process and continuous communication of its requirements, importance and benefits to enable the practice of risk-based decision-making process effectively.

Collaboration and Partnership

From the data analysis, this theme is divided into three sub-themes: clarity of roles, independent risk management roles, and risk support. In collaboration and partnership, having clarity of roles is crucial to avoid potential disputes and unclear arrangements amongst the parties involved. Hence, the clarity of roles is being identified as sub-theme for further analysis. Twelve respondents commented on the importance of having a clear demarcation of roles and parties involved in the risk-based decision-making process.

Respondent 2 stated:

“In my organisation, the roles are already defined through an established framework and guideline, and the business manager is to embrace the process fully.”

Respondent 3 stated:

“The key stakeholders should be included in the decision-making process to ensure that all viewpoints are considered. This may involve senior management, subject matter experts, risk managers, and other relevant stakeholders.”

Respondent 4 mentioned:

“It is clear from my experience that business managers, finance managers, risk managers, and the sales support team understand their respective roles and responsibilities.”

“Parties to be involved must be from the business, risk, or finance team, and other experts such as legal, HSSE, etc., and other relevant stakeholders, for example, if the matter requires a ministry liaison officer as it may relate to industry regulation.”

Respondent 5 stated:

“The business owner is a party to perform a risk assessment or due diligence in view of a better appreciation of business know-how, and this is facilitated and supported by risk managers to ensure the risk assessment is carried out comprehensively.”

Respondent 7 mentioned:

“...team comprises individuals from various departments who are responsible for identifying, assessing, and managing risks within their respective areas. They collaborate with other teams to implement risk mitigation measures and monitor risk exposure.”

Respondent 8 stated:

“The roles are clear and widely communicated through our internal website portal.”

Although Respondent 1 stated that his organisation has not stated any clear demarcation of roles, the parties involved are aware of their roles and responsibilities by substance or practice, as he stated below:

“Currently, there is no clear demarcation of roles, but the substance of the division of jobs between front-liners and finance managers is there. The owner of the risk is the business manager, i.e., the general manager or CEO, and is being consulted by finance.”

In the event that the clarity of roles is not clear, there is an issue surrounding committing accountability and responsibility to the party to manage risks. The involvement or collaboration of both parties, i.e., business and risk managers, is crucial. Respondent 6 commented:

“The challenge at this juncture is from the perspective of accountability and responsibility for businesses, where it is often seen that businesses will expect risk managers to perform the risk assessment associated with their proposal instead of taking direct accountability for identifying key risks associated with their proposal and its relevant mitigations.”

“Involvement from both business and risk leaders is required to ensure successful implementation.”

Likewise, confusion may also arise when there are too many parties involved, as mentioned by Respondent 14 below:

“For certain papers, there are too many parties involved in the review, e.g., we have assessors from group risk management, business unit risk, and operating unit risk. This may create confusion as to who is accountable for the identified risk and risk mitigation and who is the supporting role person.”

The findings indicate that clarity of roles is crucial for effective risk management and decision-making within organisations. It is also to ensure everyone is clear of the expectation from each of other to contribute to the process. Respondent 9 shared that

the parties involved must also possess the right level of knowledge in the areas of decision-making. This is also echoed by respondents 10 and 13.

Respondent 9 shared:

“Yes, it is certainly important to have the right competency level. However, certain depth of knowledge or technical skills may not be required, but a thorough understanding of the topics, risk management process, and technique in handling risk assessment is more important. This creates more confidence for risk managers to perform risk assessments. Different sets of capabilities and expertise need to be pulled together to help with the assessment process. Exchange of knowledge and views can be done; collaboration and teamwork are keys to success.”

Respondent 10 stated:

“We clearly demarcate that risk assessment is performed by risk practitioners, simply anchoring on the capability that the practitioner has as well as being an independent party to review a certain business proposal.”

Respondent 13 mentioned:

“Yes, especially on the technical know-how on business, regulatory, market updates, geopolitical issues, etc. These knowledges are essential in developing risk assessments. Everybody should be involved, regardless of the risk manager or business people.”

Respondents discussed about having clarity of roles in collaborating with various parties in performing decision making in the organisation. With this in place, clear expectations from all parties can be achieved and potential disputes on the demarcation of roles and responsibilities can be avoided and hence, able to ensure successful implementation. Soin and Collier (2013) also suggested that clarity of roles ensure better accountability and therefore, build trust and better working arrangement within the parties involved. Respondent 4 commented that this needs to happen and require

stronger efforts from risk manager to advocate it. Additionally, the dedicated roles need to be assigned to the right parties in view of their expertise and right knowledge especially in a bigger organisation when there are too many parties involved. Likewise, Sheedy and Canestrari-Soh (2023) agreed that larger organisations are more vulnerable if demarcation of roles and responsibilities are not done effectively as it affects their agility in responding to the business requirements. Despite all that, the twelve respondents agreed the need to have clarity of roles in place for having better collaboration as the key elements in risk-based decision-making process. Nonetheless, a few of them felt that there are still challenges in their organisation to achieve it and still require initiative to improve the situation.

Segregation of duties to support the risk management objectives as a secondary check or reviewer of the assessment in the decision-making process were mentioned once roles and responsibilities have been clearly outlined. Eleven respondents shared their views and experiences on check and balance roles to ensure the assessment has considered all factors of potential exposure. Following are excerpts from respondents on the independent risk management role of one of the sub-themes under collaboration and partnership.

Respondent 2 shared:

“Risk managers are to provide the check and balance. Communication is key to ensuring the process is fully understood, and acceptance at all levels within the organisation.”

Respondent 3 mentioned:

“The roles of the risk manager that support this process are reviewing and challenging the risk assessment to produce an accurate final risk report. In my company, the roles of personnel involved in this process are clear due to the establishment of the Risk Assessment in Decision Making Guidelines.”

Respondent 6 stated:

“Risk managers are expected to provide an independent view on the business proposal.”

Respondent 7 mentioned:

“In my organisation, the responsibility for performing risk assessments or due diligence assessments of business proposals may fall upon a risk owner. Risk function will come and challenge the risk statement identified by the risk owner and may also come out with potential risks for the proposal.”

Respondent 9 shared:

“As risk assessment is embedded in the paper, the owner of the paper should account for it and not the risk manager; however, the sign-off requirement from the head of risk requires the risk team to also validate the assessment, correct it accordingly, and provide their independent views on the matter.”

Respondent 10 stated:

“The risk assessment can be performed by the project team; however, it should be deliberated or challenged outside of the project team or by an independent risk team.”

Respondent 11 stated:

“Risk assessment and due diligence are led by the business manager, i.e., the owner of the proposal for, e.g., investment in retail stations. The real estate department will study the technical requirements and operational requirements, including HSSE, run the economic or financial analysis, and be informed and verified by the finance analyst on the figures and assumptions made by the experts on the fields or sites.”

Respondent 12 mentioned:

“In my organisation, the paper owner will first perform the risk assessment on the decision paper, and the risk manager will review and challenge the assessment to ensure completeness while providing their independent view.”

Respondent 14 shared:

“Risk management is becoming a more important element in business decision making that the requirement for proper and comprehensive risk assessment, followed by the act of independent review, monitoring, reporting and periodically reviewing the risk exposures are embedded in key governance documents and processes.”

In addition to being independent in the process, a risk manager can still be an enabler to facilitate business managers in the decision-making process by guiding them throughout the process.

Respondent 5 stated:

“The risk manager is a catalyst or enabler to ensure the risk assessment is being carried out correctly, guided by standard or proven processes and requirements.”

Respondent 8 stated:

“In incorporating risk assessment into decision-making, I think the risk managers will need to guide the businesses in evaluating the risk level, not only to introduce tools or processes. But they need to assist in conducting risk assessments. It is true that businesses can simply refer to the tools and processes and do it on their own. But the problem is that there is a possibility of differing interpretation, which may lead to inaccurate risk assessment.”

Independent risk management roles were consistently cited as vital, with respondents agreeing that risk managers must verify, review, and challenge risk assessments to ensure comprehensive evaluations. Kaplan and Mikes (2016) also suggested risk manager to play the independent role besides being facilitator in the risk management

process. Respondents also highlighted the necessity of having knowledgeable and competent individuals involved in the risk assessment process, emphasising the importance of technical know-how and collaboration. Furthermore, risk managers are seen as enablers who guide business managers through the risk assessment process, providing essential support and fostering a culture of thorough risk analysis. In summary, the risk owners are responsible for the assessment and risk mitigation plans while risk managers are to verify, review, and challenge any irrelevant or inadequate assessment and mitigation plans. The synthesis of these insights suggests that clear demarcation of roles, coupled with strong collaborative efforts and independent oversight, enhances the effectiveness of risk-based decision-making process, ultimately leading to more successful organisational outcomes.

In addition to being enabler in supporting the business managers in the previous sub-them, it has been identified that a few respondents extended this matter as risk support is required in the collaboration and partnership as the key elements to the effective implementation and practices of risk-based decision-making framework. This was mentioned in terms of guiding processes and framework requirements. Three respondents mentioned the importance of risk support in the organisation.

Respondent 4 mentioned:

“This requires strong support from the finance manager or risk manager to probe questions and guide them to understand potential obstacles that the business will face and agree on the potential mitigation plans that they need to own, monitor, and act on.”

Respondent 5 stated:

“The business owner is a party to perform a risk assessment or due diligence in view of a better appreciation of business know-how, and this is facilitated and supported by risk managers to ensure the risk assessment is carried out comprehensively.”

“We continuously strive to implement risk management best practises to protect and create value.”

“Respective business leaders involved in decision-making are required to conduct a risk assessment prior to any decision being made. Risk managers are rolled out to facilitate and support process execution, ensuring the authority is able to make decisions based on a risk-based decision approach.”

Seniority and a well-experienced risk manager ease the process of supporting the business manager, as mentioned by Respondent 9. It also increases trust and confidence.

Respondent 9 mentioned:

“Over time, the risk manager is also experienced and mature enough to support the business, which can be observed from the experiences where business managers welcome the input and consultation from risk managers.”

“The conversation and agreement with business managers should be there where the communication in the collaboration in which all parties must be comfortable with the assessment and agree on the proposed recommendation of mitigation strategies, and this should not hinder the objective of risk assessment in the first place. The trust between all parties involved must be there, as this is a collaborative effort.”

In the thematic findings analysis, risk support emerged as a critical sub-theme within the broader theme of collaboration and partnership. Respondents emphasised the importance of risk managers in guiding business managers through the decision-making process, providing essential support to ensure comprehensive risk assessments. This collaboration fosters trust and confidence, enhancing the effectiveness of risk-based decision-making frameworks. Respondents highlighted that risk managers serve as facilitators, ensuring that business objectives are met while adhering to risk management best practices. The synergy between business managers and risk managers is pivotal in mitigating potential obstacles and agreeing on effective mitigation strategies, thereby underscoring the significance of risk support in organisational success.

In summary, findings from various respondents highlighted a few key sub-themes that support collaboration and partnerships theme as the key element in implementing and practising risk-based decision-making framework effectively. Clarity of roles is crucial to avoid disputes and ensure successful implementation, with clearly defined responsibilities fostering accountability and trust. Independent risk management roles are essential, with risk managers verifying and challenging risk assessments to ensure comprehensive evaluations. Risk support, identified as a critical sub-theme, underscores the role of risk managers as facilitators who guide business managers through the decision-making process, ensuring adherence to best practices while meeting business objectives. This synergy between business and risk managers is pivotal in mitigating obstacles and agreeing on effective mitigation strategies, thereby enhancing the overall effectiveness of risk-based decision-making frameworks.

Focus Group Findings

There were 2 focus groups being set as part of data collection to triangulate the data collected from case study interviews. Ten participants have shared their business and risk views on this research topic. Code names are used in the analysis based on focus group discussion profiles table in section 4.3. Findings revealed from Focus Group 1 and Focus Group 2 are listed in the Table 9 below:

Table 9: Summary of Major Themes Emerged for RQ1 from Focus Groups Discussions

Themes	Number of Occurrence	Participants
Risk assessment in decision-making	9	FG1Zul, FG1Nab, FG1Dil, FG1Zar, FG1Sul, FG2Yok, FG2Azr, FG2Zak, FG2Yus,
Governance	7	FG1Zul, FG1Dil, FG1Zar, FG2Yok, FG2Zak, FG1Sul, FG2Mar
Policy and Framework	6	FG1Dil, FG1Sul, FG2Yok, FG2Zak, FG2Azr, FG2Mar
Risk Practices	6	FG1Zul, FG1Nab, FG1Sul, FG2Zak, FG2Azr, FG2Mar
Collaborations	4	FG2Yus, FG2Zak, FG1Dil, FG2Mar

The major themes that emerged from the discussion on key elements in risk-based decision-making were on the integration of risk management into the business activities, governance, policy and framework, risk practices and collaborations. In both focus groups discussions, they agreed that integration of risk management is important and critical in business activities especially in decision-making process. Some of the excerpts are as follows:

Participant FG1Nab stated:

“We have risk assessment or risk management being embedded as part of our business process. Top management is well versed and aware that decision making require thorough risk assessment process.”

Participant FG1Zul mentioned:

“Integrate risk management assessment when acquiring or leasing land for oil and gas activities, covering environmental, legal, and financial risks.”

Participant FG2Mar shared:

“We are public listed company with a priority on risk assessment in board and executive decisions.”

Participant FG2Azr

“Embedded risk management into decision-making process at all decision points.”

In order to implement this integration of risk management into decision-making process, risk governance and practices where policy and framework play a vital role are critical to the business organisation. The following are the excerpts being extracted from the transcription to substantiate these findings:

Participant FG1Sul shared:

“...governance is well established”

“...we have readily risk policy and framework”

Participant FG2Zak mentioned:

“Operationalises risk policy from our parent company into this newly set up renewable energy company.”

Participant FG2Dil

“For my section, we implement risk management framework and being adopted fully”

Collaborations between business managers, risk managers as well as subject matter experts were also being discussed at length by the participants. Excerpts from participants on collaborations are as follows:

Participant FG2Zak commented:

“We do have collaborations with subject matter experts and it is critical to work together with them.”

Participant FG2Yus shared:

“Collaborations with business and subject matter experts are quite important as we as risk managers may have limited information on operations and focused areas, so we need everyone’s contributions.”

Participant FG2Yok stated:

“Inputs or collaboration with Subject Matter Experts also help.”

Participant FG1Zul shared:

“I would say strong collaboration across department and subject matter experts as well as balanced KPIs setting to encourage all practise risk-based decision-making process.”

The primary themes identified were the integration of risk management in business activities, risk governance and practices, policy and framework documentation and collaborations among parties involved including the subject matter experts. Participants highlighted the importance of embedding risk management into their operations through structured frameworks and governance policies.

Summary of Findings for RQ1

The study's findings from both case study interviews and focus groups discussions highlight several critical elements that are pivotal in implementing and practicing a risk-based decision-making framework to achieve business value creation. Firstly, well-defined risk governance where governance and policy frameworks as sub-themes serve as foundational pillars, providing the necessary structure and mandate to enforce risk-based decision-making processes. Secondly, the integration of risk assessments into business activities such as strategic planning, business decision-making processes and business operations were also highlighted as vital to ensure the implementation and practice of risk-based decision-making framework effective. Furthermore, continuous communication of its requirements, importance and benefits help to allow the practice of risk-based decision-making process effectively. Thirdly, collaboration and partnership highlighted that distinctly defined responsibilities and accountabilities

are essential. Clearly delineating roles among stakeholders, frequent reviews, and empowering business units to conduct independent risk assessments are crucial steps. Collaborative efforts from both business and risk managers are fundamental in mitigating risks and concurrent on effective mitigation strategies, thereby enhancing the overall effectiveness of risk-based decision-making frameworks.

4.4.2 Findings on Research Question Two (RQ2)

In this sub-section, answers to RQ2 were discussed based on qualitative data extracted from case study interviews transcripts as well as focus groups discussion transcripts. These data serve as qualitative findings from qualitative data analysis using NVivo 12 Plus software. Themes discovered during the qualitative data analysis were noted and presented for detailed discussion in the next section. The manner in which these findings are organised is in accordance with the research objectives and research questions stipulated in the earlier chapters, which become the main anchor of the presentation of this study. The RQ2 findings are divided into four themes based on responses collected from respondents, which are goals and objectives, value creation, business acceptance, and risk culture as depicted in Figure 28 below.

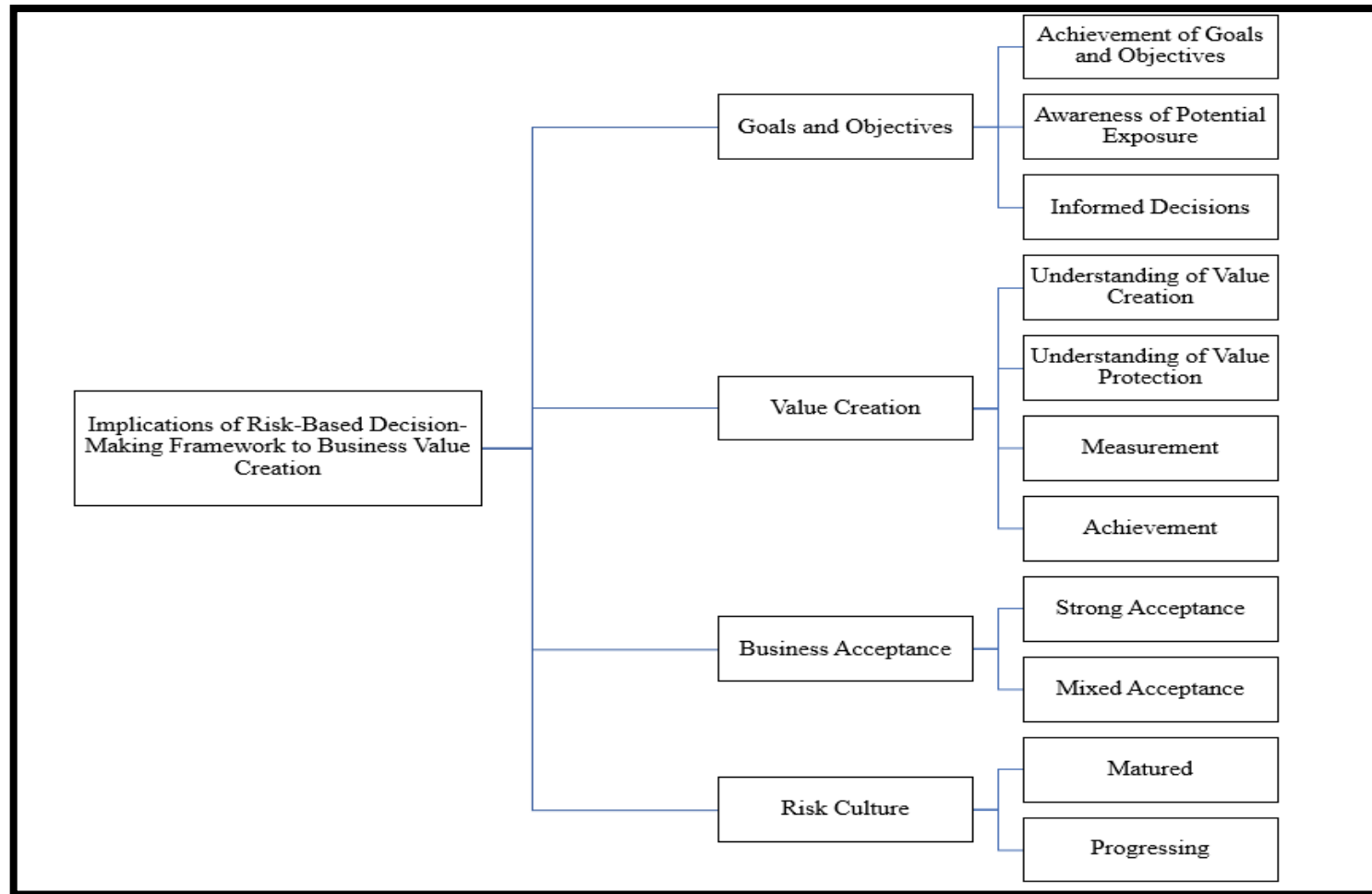


Figure 28: Summary of RQ1 Data Findings

Goals and Objectives

From the data analysis, this theme is divided into three sub-themes: achievement of goals and objectives, awareness of potential exposures and informed decisions. Figure 29 below describes the coding analysis for goals and objectives theme.

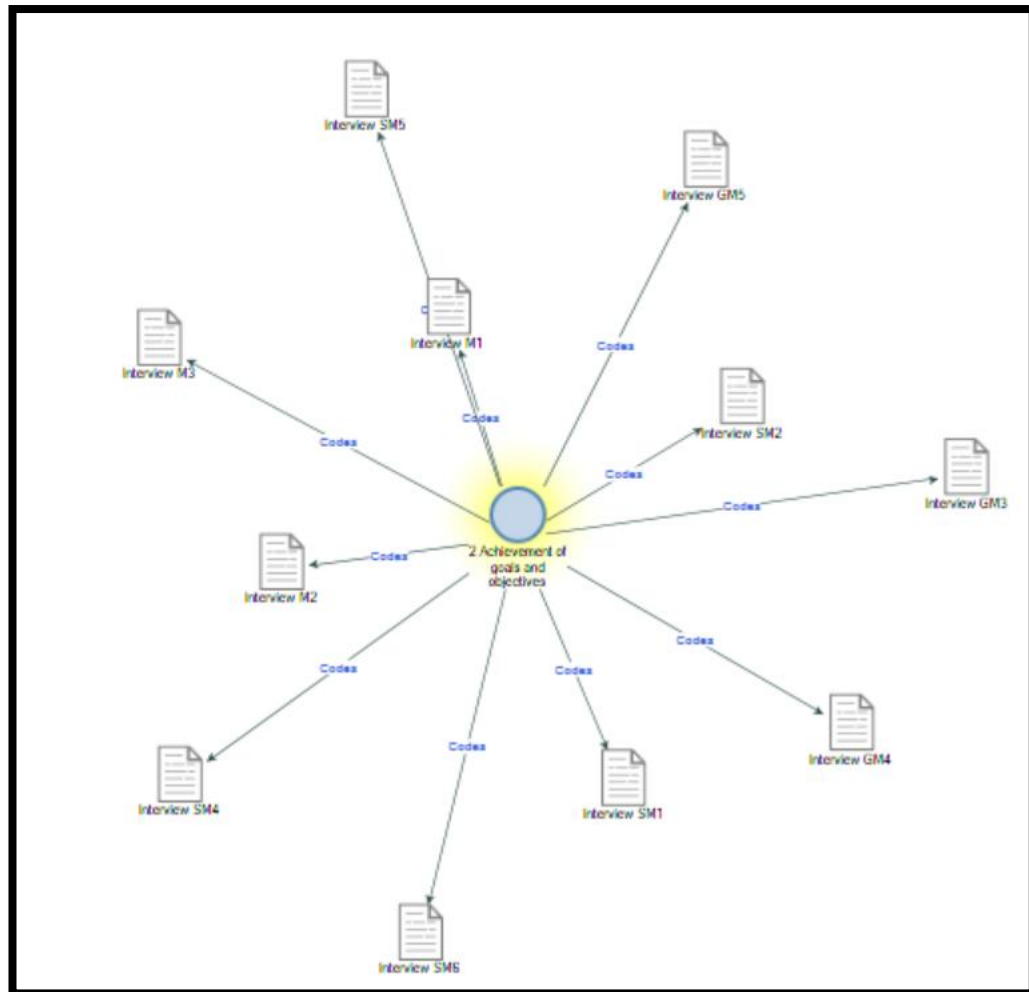


Figure 29: Explore Diagram for Goals and Objectives Theme

Meeting the set objectives or target is important in any business. In the risk-based decision-making process, one of the crucial aims is to ensure the objectives of the decision proposal are met after considering various elements and exposure. Eight respondents discussed about this sub-theme.

Respondent 4 shared a few times regarding the achievement of goals and objectives:

“Also, it has to be aligned to the organisation’s goals and objectives.”

“Value creation is also associated with the contributions that we produce or support that enable the business team to achieve what they pledge for their business goals and objectives.”

“This enables them to achieve the business goals as they would understand the potential exposure that may impair their ability to achieve them and hence take actions to mitigate those risks and exposure.”

Respondent 5 mentioned:

“This system, which includes identifying, assessing, managing, and monitoring a range of financial and non-financial risks, remains a cornerstone of our business strategy and is fundamental to our goal of delivering sustainable long-term value. It is not intended to eliminate risk entirely, but instead to manage our risk exposure across our businesses while at the same time making the most of any opportunities.”

“Value creation in my business context and perspective is seen as any opportunity, reward, or even threat that could provide better positioning, values, and advantages to the business in achieving at least its business aspirations and targets.”

“...ensures a balanced and holistic view of exposures to achieve business objectives, thus strengthening our position as a risk-resilient organisation.”

Respondent 6 narrated:

“Value creation resulting from risk-based decision-making may facilitate business managers' ability to achieve the set goals and objectives and indirectly increase their acceptance of incorporating risk into decision-making.”

Respondent 8 shared:

“Risk-based decision-making facilitates the business manager's ability to achieve the set goals and objectives by acting as a guardrail for the management in decision-making.”

“Hence, by adopting the risk-based decision-making method in assessing value creation, it shaped the management's decision-making process through a structured process of making decisions to meet the set goals and objectives.”

Respondents 10 and 12 mentioned having a balanced view and therefore enabling the business managers to achieve the business objectives.

Respondent 10 stated:

“The management believes that having a risk-based decision-making process provides a balanced and holistic view of exposures to be managed in order to achieve its business objectives.”

Respondent 12 stated:

“Risk assessment is made mandatory, especially for strategic and high-value transactions, making sure the decision-maker is well aware of the risks associated with the strategy and ways to mitigate those risks.”

“It provides a balanced view, and they understand what might deter them from achieving the set goals and objectives and how to mitigate them.”

In addition to achieving goals and objectives, there are also mentions of having higher profitability and creating sustainable value for the organisation.

Respondent 3 stated:

“Business managers may make knowledgeable decisions that lead to higher profitability, market share, and overall success by employing a risk-based decision-making method.”

“Furthermore, incorporating risk into decision-making can also help business managers develop a culture of innovation and continual

improvement. When business leaders promote risk-taking, their workers are more likely to follow the example, which may lead to fresh ideas and innovation that help the organisation develop and grow strong.”

“Adding risk to decision-making may be a powerful motivator for business managers to enhance their risk tolerance. By understanding the potential rewards and benefits of risk-based decision-making, business managers can help their organisation thrive and succeed by providing the best decision.”

Respondent 7 stated:

“Value creation resulting from risk-based decision-making supports business managers in achieving their set goals and objectives by aligning decisions with strategic objectives, optimising resource allocation, enhancing decision quality, improving performance and resilience, and building stakeholder confidence. By considering risks and managing them effectively, business managers can increase the chances of successful goal attainment and create sustainable value for the organisation.”

In this sub-theme findings analysis, respondents emphasised that achieving goals and objectives is integral to the decision-making process, highlighting the need for awareness of potential exposures that could impede success. They noted that risk-based decision-making provides a structured approach, ensuring that business managers can make informed decisions that align with strategic objectives, optimise resource allocation, and enhance performance and resilience. Yazdi et al., (2020) agreed that the integration of risk management as part of the organisational business structure is key to achieve goals and objectives. This framework fosters a culture of innovation, continual improvement, and stakeholder confidence, ultimately contributing to higher profitability, sustainable value, and successful goal attainment. Power (2007) also claimed that the achievement of business goals can be achieved when the business is managed and controlled accordingly.

Being aware of potential exposure that could impede business managers from

achieving goals and objectives is also key, as they go hand in hand. All respondents commented on this sub-theme, as this element is key in any risk management process. Respondents 1, 3, 6, and 8 stated that having insights into potential downsides ensures economic risks and potential exposures that could potentially hinder the meeting of goals. By doing so, the organisation is able to achieve the set objectives.

Respondent 1 stated:

“This is the rigour that we need to go through for investing the company’s capital and to assist us in being good business managers to understand the economic risks, which take into account all aspects.”

Respondent 3 mentioned:

“Managers may reduce the likelihood of unexpected occurrences that could harm the organisation by identifying risks and applying suitable mitigation measures.”

“...enables managers to foresee potential issues and take proactive measures to mitigate them.”

“Risk assessment assists in identifying potential difficulties and hazards that may have an influence on an organisation’s operations, strategic growth, and business goals.”

“Business managers may make decisions that match the organisation’s aims and maximise their chances of success by recognising the potential hazards and benefits of a decision.”

Respondent 6 stated:

“...to provide decision-makers with a holistic view of a business proposal. Business managers will need to identify risks that may hinder the successful execution of their business objectives.”

Respondent 8 mentioned:

“Using the risk-based decision-making method also prevents potential threats to the business or major risks. Doing so will eventually lead to higher acceptance in the decision-making process.”

“Imagine if there is no risk assessment and we still proceed with the partnership? We will expose the company to a significant reputational risk or adversity.”

Besides being aware of and acting on potential downsides to the business objectives, risk assessment could also provide views on potential opportunities for the companies to seize. These have been mentioned by respondents 2, 4, 5, and 7.

Respondent 2 stated:

“Risk management is to both protect the business and also, from a robust risk assessment, there could be opportunities that arise.”

Respondent 4 shared:

“As we understand the risks more, the business manager takes on those exposures in their negotiations, which will protect any financial impacts on the business margin and also, at the same time, be able to offer better and more efficient services to our customers.”

“Any potential exposure identified, the team will find a plan and act on it to ensure the value is created and any potential value leakage is protected. By doing so, the business managers are able to achieve their KPIs and target deliverables for the year.”

Respondent 5 stated:

“...to manage our risk exposure across our businesses while at the same time making the most of any opportunities.”

“Our extensive network of operations and businesses is subject to several factors, some of which are beyond our control. Whether known or unknown, these and other risks may have potential material adverse

impacts on our operations. The risks set out below are linked to our targets for achieving the group objectives."

Respondent 7 shared:

"By effectively managing risks, organisations can avoid or mitigate potential losses, improve operational efficiency, seize opportunities, and enhance financial performance. Business managers are often incentivized by financial rewards and benefits, and the potential for value creation through risk-based decision-making aligns with these incentives."

The awareness of potential exposure enables appropriate mitigation plans and assigning the right parties, respectively. Respondents 9, 10, 11, 12, 13, and 14 mentioned this matter.

Respondent 9 stated:

"The idea of incorporating risk into his business proposal should be of benefit to him as well; it would highlight key risks that will impact his proposal. The important thing is that the takeaway from highlighting those risks is assigning a specific team or unit to actually monitor those risks and ensuring risks are minimised."

Respondent 10 stated:

"There is risk associated with it, and that needs to be managed to the extent possible. It also provides a caution to the decision-maker to be aware that there is risk that the organisation just needs to accept as it may be inherent in doing business."

Respondent 11 mentioned:

"In my view, we business managers see there is value in incorporating risk assessment into decision-making so that we know what can be potentially wrong and how we should plan to address the matter even prior to forwarding it to the board for approval."

Respondent 12 stated:

“As it provides a balanced view, they understand what might deter them from achieving the set goals and objectives and how to mitigate them.”

Respondent 13 mentioned:

“Regarding the process is essential, as it will give a balanced and sound view of the risks and mitigations arising from business transactions. Risk assessments will provide different views on business decisions; the ‘view’ will complement the business proposal, which eventually helps the business achieve its objectives by incorporating risk and reward trade-offs from the risk assessments.”

Respondent 14 mentioned:

“Risk assessment in decision-making ensures risk and reward from the decision have been considered, with appropriate mitigation identified to address the risks. Business is aware of the risks and impact these would have on the business targets and objectives upfront.”

“After the assessment has been done, the decision-makers will be clearly aware and more prepared upfront to mitigate the risk in the event the risk materialises. This supports better decision-making.”

“The value brought by risk-based decision-making is the transparency and awareness of the risks that could impede the decision from achieving the intended objectives”.

All fourteen respondents agreed that risk-based decision-making process allows the awareness of potential exposure to their business decisions. Findings analysis under this sub-theme revealed that all respondents emphasised the importance of recognising potential risks to achieve business goals and objectives. Respondents highlighted that risk-based decision-making process enables business managers to make informed decisions that align with strategic objectives, improve resource allocation, and increase company's performance and resilience. Analysis on both potential shortcomings and benefits lead to a more balanced assessment with wholesome possibilities (Althearn, 1971). Respondents also noted that the incorporation of risk into decision making

promotes a culture of innovation and continual improvement, which is essential for creating sustainable value. Similarly, Paraschivescu (2016) stated that organisation would have great impact when the business manager is aware of the exposure prior to making decisions. This includes the ability of manager to decide to avoid, accept, transfer or reduce risks (Shmatkova and Karminska-Bielobrova, 2023). The integration of risk management into the organisational framework ensures that potential exposures are identified, mitigated, and managed effectively, thereby contributing to higher profitability, stakeholder confidence, and overall success.

Informed decision is another sub-theme that has been discussed consistently throughout the respondents. It goes hand-in-hand with the previous sub-theme, 'awareness of potential exposures' where respondents claim that getting aware and understand lead to a better comprehension of the potential upsides and downsides of the proposal and consequently, to an informed decision making. Ten respondents stated their assessments and views on this sub-theme. Goals and objectives can be achieved when informed decisions being made. Respondents 1, 2, 4, 5, and 14 stated informed decision-making is enabled through the risk-based decision-making process.

Respondent 1 stated:

"In fact, I welcome having this embedded in the process; this is the process that will lead to informed decision-making."

Respondent 2 shared:

"As the ultimate driver for any investment is the reward it brings, And with risk assessment in decision-making, the organisation will have a sounder and more informed decision."

Respondent 4 shared:

"The stakeholders involved in the decision-making process understand the need for performance assessment to ensure their decision is properly assessed and not subject to high-risk exposure."

"Yes, I would agree that the risk-based decision-making process facilitates business managers' creating valuable insights and informed decisions."

“The process that keeps them aware of their target value is to keep it in check and ensure their effort to achieve the expected value is worthwhile.”

Respondent 5 mentioned:

“My organisation outlines the requirement for any strategic and tactical as well as operational decision-making to be supported with a proper risk assessment to facilitate effective and informed decision-making.”

“Businesses are always aiming for better rewards and benefits in conducting their business. With this ultimate intent to create better values for business organisations, it has been seen that embedding the risk assessment process in decision-making enables effective and informed decision-making.”

Respondent 14 mentioned:

“Risk assessment in decision-making ensures risk and reward from the decision have been considered, with appropriate mitigation identified to address the risks. Business is aware of the risks and impact these would have on the business targets and objectives upfront.”

Not only does it provide alertness or awareness of potential threats, but it also brings opportunities and business growth, as commented by Respondents 3, 7, 9, and 12.

Respondent 3 mentioned:

“The rationale behind this is that risks are inherent in all business decisions, and by including them in the decision-making process, managers may make decisions with greater understanding. This approach aids in finding potential threats and opportunities, assessing their relevance and likelihood, and deciding on the best course of action.”

“The creation of value as a result of risk-based decision-making may undoubtedly be the key driver for business managers to include risk in

their decision-making. Firstly, business managers who take measured risks have the ability to add value to their organisation and stakeholders in the form of increased revenue, bigger profitability, and an improved brand reputation. Secondly, incorporating risk into decision-making may assist business managers in identifying possible risks and opportunities, allowing them to make better-informed decisions.”

Respondent 7 shared:

“The impact of risk assessment on an organisation's operations, strategic growth, and business plans can create value in several ways. The value of risk assessment in decision-making lies in its ability to provide a structured and comprehensive approach to managing uncertainties. By considering and managing risks proactively, organisations can make more informed decisions, enhance their operations, pursue strategic growth opportunities, and build a resilient and sustainable business.”

Respondent 9 mentioned:

“The view of the process can bring some value to the discussion and what loopholes they may overlook. 2 pronged benefits: hearing more and more structured information, especially identifying blind spots, informed basis decision-making, how do we protect them, acceptance of that risk, being able to tolerate it, and taking a chance.”

Respondent 12 stated:

“Understanding the risk that is associated with the decision is important to provide a balanced view, regardless of at what level the decision is made.”

“...to ensure wholesomeness with an understanding of cost and risk vs. benefit in the decision.”

Respondent 8 stated that the impact of the risk-based decision-making process is significant and that organisations are exposed if the process is not in place.

“The impact of risk assessment in decision-making is significant.”

“Imagine if there is no risk assessment and we still proceed with the partnership? We will expose the company to a significant reputational risk or adversity.”

The qualitative data collected on this sub-theme reveals that integrating a risk-based decision-making framework enhances business value creation by facilitating informed decision-making. Respondents articulated that this approach provides a balanced view of risks and rewards, enabling business managers to make well-informed decisions aligned with strategic objectives, business risk appetite and capacity. The assessments underscore that risk-based decision-making promotes transparency, innovation, and continual improvement, contributing to sustainable value creation. By embedding risk assessments within the decision-making process, businesses can identify and mitigate potential exposures, thereby enhancing profitability, stakeholder confidence, and overall organisational success. Khanyile and Cluett (2018) posit that by integrating risk management in decision-making process helps business to make sense the plausibility scenario that may impede the ability to achieve their objectives. Thus, this holistic risk view leads to an informed decision which aligned to corporate sustainability and new business ventures such as green technology (Shah et al., 2022). This framework does not only highlight potential threats but also unveils opportunities for growth, reinforcing the importance of informed decision-making in achieving business goals and objectives.

Value Creation

From the data findings analysis, this theme is divided into four sub-themes, which are understanding of value creation, understanding of value protection, measurement method, and achievement of value creation. Value creation and value protection were discussed interchangeably by respondents, hence, in findings analysis, these two sub-themes are being analysed further to seek better understanding of respondents' perspectives of value creation.

Business managers and risk managers may have differing definitions of value creation. Understanding respondents' interpretations of this sub-theme is crucial, as it shapes

the motivation of the stakeholders in implementing and practising a risk-based decision-making process. Eleven respondents shared their understanding of this sub-theme. Value creation is seen as creating economic value, achieving goals or business targets, and getting better positioning, benefits, and advantages that meet or exceed the expectations set. The following are the excerpts from respondents on this sub-theme.

Respondent 4 shared:

“Business value creation in the organisation is really being defined in terms of profitability and achievement of their objectives and goals.”

Respondent 5 mentioned:

“Value creation in my business context and perspective is seen as any opportunity, reward, or even threat that could provide better positioning, values, and advantages to the business in achieving at least its business aspirations and targets.”

“The success of every decision made will be seen based on the value realisation. The more value realised based on the right decision made indicates that the organisation is making the right decision based on the right process and approach.”

Respondent 6 shared:

“Value creation, in simplistic terms, denotes the process of turning input and resources into an output that meets the demand and needs of our stakeholders.”

Respondent 7 stated:

“Value creation refers to the process of generating benefits and outcomes that positively impact the organisation, its stakeholders, and its overall performance. It involves activities and strategies that enhance the organisation's competitive position, financial performance, operational efficiency, customer satisfaction, and long-term sustainability.”

“Business value creation is the process of creating value for stakeholders through the delivery of products, services, or solutions that meet their needs and expectations. Business value creation involves both tangible and intangible elements, such as revenue growth, profitability, brand reputation, customer loyalty, and employee satisfaction.”

Respondent 10 stated:

“Value creation is like a consolidation of efforts and work (as inputs), which is amalgamated or processed, and the output created turns into something bigger than the initial efforts put in by the respective individual.”

Respondents 9 and 13 also mentioned being fully aware of the risk, which leads the business to be on top of things and make sound decisions.

Respondent 9 stated:

“Value creation in the context of risk assessment in decision-making is seen when the decision-makers are fully aware of the risk that they are taking on with the decision to be made. How the risk is to be mitigated, by whom, and dynamic ways of monitoring those risks are crucial to making sure we are agile and on top of things when those risks do happen.”

Respondent 13 mentioned:

“Value creation will happen if the business process or business decision has incorporated commercial considerations as well as a risk-reward trade-off. This will provide a wholesome view for the management to make sound decisions.”

Creating long-term economic value, unlocking potential, and incremental value through new income generators are also seen as value creation by respondents 3, 8, and 11, respectively.

Respondent 3 mentioned:

“Business value creation is the process of creating long-term economic value for its shareholders, customers, workers, communities, and other stakeholders. The business context of the organisation emphasises the significance of combining financial success with social and environmental obligations as well as providing shared value for all stakeholders.”

Respondent 8 mentioned:

“We are much more interested in unlocking the potential value that partnerships could bring to the company and aligning with corporate ambition.”

Respondent 11 mentioned:

“Value creation in my organisation is defined as any incremental value to the business that can be in the form of a new income generator and should be distinguished from business-as-usual activities.”

In addition, Respondent 1 stated that cost reduction is not a value creation but a mere normal course of business operation.

“Cost reduction is not seen as value creation but merely part of the normal course of business operation towards meeting the goals and objectives.”

“Value creation is something that will generate new income.”

In implementing and practising a risk-based decision-making framework, respondents articulated that value creation is a multifaceted process integral to achieving organisational goals and objectives. They highlighted that value creation encompasses the generation of economic value, the realisation of business targets, and the enhancement of competitive positioning. Carlsson (2001) emphasised that for organisation to build sustainability in its business growth, value creation is paramount. Respondents also emphasised that informed decision-making, underpinned by risk assessment, facilitates the identification and capitalisation of opportunities, thereby driving profitability and stakeholder confidence. Likewise, Bhatti et al. (2023) also

agreed that risk management framework leads to various value creation aspects such as informed investment choices. Effective risk management was also noted to contribute to value creation by safeguarding assets, reputation, and market position, which in turn fosters a stable and secure environment for stakeholders. Additionally, respondents pointed out the importance of integrating commercial considerations and risk-reward trade-offs in business processes and decisions, ensuring that value creation is sustainable and aligned with corporate ambitions. This comprehensive approach underscores the critical role of risk-based decision-making in promoting long-term economic value, operational efficiency, and overall organisational success. This is also supported by Kaplan and Norton (2005) who agreed that value creation is evidenced when the business able to seize its competitive advantages and stay relevance in the market.

In addition to value creation, there is also term commonly used as value protection. Risk management is always interpreted as protecting business value from the negative impact of potential exposure. Value protection and value creation are used interchangeably. This sub-theme is further delved to investigate the understanding within business managers and risk managers. Eleven respondents have shared their views on this matter.

Respondent 1 mentioned:

“I can see from the perspective that value protection can also be a value creation for the company’s assets. For example, if we are taking up flood insurance and this is a form of value protection, should the risk of flooding materialise, by having the insurance we can avoid incurring costs due to the disaster event, hence it is creating value to a certain extent. This is only when the risks materialise.”

Respondent 3 stated:

“Value protection is always considered value creation. However, it is difficult to portray this value creation unless the consequences, if not protected, could damage the investment and company. Value protection refers to the measures taken by a company to safeguard its assets, reputation, and market position from internal and external threats.

Companies that fail to safeguard their assets, reputation, and market position risk losing their competitive advantage and facing legal as well as financial consequences.”

“The organisation must have a thorough risk management plan that recognises and mitigates possible hazards. By prioritising value protection, businesses will not only avoid potential losses but can also create a more secure and stable environment for their stakeholders. They should be aware that these are value creations.”

Respondent 4 stated:

“Value protection and value creation go hand in hand; the ability to protect value from being leaked is as important as the promotion of value creation. Reduced costs and active management of potential exposure can be efforts to help the organisation remain valuable and relevant.”

Respondent 7 mentioned:

“Value protection is considered an integral part of value creation because preserving the existing value is essential for sustaining and maximising the benefits derived from value creation efforts. By managing risks and protecting against potential threats, organisations can secure the value they have created and provide a solid foundation for further value creation in the future.”

Respondent 8 mentioned:

“Value protection, in my understanding, is something like securing the value that we could gain by doing anything to minimise the risk level.”

Respondent 9 stated:

“Value protection provides value when it provides more information about potential downsides that the business manager can avoid or mitigate beforehand, ensuring the expected or intended value of the

proposal is well maintained. Hence, in my view, value protection does create value for business managers.”

Respondent 12 stated:

“In my context, value protection is value creation, as it provides certainty for the bottom line.”

Respondent 14 mentioned:

“Value protection is part of value creation. For example, risk management creates value by ensuring business decisions undertaken are aligned with identified risk appetites (accept or avoid).”

While Respondents 1, 3, 4, 7, 8, 9, 12, and 14 mentioned their understandings that value protection is part of value creation, Respondents 5, 6, and 10 have conflicting views where value protection is not value creation.

Respondent 5 mentioned:

“Value protection may not be considered value creation as value protection is more on action to prevent, safeguard, and protect the values from further linkages and deteriorations that may hinder businesses from meeting their business objectives and targets. Creating value is an additional effort to remain relevant, creating business values.”

“Safeguarding values via many mechanisms is to preserve and protect values from further deterioration, which may limit achievement of business objectives.”

Respondent 6 shared:

“Value protection differs from value creation. The overall process of assimilation of strategy, resources, processes, and input to satisfy stakeholders in businesses will create value, whereas value protection is about preserving all output from value creation.”

“Value protection assists in ensuring what is good for my organisation remains good or even better.”

Respondent 10 stated:

“Cost reduction from value protection is not value creation, as in business, it is normal for business managers to increase their profit through cost reduction.”

In analysing the findings, respondents highlighted the relationship between value protection and value creation within the framework of risk-based decision-making. Most respondents concurred that value protection is integral to value creation, as safeguarding assets, reputation, and market position from potential risks ensures sustained economic value and competitive advantage. This aligned with Testorelli et al. (2024) and Aydin et al., (2022) viewed that risk-based decision-making practice led to both value creation and value protection. Although there were eight respondents emphasised that value protection creates a stable and secure environment for stakeholders, thereby fostering further value creation, three respondents argued that value protection differs from value creation, as the former focuses on preventing value leakage and deterioration, rather than generating new value. However, Andersen and Roggi (2012) noted that when cost reduction achieved through value protection will allow opportunity to reinvest into other portfolio that can create value to the organisation. This dichotomy underscores the multifaceted nature of value protection as both a defensive and proactive strategy, crucial for aligning risk management with corporate objectives in achieving long-term business success.

The method of measuring value creation has been mentioned and discussed by respondents as it is essential to ascertain the level of value creation. Tangible and intangible values in the risk-based decision-making process were also remarked by respondents. Ten respondents shared their experience in the organisation and their personal views on how value creation can be measured. Typically, value is measured using financial and economic measures such as profitability, absolute revenue achievement, percentage of improvement, etc.

Respondent 1 commented:

“At the decision-making level, there is no explicit process to perform risk assessment. However, the substance of analysing the proposal involves analysing and understanding the IRR (which must meet a certain threshold, e.g., 10%), the NPV (which must be positive), and other economic and financial analyses based on certain assumptions about variables such as volume, price, and tenure. At the same time, on the ground or at sites, experts are being tasked with assessing the technical aspects of the proposal, which should also be used as a reference to conform to the assumptions used.

“Therefore, the substance of risk assessments does take place, which cover not just financial and economic aspects but also location, acreage, site evaluation, etc.”

Respondent 3 stated:

“The measurement tool of value creation is in the form of a KPI. For example, one of the performance objectives for FY2023 is enabling business strategies through value protection and creation. The measurement tool for this performance objective is the percentage of completion.”

Respondent 4 mentioned:

“This can be an explicit measurement, e.g., dollar and cent or percentage improvement that can be measured, and it can also be a subjective measurement where the appreciation of value creation can be felt by the stakeholders involved along the value chain. This includes the quality of support and turnaround time that we can deliver to the business managers. For example, if the unit that we are supporting is a cost centre, such as the IT department, the value creation will be tagged to the value savings and reduced value leakage that the IT team can achieve, including the number of system downtimes, etc.”

Respondent 13 stated:

“The value creation is measured financially, for example, by EBITDA, capturing new markets for products, meeting sales volume targets, etc. Normally, it will be set at portfolio level before cascading down to departments and staff.”

There are also intangible or subjective measurements, for example, when it comes to communication and engagement. To measure its effectiveness, it can be done through other means, such as a survey or an improvement in the relationship.

Respondent 6 shared:

“The measurement tool for finance capital would be in the form of a financial matrix in addition to strong internal control and prudent financial management that provide value creation in terms of better financial performance for the organisation. On the other hand, stakeholder relations is being measured through various communication and engagement platforms and their effectiveness. This then translated into a better relationship between my organisation and its stakeholders.”

Respondent 7 stated:

“Use various tools and methodologies, such as financial metrics and customer satisfaction surveys. Financial metrics such as return on investment, profit margin, and market value added are commonly used to measure value creation in terms of financial performance. Customer satisfaction surveys help measure intangible elements of value creation, such as employee loyalty and employee satisfaction.”

Respondent 9 mentioned:

“The value of measurement in the organisation can be quantitative (e.g., increase cash flow or revenue or sustainability or cybersecurity protection), or it can be financial or non-financial, ultimately leading to an objective proposal.”

Respondent 11 mentioned:

“No sophisticated methodology is used in defining or calculating value creation; it is based on an understanding or subjective measure, e.g., a new income generator.”

As value creation can be quite difficult to measure, the usual tool is KPIs to track and measure it. However, respondents 8 and 10 mentioned the non-inclusion of his KPIs and were also not sure about the method used to define value creation, respectively.

Respondent 8 mentioned:

“The potential value is difficult to measure. Hence, the management decided not to include it as part of our measurement of success or KPI. Our KPI instead focuses more on our ability to ensure a smooth and warm relationship with the key corporate partners. Which in turn could unlock more potential values for the business in the future.”

Respondent 10 stated:

“The value creation is measured based on the KPI set for each business objective. I am not aware of other specific measurement tools or methodologies to define value creation.”

Measurement of value creation is a critical aspect in the assessment of the implications of risk-based decision-making within organisations. Respondents highlighted various methods to measure value creation, both tangible and intangible. Common metrics include financial indicators such as profitability, revenue growth, and economic analyses such as IRR and NPV. Additionally, performance objectives and KPIs are frequently used to track progress. Qualitative measures, such as stakeholder satisfaction and the effectiveness of communication and engagement, also play a significant role although Küçükgül et al., 2022 stated that these methods may not represent a true picture. The interplay between these metrics ensures a comprehensive understanding of value creation arising from risk-based decision-making, thereby facilitating strategic growth and operational efficiency. These value measurements support managers to make an informed decisions to achieve better performance (Marr, 2008). This dual approach underscores the importance of integrating both quantitative and qualitative assessments in evaluating the overall value impact to the organisation.

Once the business managers and risk managers understand the meaning of value creation, value protection, and measurement methods, further understanding to ascertain whether risk-based decision-making framework brings value to them and their businesses was discussed and gathered as part of RQ2. Ten respondents stated their views on this sub-theme. Generally, all ten respondents agreed that risk-based decision-making processes create value for the organisation.

Respondent 3 mentioned:

“Risk assessment’s influence on decision-making may add significant value to organisations. Organisations may increase their operational efficiency, boost their brand, and reduce the possibility of legal and financial impacts by minimising risks. Furthermore, risk assessment may help influence strategic growth decisions, including entering new markets, investing in new technology or products, and expanding operations. The organisation will get more economic advantages by recognising and analysing the risks connected with these actions.”

Respondent 6 mentioned:

“In my opinion, risk assessment in the decision-making process definitely creates value for organisations at every stage of the decision-making process. For instance, a business strategy or even a project proposal will have high-level risks associated with it, and the risks highlighted will be further narrowed or detailed down for mitigation as it moves along the project value chain/strategy execution phase.”

Respondent 7 mentioned:

“Value creation resulting from risk-based decision-making can directly contribute to financial rewards and benefits for the organisation.”

Respondent 8 stated:

“The impact of risk assessment in decision-making is significant.”

“Risk-based decision-making could unlock value creation for business managers. This is considering that the business transaction happens as

per the anticipated risk level. It is natural for any business to be driven to achieve rewards or create values (i.e., profitability, productivity, etc.).”

Respondent 10

“Incorporating risk assessment in decision-making is critical and proved to be valuable to the decision-maker that this context itself was included as part of my organisation’s risk policy.”

“It can be seen that it has added value to business decision-making.”

In addition to respondents about the achievement of value creation, respondents 1, 4, 5, 9, and 14 also further shared that value creation is achieved when they see the potential exposure that may impede their ability to achieve their business objectives.

Respondent 1 stated:

“We business managers see the value of incorporating risk assessment into decision-making so that we know what can be potentially wrong and how we should plan to address the matter even prior to forwarding it to the board for approval.”

Respondent 4 shared:

“In short, risk-based decision-making processes provide a positive impact on business value creation.”

“Value creation is also associated with the contributions that we produce or support that enable the business team to achieve what they pledge for their business goals and objectives.”

“Any potential exposure identified, the team will find a plan and act on it to ensure the value is created and any potential value leakage is protected. By doing so, the business managers are able to achieve their KPIs and target deliverables for the year.

“By doing so, the impact is either creating higher or greater values as a result of deeper thought, analysis, and assessment, which can lead to value-added propositions or protect potential value leakages coming

from risks surrounding their business proposal execution or implementation.”

Respondent 5 mentioned:

“With the embedment of risk assessment in facilitating decision-making, the decision is well carried out guided by a proper assessment that is in line with the “four-eyes” principles in which any decision is to be made to be properly reviewed and consulted to ensure the decision is made having considered all factors both internal and external. Thus, decision-making would be more effective and well informed; thus, this would better curate and establish the correct path towards the achievement of business objectives, targets, and aspirations. “Without risk-based decision-making, decisions may not be able to maximise value for the business.”

“If the risk-based decision-making process enables successful value realisation, this will create better confidence in the leaders who are making decisions to trust the system and process for every decision that is to be made.”

Respondent 9 stated:

“...see some values as they may miss some blind spots in the process of analysing the proposals.”

“Risk assessment can be a form of value protection that leads to value creation, and in this case, when the value of the intended objective is preserved to meet the set goals and objectives, the business manager will accept it as part of the process because they are driven to achieve those objectives or goals.”

Respondent 14 mentioned:

“If business decides to accept the risk and pursue the decision, a proper risk response or mitigation plan can be developed within the risk appetite to ensure optimal value from the decision is maintained or

intact. Hence, the risk response or mitigation plan is seen as value protection, especially in managing downside risk.”

“The value brought by risk-based decision-making is the transparency and awareness of the risks that could impede the decision from achieving the intended objectives. After the assessment has been done, the decision-makers will be clearly aware and more prepared upfront to mitigate the risk in the event it materialises. This supports better decision-making.”

Findings analysis shows that respondents' views highlight the role of risk-based decision-making in achieving value creation within organisations as the implication of its effective implementation and practices. The respondents highlighted that incorporating risk assessments into decision-making processes significantly enhances operational efficiency, strategic growth, and economic advantages which are defined as value creations by most of them. This establishment would maximise shareholder value (Gjerdrum and Peter, 2011). Furthermore, respondents emphasised that a proper risk assessment framework helps in identifying and mitigating potential exposures, thereby protecting and enhancing business value. Md.Sum (2013) agreed the framework allows the process of eliciting and providing various inputs on the potential upsides and downside to business proposals for informed decision-making. Overall, the findings suggest that the adoption of a risk-based decision-making framework promotes a more robust and proactive approach to achieving organisational objectives, ultimately leading to sustainable value creation.

Business Acceptance

From the findings analysis, discussion on business acceptance has mentioned by respondents extensively as one of the implications of implementing risk-based decision-making framework in their organisations. This theme is supported by two sub-themes, which are strong acceptance and mixed acceptance. Understanding the level of business acceptance would enable the organisation to review the implementation plan effectiveness, policy or framework feasibility, and process practicality.

High level of acceptance by business managers of the introduction of risk-based decision-making processes have been experienced by respondents. Twelve respondents have shared their assessments and views on this sub-theme.

Respondent 1 mentioned:

“Business acceptance is high in my organisation; so far, there has been no pushback because we understand that this is the rigour that we need to go through for investing the company’s capital and to assist us in being good business managers to understand the economic risks that take into account all aspects.”

“If we do not see the value or benefits of this process, it will not increase our acceptance to embed the requirement into the process.”

Respondent 2

“Risk management in decision-making is very powerful, as it should not be regarded as an afterthought. I have always viewed risk as an all-encompassing process.”

Respondent 3 mentioned:

“Business managers and risk managers would likely view the process of incorporating risk assessment into decision-making as a crucial component of their roles.”

“It will facilitate and increase acceptance of incorporating risk into decision-making, the reason being that the business manager views risk assessments as part of the process and due diligence process in making decisions; he or she does not view them as a hindrance to business objectives.”

Respondent 6 stated:

“Value creation resulting from risk-based decision-making may facilitate business managers' ability to achieve the set goals and objectives and indirectly increase their acceptance of incorporating risk into decision-making.”

Respondent 7 mentioned:

“Business managers and risk managers generally regard the process of incorporating risk assessment into decision-making as crucial and necessary. We recognise that every business decision involves a certain level of uncertainty and potential risks, and incorporating risk assessment helps us identify, evaluate, and mitigate these risks.”

The acceptance is strong, as the business managers are aware of the benefits of rigour and will not proceed with decision-making unless a risk assessment is performed.

Respondent 4 shared:

“The business acceptance is quite strong where there were instances where the business leaders would not agree to the proposal without approval or sign-off from the finance manager or regional finance manager.”

“Yes, in my organisation, the business managers welcome the process of having a check and balance as they are aware of the benefits of doing it.”

Respondent 5 stated:

“Setting the tone from the top, our risk management and internal control systems are driven by the board and its sub-committees.”

“Without risk-based decision-making, decisions may not be able to maximise value for the business.”

“We continuously strive to implement risk management best practises to protect and create value.”

Respondent 8 stated:

“Value creation from risk-based decision-making will incorporate a holistic view of risks in achieving the business objectives. I would think the business manager would do what it takes to ensure the proposed business proposal gets approved.”

“Using the risk-based decision-making method also prevents potential threats to the business or major risks. Doing so will eventually lead to higher acceptance in the decision-making process.”

“Achieving the values will definitely create a motivational factor to accept and recognise the importance of risk assessment in decision-making, hence increasing their acceptance of incorporating risk into decision-making.”

Respondent 10 mentioned:

“If one can see the overall value creation from risk-based decision-making, I think it would not be hard to accept the additional process required to perform a risk assessment together with a business proposal.”

“The acceptance or perception of risk management has improved a lot. It can be seen that the organisation is becoming more mature and accepting that there needs to be a balance when one pursues a goal; there is risk associated with it, and that needs to be managed to the extent possible.”

“The business manager would be more interested in ensuring his business proposal gets approved at the respective decision platform. The idea of incorporating risk into his business proposal should be of benefit to him as well; it would highlight key risks that will impact his proposal.”

It is also due to complying with the requirement that the acceptance in the organisation is strong, as mentioned by Respondents 11, 13, and 14 below.

Respondent 11 mentioned:

“...high acceptance in my organisation, as they understand the need for having the assessment on their business proposals.”

Respondent 13 mentioned:

“Business acceptance is satisfactory as the requirement to do risk assessment is mandatory for decision-making papers.”

Respondent 14 stated:

“From observation, acceptance is group-wide given that it is a requirement set by corporate law and group risk management.”

The findings analysis reveals that strong acceptance of the risk-based decision-making framework among business managers and risk managers significantly contributes to its successful implementation within the organisation. Respondents emphasised that a high level of acceptance is driven by the recognition of the framework's value in enhancing decision-making processes, ensuring due diligence, and achieving organisational objectives. They appreciate the rigour and benefits of incorporating risk assessments, viewing them as integral to protecting and creating value. This is also agreed by Mitchell et al. (2023) as the acceptance level varies and usually is high when they see the purpose. This acceptance is further bolstered by the top-down support from leadership, the requirement for compliance, and the demonstrated impact of the framework on improving operational efficiency and strategic growth. Studies have shown that employees' acceptance and willingness to accept to implement and practise the framework is also influenced by their risk perceptions and attitudes towards risk (Shafi et al., 2011). Collectively, these factors highlight the critical role of institutionalising risk management as a fundamental component of business strategy, ultimately fostering a culture of proactive risk mitigation and robust decision-making.

In addition to strong business acceptance, respondents also discussed that there are varying level of acceptance by employees in the organisation with regards to the introduction of a risk-based decision-making framework. Seven respondents shared their assessments and views on this sub-theme. Business acceptance can be seen as lower at the beginning of the implementation of the risk-based decision-making process but is slowly improving. Various reasons have been collected such as the dispute on the accountability and responsibility to manage the identified risks, lengthy process, and the idea of risk management process being a showstopper.

Respondent 2 stated:

“There are definitely challenges, as the level of acceptance is different. Institutionalisation and internalisation are critical to ensuring acceptance. Risk management has to be accepted as a way of life. A framework was introduced to be fully embraced. The mindset of people in the organisation has to regard it as a way of life, not an encumbrance.”

Respondent 6 mentioned:

“The challenge at this juncture is from the perspective of accountability and responsibility for businesses, where it is often seen that businesses will expect risk managers to perform the risk assessment associated with their proposal instead of taking direct accountability for identifying key risks associated with their proposal and its relevant mitigations.”

Respondent 9 mentioned:

“Initially, the acceptance was quite low, as the business managers felt the process was becoming lengthy as a result, and sometimes the agility of business decision-making was lacking. The views may still be valid at present. However, I can see some progress and improvement as business managers are more careful and cautious in considering many aspects of their proposals. Hence, acceptance can be seen to be higher now compared to its inception.”

“If one can see the overall value creation from risk-based decision-making, I think it would not be hard to accept the additional process required to perform a risk assessment together with a business proposal.”

Respondent 10 stated:

“At the initial stage, it may be quite challenging to shape a leader’s thinking towards risk as it can be seen as a showstopper to get approval on a specific project. Ever since my organisation implemented the

requirement to have risk assessment in decision-making in 2018, it can be seen that it has added value to business decision-making."

Respondent 12 mentioned:

"After a few years post-implementation, the acceptance is better."

The level of acceptance differ at various level in the organisation, where business acceptance can be felt higher at the top management and corporate levels but not as much at the middle and working levels, as mentioned by Respondents 5 and 14.

Respondent 5 mentioned:

"At the highest level, risk assessment consideration becomes a normative process and requirement for every decision made at the board; however, at the middle and working levels, the risk assessment consideration is not proactively carried out; many consider this process more of a paperwork exercise."

Respondent 14 mentioned:

"Actual practises at different businesses and entities within the group may vary so long as these practises are aligned with the corporate-level philosophy and principles."

Findings from the above reveals that a varied acceptance of the risk-based decision-making framework within the organisation being highlighted by the respondents. Initially, acceptance was low due to challenges such as disputes over accountability, the perception of a lengthy process, and concerns about the framework acting as a barrier to business decisions. However, over time, the perception has improved as business managers recognise the value creation and enhanced due diligence the framework brings to their business process. Respondents emphasised the need for institutionalization and internalization of risk management practices, highlighting that it should become ingrained in the organisational culture rather than be seen as an encumbrance. As such, Kurniawan et al. (2017) suggested involvement from higher management in the organisation is vital to create the right risk culture in the organisation. While top management and corporate levels show higher acceptance,

middle and working levels still view it as a bureaucratic exercise. The overall acceptance is further bolstered by the demonstrated impact on operational efficiency and strategic growth, aligning closely with corporate-level philosophy and principles.

Risk Culture

From the data analysis, this theme is divided into two sub-themes: mature and progressing. Risk culture has been mentioned as the implication of effective risk-based decision-making framework by the respondents. By understanding the level of risk culture maturity of respective organisation, its top management is able to plan for the appropriate course of action to improve or sustain their risk culture.

This refers to high maturity level of risk culture experienced by respondents after the introduction of risk-based decision-making processes. Five respondents stated their assessments and views on this sub-theme. High-risk culture maturity is seen when the business embraces the requirement and accepts the process as part of their business activities just like their second nature. Strong culture of compliance would also help in shaping the right behaviour towards risk culture as stated by Respondents 4 and 13.

Respondent 4 shared a lengthy explanation on risk culture:

“The risk culture is pretty mature, and acceptance by the business to embrace it is quite high.”

“The risk culture is mature and has been established to embed risk assessment in the decision-making process, although non-standard investments or high investments require a higher degree of rigour to assess the potential exposure that may impede obtaining the desired objectives of the business proposal.”

“The strong culture of compliance, which has become our second nature, where we value the impact of risk assessment on the business proposal.”

“There was instance where the business manager avoids the transaction once knowing the risks outweigh the potential value. This

indicates that they are matured enough to understand that whatever they do must be of value to the organisation and behave as owners.”

Respondent 13 mentioned:

“The risk assessment will be performed by the risk manager of each unit or department. Sometimes the paper owner will come up with the proposed risk assessment for review by risk manager. This shows that the risk management culture has been embraced by everybody in the company.”

Strong risk culture is also felt when business managers and risk managers adhere to the tone from the top, and leaders carry this message throughout the organisation.

Respondent 5 stated:

“Setting the tone from the top, our risk management and internal control system are driven by the Board and its sub-committees, namely the RC and Audit Committee, as well as the ELT. In addition to the above committees, risk oversight is supported by the RMC and its respective risk management functions.

Respondent 6 shared:

“Leaders actively promote a risk-aware culture, communicate the importance of risk assessment in decision-making, and allocate appropriate resources for risk management activities. Risk assessments embedded into existing decision-making processes, such as strategic planning or project evaluation, help normalise their importance.”

Maturity of risk culture is also linked to the confidence of the employee and value creation they encounter to embrace it fully, as mentioned by Respondent 2:

“Once the business sees the benefit of having robust risk management and the impact it brings, it will have more confidence in embracing it fully. The leaders will also need to attest to risk management and its values.”

The analysis reveals that a mature risk culture is being felt and experienced by the respondents, manifesting through various organisational practices and behaviours. Respondents highlighted the role of business managers and risk managers in embracing and implementing risk assessment processes, reflecting a deepening risk management culture. This culture is driven by leaders in the organisation and institutionalised by the board of risk committee and management risk committee. Aziz et al. (2018) suggested that organisational culture and mindset are key elements to support effective risk management implementation especially in the scope of strategic planning and operational execution. Therefore, as respondents shared, leaders should be actively promoting a risk-aware culture, incorporating risk assessments into strategic planning and project evaluation, which normalizes and underscores their importance. Confidence in risk management's value and the resultant business benefits further encourage full engagement with risk practices. Malaysian oil and gas industry highlights a specific importance on decision-making process as part of its corporate culture (Sulasi, 2021). However, the progression of this culture is uneven across organisational levels, with more mature practices at the top and less proactive implementations at middle and working levels. Continuous awareness and upskilling sessions are necessary to foster a risk culture that is not solely the responsibility of risk managers but of everyone in the organisation.

This refers to the level of risk culture that is progressing and the sporadic experiences received by respondents after the introduction of the risk-based decision-making process. Six respondents stated their assessments and views on this sub-theme. Respondent 3 shared about the obstacles or constraints experienced by the stakeholders that may impact the level of risk culture in the organisation:

“Like in any other organisation, including risk assessment, late decision-making may provide obstacles and constraints. This might be due to a misunderstanding of risk management principles, a lack of resources, or competing objectives.”

The maturity level varies at different levels in the organisation, as mentioned by Respondent 5:

“At the highest level, risk assessment consideration becomes a normative process and requirement for every decision made at the board; however, at the middle and working levels, the risk assessment consideration is not proactively carried out; many consider this process more of a paperwork exercise.”

Respondent 9 stated that the stakeholders feel the process is compliance-based and may not embrace the risk culture fully yet.

“In my view, they may feel the process of incorporating risk assessment in decision-making is a compliance-based approach...”

“...what we do, take into consideration the risk, conduct risk management, and value risk managers' perspectives for any blind spots.”

“...ownership and ensuring mitigation are in place and executed but may not be fully realised.”

“A culture of knowing and needing to do due to governance and compliance is required as a start. Later, they need to know how to apply them and take seriousness about them in their day-to-day activities, as these are still not mature and still in the journey.”

“They are a bit mature and have seen the need for risk assessment; over time, the risk manager is also experienced and mature enough to support the business, which can be observed from the experiences where business managers welcome the input and consultation from risk managers.”

Respondents 2, 12, and 13 stated the need for continuous awareness-upskilling sessions to improve risk culture. Forming a risk culture is not only the risk manager's task but that of everyone in the organisation.

Respondent 2 mentioned:

“One of the main areas for improvement in order to promote business acceptance is to raise awareness and educate staff about the importance of risk management and its influence on business performance. This might be accomplished through training and communication initiatives that promote a risk-aware culture inside the organisation.”

Respondent 12 mentioned:

“And once this is inculcated, it will become second nature to the business, and everyone can play the role of risk managers themselves.”

“Continuous upskilling and sharing/awareness sessions must be done by the risk managers to ensure the pervasiveness of the practises and to inculcate the risk culture.”

Respondent 13 stated:

“The challenge is to nurture a risk culture and to inculcate risk management as everybody's responsibility, not only for risk managers.”

“This can be done over a period of time, as risk management can become a culture in the company through an awareness programme and a tone from the top.”

The findings indicate that the progression of risk culture within the organisation is multifaceted and somewhat uneven. Respondents highlighted that while risk management practices are well-established at the highest levels, such as the Board and executive committees, they are less proactively implemented at middle and operational levels. This disparity is attributed to obstacles such as a lack of resources, misunderstanding of risk management principles, and competing objectives. Despite these challenges, respondents observed that a risk-aware culture is gradually being embraced, driven by leadership and reinforced through continuous awareness and upskilling sessions. The need to transition from a compliance-based approach to one that views risk management as intrinsic to decision-making processes was emphasised. This ingrained in processes and thinking approach can be done through both hard and soft upskilling initiatives (Woods, 2023). Similarly, the respondents advocated for

extensive training and communication initiatives to promote a pervasive risk culture, where every employee, not just risk managers, takes ownership of risk management practices. This cultural shift is deemed crucial for the effective implementation of the risk-based decision-making framework, fostering confidence in its value and resulting business benefits.

Focus Group Findings

There were 2 focus groups being set as part of data collection to triangulate the data collected from case study interviews. Ten participants have shared their business and risk views on this research topic. Code names are used in the analysis based on focus group discussion profiles table in section 4.3. Findings revealed from Focus Group 1 and Focus Group 2 are shown in table 10 below:

Table 10: Summary of Major Themes Emerged for RQ2 from Focus Groups Discussions

Themes	Number of Occurrence	Participants
Informed decision	6	FG1Zul, FG2Yus, FG2Azr, FG2Zak, FG1Dil, FG2Mar
Achievement of Goals	3	FG1Nab, FG2Zak, FG1Zar
Value Creation	6	FG1Zul, FG1Sul, FG2Yok, FG1Dil, FG2Mar, FG1Nab,
Business Acceptance	3	FG2Azr, FG2Yok, FG2Zak
Risk Culture	8	FG2Mar, FG2Azr, FG2Zak, FG1Nab, FG1Dil, FG2Yok, FG1Sul, FG2Yus

The major themes that emerged from the discussion on implications of risk-based decision-making to the organisation were informed decisions, value creation from risk assessment, achievement of goals, business acceptance and risk culture as summarised in the above table. There was also mentioned that they have difficulty in measuring value creation as it gets immersed into the achievement of goals by the business and

impossible to single out the value creation from the process. Nevertheless that the value is felt by business managers and risk managers. Some of the excerpts are as follows:

Participant FG1Dil shared:

“...when we do our yearly strategic planning, it incorporates risk assessment to prevent financial losses and protect value”

Participant FG1Zar commented:

“Risk assessment leads to cost reduction and improved profit and loss position”

Participant FG2Mar stated:

“...where directors are aware of implications, contributing to value creation through risk discussions”

Participant FG2Yok explained:

“The business report their efforts on the achievement of value creation and this is one of the implications on the introduction of risk-based decision-making framework to the organisation. The report helps the business to see the bigger picture that how it create value to the organisation.”

Participant FG2Yus shared:

“It creates value as well as protect value for the business.”

However, Participant FG2Azr shared that although the process leads to value protection but lengthy process may destroy it. Similarly, FG2Zak shared that some business managers view the process as an academic exercise, and there should be efforts to simplify the process for better value creation.

Beside value creation, informed decision-making is one of the major themes emerged. A few excerpts to substantiate this as follows:

Participant FG2Yus shared:

“Risk conversation enables informed decisions, creating and protecting value for the business.”

Participant FG1Zul stated:

“Risk assessment helps identify potential pitfalls, enhancing informed-decisions and stakeholder confidence and value”

Participant FG2Yus shared:

“At the end of the day, the objectives of informed decisions can be done”

Participant FG2Mar also shared her view that one of the implications of risk-based decision-making framework is the formation of risk culture in the organisation. The excerpt is shared below:

“As for me, the implication of risk-based decision-making framework will set the risk culture and it comes from tone from top first.”

In summary, most of the participants agreed that risk-based decision-making framework facilitate the informed decisions by the top management and board of directors which lead to business value creation and value protection. Risk culture will also be nurtured when top management and board of directors steer their direction accordingly. Nevertheless, there are also challenges being highlighted such as lengthy process which may limit the value creation and time constraint for risk manager to perform thorough assessment as to fulfil the business’s requirement to expedite the assessment for them to achieve their business target quickly which may lead to some of business risks are being disregarded.

Summary of Findings for RQ2

The study's findings highlight several implications of implementing and practicing a risk-based decision-making framework in the organisation. Firstly, the findings revealed that theme goals and objectives achievement is as one of the significant

implications of effective risk-based decision-making framework implementation. The awareness of potential exposures and informed decision-making goals advance the achievement of goals and objectives upon successful implementation and practice of a risk-based decision-making framework. Secondly, value creation has been identified as the potential outcome that will be achieved when effective implementation and practices of risk-based decision-making framework are in place. Majority of respondents agreed that value creation and value protection bring to the overall value creation to the organisation through either generating revenue and a shift of investment portfolio as a result of cost reduction from value protection. Thirdly, building trust can be achieved when confidence and acceptance among business managers through the achievement of tangible value generated by the risk-based approach. This trust is further reinforced when the process demonstrates measurable benefits, such as financial gains and the mitigation of potential threats. The overall consensus among respondents is that the institutionalisation of risk management practices transforms them from mere bureaucratic exercises into essential components of strategic decision-making, thereby enhancing operational efficiency and fostering a culture of trust and accountability.

Lastly, the findings elucidate that the development of a robust risk culture is integral to the successful implementation of a risk-based decision-making framework within the organisation. This culture is underpinned by active leadership promotion of risk-aware practices, which normalises the importance of risk management in everyday decision-making process. However, the progression of this culture is not uniform across all organisational levels. While higher echelons exhibit well-entrenched risk management practices, middle and operational levels still face challenges due to resource constraints, misunderstandings of risk principles, and competing objectives. Therefore, the respondents emphasised the necessity for continuous awareness and upskilling initiatives to bridge this gap, advocating for a shift from a compliance-based approach to one that sees risk management as an intrinsic component of decision-making. In summary, the research study highlights that a pervasive risk culture can be achieved when the risk-based decision-making framework is implemented and practised by everyone in the organisation effectively.

4.4.3 Findings on Research Question Three (RQ3)

In this sub-section, answers to RQ3 were discussed based on qualitative data extracted from case study interviews transcripts as well as focus groups discussion transcripts. These data serve as qualitative findings from qualitative data analysis using NVivo 12 Plus software. Themes discovered during the qualitative data analysis were noted and presented for detailed discussion in the next section. The manner in which these findings are organised is in accordance with the research objectives and research questions stipulated in the earlier chapters, which become the main anchor of the presentation of this study. The findings of other determinant factors or emergent properties for better implication of risk-based decision-making framework for business value creation are divided into six outcomes, which are competency and capability, Key Performance Index (KPI) setting, responsibilities and accountabilities, resources and knowledge management, system and digital platform, and pervasive risk culture as summarised in Figure 30 below.

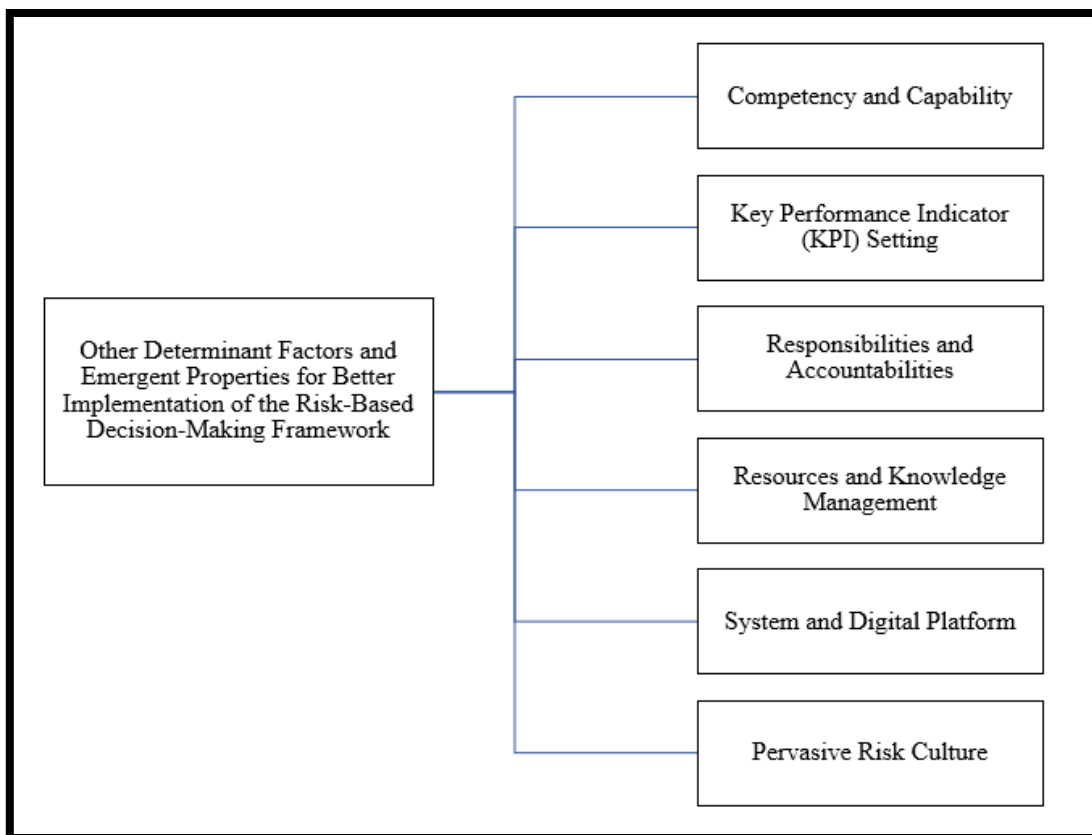


Figure 30: Summary of RQ3 Data Findings

Competency and Capability

From the data findings analysis, this theme is identified to answer RQ3. The researcher is seeking to identify areas for improvement which can further alleviate the implication of risk-based decision-making framework for business value creation in addition to the establishment of key elements. Thirteen respondents stated their assessments and views on this theme. Generally, most respondents commented on the importance of competency and capability in the risk-based decision-making process due to their significance in providing assessment with quality and accuracy for decision-makers to make informed decisions.

Respondent 1 mentioned:

“Financial analysts, business managers, and operation managers are expected to have the right level of capability and competency. Classroom training and on-the-job training are crucial to developing capability and competency, especially if it involves being on the ground to assess the acreage, road access, etc.”

Respondent 2 mentioned:

“The set of capabilities is a full understanding of the business, what makes it tick, and the movers and shakers. The processes of risk management in decision-making are not rocket science.”

With the right capability and competency, it would create trust and confidence for business managers, as mentioned by Respondents 3, 4, 5, 6, 7, and 8 below. A sufficient and expert level of knowledge is not only required from risk managers but also from other experts and business managers. Suggestions on formal and informal training were suggested by respondents to upskill them to have the expected level of competency and capability.

Respondent 3 stated:

“I do agree that a high level of capability and competency is crucial for effective risk assessment and decision-making.”

“In terms of the required level of business and risk knowledge for a proposal to be made on an informed basis, it depends on the specific situation and context. However, in general, a solid understanding of the business or sector, as well as possible hazards and risk management procedures, is required. Training and education are critical to ensuring that employees participating in decision-making have the appropriate abilities and expertise to successfully identify and manage risks.”

Respondent 4 stated:

“Capability and competency are indeed important for finance and risk managers to have, as this will create trust and confidence for business managers to engage and consult them. Again, what they want is that value is created, and hence the support from the finance and risk management teams is crucial for them to achieve it. Capability development can be formal or informal. Formal requirements require structured programmes provided by an external provider or even internally arranged by the HR department. Internal programmes can be in the form of sharing from leaders through their experience.”

Respondent 5 mentioned:

“Yes. The capability and competency of risk assessment are crucial. Lack of risk competency and capability in driving risk management application and practises at the line will lead to ineffective risk practises at the level within the organisation.”

“The gaps for ineffective decision-making may be contributed by incompetent personnel in conducting risk assessments, limited knowledge and experiences, as well as the comprehensiveness of the assessment. Lack of SMEs as well as experts in risk assessment may lead to ineffective risk-based decisions.”

Respondent 6 stated:

“Knowledge about business, understanding linkages between strategies, ability to connect with business owners, and more importantly, narrating the risk assessment clearly and concisely.”

“Yes, capability and competency are critical in supporting risk assessment in the decision-making process. Perhaps a definite or pre-defined level of business knowledge is not the most critical factor in supporting the above. What can be done is to provide exposure to both business personnel and vice versa, e.g., via secondment or attachment to the project.”

Respondent 7 mentioned:

“I agree that the level of capability and competency is important to support risk assessment in the decision-making process. Adequate business and risk knowledge is necessary to ensure that proposals for decision-making are done on an informed basis.”

“Adequate business and risk knowledge is necessary to ensure that proposals for decision-making are done on an informed basis.”

“In terms of the required level of business and risk knowledge by personnel involved, it is beneficial to have a multidisciplinary approach. Risk managers bring specialised expertise in risk assessment methodologies and can lead the process. Subject matter experts: These individuals possess deep knowledge in specific areas, such as finance, operations, legal, compliance, or technology, and can provide insights on risks related to their respective domains. Business managers and decision-makers: They have a strong understanding of the organisation's goals, strategic direction, and operational realities. Their involvement ensures that risk assessment aligns with business objectives and decision-making requirements.”

Respondent 8 mentioned:

“The required level of business and risk knowledge for a proposal for decision-making will be at the level of being able to proactively do the risk assessment.”

All of the employees in an organisation should be involved in capability and competency development. Making decisions in today's business has to be fast and nimble; hence, risk assessment also needs to be wholesome and fast in order to enable management to make decisions.”

Respondent 10 mentioned:

“Capability by the risk managers is equally important to identify the risks associated with the decision and project. At the initial stage, it may be quite challenging to shape a leader’s thinking towards risk as it can be seen as a showstopper to get approval on a specific project.”

Respondent 13 mentioned:

“The company will preserve its value by enhancing their workers’ skills and technical know-how. Eventually, this will lead to innovation or initiatives by the workers and provide value creation to the company.”

As business strategy evolves in the market, the need to improve capability covers new business areas, which are limited even within the organisation, as stated by respondents 3, 9, and 12.

Respondent 3 mentioned:

“Capability development, continuous learning, and improvement are essential to enhance risk assessment and decision-making skills. This could involve training on risk management strategies, staying up to date with industry trends, and leveraging technology to support decision-making processes. Some years of exposure to business would be good to have.”

Respondent 9 stated:

“Yes, I agree that capability and competency are important to support risk assessment in the decision-making process. There must be sufficient level of business and risk knowledge, at least from knowledge to expert level, which comes with the experience and job rotation between risk managers and business managers, so both can see from different lenses, i.e., the risk owner (business

manager) perspective and the risk manager perspective, to ensure the practicality of the risk highlighted and its mitigation plan.”

“Over time, the risk manager is also experienced and mature enough to support the business, which can be observed from the experiences where business managers welcome the input and consultation from risk managers. Areas for improvement can be more on communication and capability in performing risk assessment, especially when it comes to new business strategies and areas of opportunity where knowledge is limited within the organisation itself.”

Respondent 12 stated:

“I agree that capability and competency are important to support risk assessment in the decision-making process. “There must be sufficient level of business and risk knowledge (at least from knowledge to expert level) that comes with the experience and job rotation between risk managers and business managers so both can see from different lenses, i.e., the risk owner (business manager) perspective and the risk manager perspective, to ensure the practicality of the risk highlighted and its mitigation plan.”

“The capability might be challenged as not everyone has the same level of understanding and competency. And also, risk covers many areas, including new ones, e.g., new energy, and not everyone is well versed in the topic.

In addition to having the right level of competency and capability, including in new areas that are constantly evolving, seniority and experience in handling risk assessments play a crucial role in this process.

Respondent 14 mentioned:

“Risk is not rocketing science, and it is something that is also faced in daily personal life. However, what could be challenging is fitting the risk into the context of the decision to ensure the right risks are identified to allow for the appropriate risk mitigation, i.e., a wrong or inaccurate risk could lead to a wrong or inappropriate mitigation. Hence, a junior executive, having awareness

of what risk is in general, what risk could arise from the decision area, and how risk could impact that decision, is able to support risk assessment in decision-making with proper guidance from his or her seniors. The role should not be limited to senior executives or higher positions. The role can be further supported with more formal training and on-the-job assignments. It would also help if the people who are involved in the process have sufficient knowledge of the business.”

In addressing RQ3, respondents underscored the critical role of competency and capability in providing better implication of a risk-based decision-making framework. The salient points highlighted the necessity for comprehensive training, both formal and informal, to develop the required skill set among financial analysts, business managers, and risk managers. Respondents emphasised the importance of practical experience, understanding of business operations, and sector-specific knowledge to ensure effective risk assessment and informed decision-making. Additionally, Iraci and Howell (2017) encouraged risk managers to acquire strong skillset to handle big data for complex and statistical data for better risk control and monitoring. The integration of risk assessments into strategic planning was seen as vital, with senior leadership promoting a culture of continuous learning and improvement as also claimed by Daud (2020) that integration needs to happen at all strategic key decision-making processes. Cross-functional exposure through job rotations and secondments was also advocated to enhance the multidisciplinary approach to risk management. Moreover, respondents identified the need for robust communication skills and the ability to narrate risk assessments clearly, ensuring that all stakeholders are aligned towards achieving organisational objectives. Ultimately, the development of competency and capability was viewed as instrumental in fostering a pervasive risk culture and supporting the overall effectiveness of the risk-based decision-making framework within the organisation.

Key Performance Indicator (KPI) Setting

From the data findings analysis, this theme is identified to answer RQ3 on other determinant factors or emergent properties for better implication of the risk-based decision-making process for business value creation. By understanding the matter, researchers would understand the areas for improvement. Ten respondents stated their assessments and views on this theme.

General responses from respondents are that embedding the compliance of risk-based decision-making processes and the creation of business value into KPIs helps motivate business managers and risk managers to achieve their set goals and objectives. This enables a strong risk culture in the organisation when the stakeholders rally around the organisation's business objectives.

Respondent 1 stated:

“For KPI setting, we are embedding value creation in our balanced scorecard for the company, team, and individual with a set timeline and owner. It must be embedded in our KPIs. Therefore, it makes it easier or more acceptable to incorporate risk into decision-making. It motivates us to keep ensuring we are aligned towards achieving the company's goals and objectives.”

Respondent 3 stated:

“Risk culture, systems, and KPIs can all play a significant role in enabling pervasive or high business acceptance of incorporating risk management into decision-making processes.”

Respondent 4 mentioned:

“The requirement to tag value to performance is critical for individual KPIs. Even if we are supporting functions, our KPIs and performance measurement are always benchmarks against our business's performance and to what extent we support and enable them to achieve the objectives or targets that are set for them. KPIs are also tied up with the need to go through the process, i.e., comply with the process; likewise, for finance and risk managers, their KPIs are to ensure they enable the business managers to achieve their business objectives; the KPI setting is quite balanced in that sense.”

Respondent 5 stated:

“My organisation establishes a risk assessment process to identify, treat, mitigate, or transfer the risks through a tool that defines a risk profile, key risk

areas, and key risk indicators that directly link to the business Key Performance Indicator. Those KPIs will be translated into business performance scorecards, which are cascaded into respective or individual performance indicators or scorecards.”

Respondent 11 mentioned:

“It must be embedded in our KPIs. Therefore, it makes it easier or more acceptable to incorporate risk into decision-making. It motivates us to keep ensuring we are aligned towards achieving the company’s goals and objectives.”

Respondent 13 stated:

“Yes, the risk culture system and KPI will fuel the implementation of risk in decision-making.”

Respondent 14 mentioned:

“Risk culture, system, and KPI setting contribute to the overall success and acceptance of risk management in the decision-making process.”

“Identifying and embedding value creation-related activities into the yearly target and KPI setting at both portfolio and individual staff.”

The setting of KPIs also drive better accountability aligning towards the set goals and objectives. This requires clear communication and specific measurement for clear direction as stated by Respondents 7 and 8.

Respondent 7 stated:

“...can impose the requirement of value creation in business operations and decision-making by setting KPIs at both the portfolio and individual staff levels. KPIs are specific, measurable, and actionable metrics that help align business objectives with performance expectations.”

“Setting appropriate KPIs related to risk management can help drive accountability and ensure that risk considerations are embedded in decision-making. KPIs should be aligned with the organisation's goals and objectives.

KPIs should also be clearly defined and communicated to relevant stakeholders, emphasising their importance and alignment with the organisation's strategic objectives. Ensure that KPIs are measurable, achievable, and relevant to the roles and responsibilities of individuals involved in decision-making.”

Respondent 8 mentioned:

“As individual behaviour is shaped mostly towards meeting his scorecard or KPIs, and if the KPIs are set towards achieving the goals and objectives, and in doing so, having a risk assessment to provide a better opportunity to achieve them, their behaviour will change accordingly and accept the process better.”

“The hard way to shape an organisational culture could be by imposing KPIs. There was a time when in our company, the management imposed KPIs on HSSE to ensure compliance with safety standards. But now that the organisational culture is already embracing the HSSE culture, there is no need to impose KPI anymore.”

Unlike Respondent 12's organisation, there is no specific KPI being set in relation to the risk-based decision-making process and value creation; her performance is based on the compliance of incorporating risk assessment into her proposal submission prior to approval by the respective committee. She also mentioned that while KPI setting is important, it has to go beyond just meeting the KPI:

“No specific KPI is set for risk assessment; however, with the established guidelines and processes for decision papers at the ELT, RC, and board levels, there is proper filtration and checking before the paper is good for submission to the company secretary, in which risk assessment is one of the mandatory elements to be included in the paper.”

“If everyone is behaving like a business and a risk owner at the same time, we will not only think about the reward but also what can go wrong and how we will mitigate and manage the risk. KPI setting is important, but at the end of the day, it cannot be seen as meeting KPI only through practises or effort. Perhaps

frequent sharing of success stories and how risk assessment and management have helped the business meet the set goals and objectives can be implemented.”

To address RQ3, respondents emphasised the integral role of Key Performance Indicators (KPIs) in enhancing the implication of a risk-based decision-making framework for business value creation within organisations. The insights revealed that embedding risk management processes and value creation into KPIs motivates business and risk managers to align their efforts towards achieving organisational objectives. Rappaport (2006) and Kaplan (1992) were both advocated the performance tracking to encourage and reward employees according to achievement of set targets. Respondents highlighted the necessity for balanced scorecards that encapsulate both business performance and compliance with risk management processes. The importance of cross-functional exposure, continuous training, and the integration of risk assessments into KPIs was underscored as crucial for fostering a comprehensive risk culture. Furthermore, the development of KPIs tied to specific, measurable, and actionable metrics was seen as essential for driving accountability and ensuring that risk considerations are inherent in decision-making processes. The KPIs setting should avoid misalignment of objectives and hence a performance linked rewards system can be an appropriate KPIs measurement method (Zogning, 2017). Overall, the findings suggest that well-defined and communicated KPIs are critical factors for the effective adoption of risk-based decision-making frameworks, promoting a culture of continuous improvement and alignment with strategic goals. Therefore, balanced value management system or performance measurement is key for the organisation.

Responsibilities and Accountabilities

From the data findings analysis, this theme is identified to answer RQ3 on other determinant factors and emergent properties for better implication of the risk-based decision-making process for business value creation. By understanding the matter, researchers would understand the areas for improvement. Four respondents stated their assessments and views on this theme. Clarity of responsibilities and accountabilities helps the stakeholders involved undertake the process effectively. Proper engagement, training, and consultations facilitate improving these requirements.

Respondent 6 mentioned:

“Clarity of roles between stakeholders can be further improved by having frequent one-on-one discussions between teams for alignment on document understanding and also regular consultations and communication with the governance team. In addition, based on frequent communications and consultations, Frequent Asked Questions (FAQ) can be developed and shared across the organisation for common understanding.”

Respondent 4 shared:

“It may take stronger drive from the finance or risk management team initially and slowly hand over to them to ensure the implementation can be done in a pervasive and sustainable manner.”

Respondent 7 also shared that as the changes may happen in the market or within the organisation itself, the need to review and update the roles and responsibilities to reflect their relevancy:

“Regularly review and update the roles and responsibilities as necessary to reflect organisational changes, evolving risk landscapes, and feedback from stakeholders. This ensures that the roles remain relevant and aligned with the organisation's needs. Provide training and educational programmes to personnel involved in the risk assessment process to enhance their understanding of risk management concepts and methodologies. This can improve their ability to fulfil their roles effectively and contribute to the clarity of responsibilities.”

Respondent 10 stated:

“This may be something that is lacking in the organisation, i.e., the accountability to assign the right party to monitor the approved business proposal.”

In addition to frequent reviews of roles and responsibilities, Respondent 14 mentioned more empowerment for businesses to conduct risk assessments independently:

“...clear demarcation of accountability and role between corporate and business unit and operating unit risk managers; more empowerment to business to conduct their risk assessment independently relating to entity’s decisions; simpler process, e.g., cutting layers of review prior to approval; this relates to the point on empowerment.”

Responsibilities and accountabilities emerged as crucial determinants in enhancing the implementation of risk-based decision-making frameworks within organisations. Respondents emphasised the importance of clearly delineating roles and responsibilities among stakeholders and ensuring proper engagement, training, and consultations to facilitate understanding and execution of risk management processes. Frequent reviews and updates of these roles, coupled with empowerment for business units to conduct risk assessments independently, were highlighted as essential measures. Regular consultations and the development of FAQs were recommended to maintain alignment and common understanding. Additionally, training programs to enhance personnel's understanding of risk management concepts were suggested to improve their effectiveness in fulfilling their roles. Overall, these insights underscore the significance of well-defined responsibilities and accountabilities in fostering a culture that supports risk-based decision-making and aligns with organisational goals.

Resources and Knowledge Management

From the data findings analysis, this theme is identified to answer RQ3 on other determinant factors and emergent properties for better implication of the risk-based decision-making process for business value creation so as the researcher would understand the areas for improvement. Four respondents stated their assessments and views on this theme. Resources or data for analysis are one of the key components to ensuring the risk assessment can be performed with quality and accuracy.

Respondent 3 commented:

“One of the main areas for improvement in order to promote business acceptance is to raise awareness and educate staff about the importance of risk management and its influence on business performance. This might be accomplished through training and communication initiatives that promote a

risk-aware culture within the organisation. Furthermore, appropriate resources as well as support for risk management activities would be helpful in overcoming any restrictions that may exist.”

Respondent 6 stated:

“Risk managers and businesses may face challenges in obtaining comprehensive data, particularly for emerging risks or those with limited historical data. Lack of data can limit the effectiveness of risk assessments and decision-making processes.”

Respondent 9 stated:

"However, there are needs for more process improvement, more flexibility, and not being rigid in approaching the RADM process, especially in terms of agility and time and resources for meeting the value.”

Respondent 14 stated:

“A substance-over-form approach (not too rigid) is also important, i.e., corporations can provide high-level guidance, but how businesses actually implement it can vary according to their suitability.”

In addressing RQ3, respondents highlighted the critical role of resources and knowledge management systems in enhancing the implication of a risk-based decision-making framework for business value creation within organisations. Three key themes emerged from the analysis: the necessity of resources for quality and accurate risk assessment, the challenge of obtaining comprehensive data, especially for emerging risks, and the need for flexibility and agility in the risk assessment process. Respondents emphasised the importance of raising awareness and educating staff about risk management's impact on business performance through training and communication initiatives. They also pointed out the need for appropriate resources and support for risk management activities to overcome existing limitations. Furthermore, respondents noted that process improvement, flexibility, and a non-rigid approach to the risk-based decision-making process are essential for better implementation and value creation.

System and Digital Platform

From the data findings analysis, this theme is identified to answer RQ3 on other determinant factors or emergent properties for better implication of the risk-based decision-making process for business value creation. By understanding the matter, researchers would understand the areas for improvement. Six respondents stated their assessments and views on this theme. Systems and digital platforms have been mentioned to enable risk-based decision-making processes. This facilitates the process through process standardisation, agility, safekeeping, and easy retrieval for monitoring and reporting.

Respondent 3 stated:

“Investing in robust risk management software platforms may help expedite and standardise risk management processes, ensure data quality, and allow better decision-making through real-time risk reporting and analytics. This system can assist organisations in identifying and assessing possible risks more effectively, as well as developing more complete risk mitigation measures.”

Respondent 4 mentioned:

“Other areas for improvement can be the system, which can help expedite the process, and the data repository for all the assessments. This enables quick retrieval for future reference, post-mortem studies, and audit exercises.”

Respondent 5 mentioned:

“...continue to create, preserve, and realise values through a proactive and comprehensive system of risk management and internal controls to mitigate any significant risks by leveraging a good risk system.”

Respondent 8 stated:

“Another room for improvement could be to digitalize the risk assessment platform. For now, some of the tools are still using a traditional Word or Excel file. The risk evaluator will just keep it to themselves for reference. Instead, there should be a platform or system that captures all of the risk assessment, and the system should be able to highlight similar risk situations and provide recommendations on the next steps.”

“In terms of the required capability developments to enhance this further; perhaps the risk practitioners could enhance by incorporating a digital platform that could enable them to make risk assessments in near ‘real time’.”

Respondent 12 mentioned:

“A robust and dynamic system supporting the practises is also crucial for us to stay agile in this volatile environment so we can make fast and informed decisions.”

In addition, integration of risk assessment into decision-making can be done via a system, as stated by Respondent 7:

“Implementing robust risk management systems and tools can also support the integration of risk assessment into decision-making. These systems should provide the necessary infrastructure to capture, analyse, and monitor risks throughout the organisation, for example. Invest in technology solutions that enable efficient risk identification, assessment, and monitoring. This can include risk management software, data analytics tools, and reporting platforms.”

Respondents highlighted the critical role of systems and digital platforms in enhancing the implementation of a risk-based decision-making framework within organisations. Respondents emphasised that investing in robust risk management software platforms is essential for standardising processes, ensuring data quality, and enabling real-time risk reporting and analytics. Such systems allow for more effective risk identification and assessment, as well as the development of comprehensive risk mitigation measures. Additionally, the integration of digital platforms was noted to facilitate swift retrieval of data for future reference, post-mortem studies, and audit exercises, thereby supporting proactive risk management. The need for digitalizing risk assessment tools was also pointed out, shifting from traditional methods to a system capable of capturing and analysing risks in near real-time. An established and dynamic system was seen as crucial for maintaining agility in a volatile environment, ultimately allowing for faster and more informed decision-making. Overall, the respondents' insights underscore the importance of leveraging advanced technology solutions to support the risk-based decision-making process effectively.

Pervasive Risk Culture

From the data findings analysis, this theme is identified to answer RQ3 on other enablers for better implication of the risk-based decision-making process for business value creation. By understanding the matter, researchers would understand the areas for improvement. Twelve respondents stated their assessments and views on this theme. Risk culture has been mentioned as having an impact on the risk-based decision-making process. It has also been noted that a pervasive risk culture serves as an enabler to expedite the implementation of risk-based decision-making processes. Various efforts were suggested to achieve a pervasive risk culture. Amongst others are setting tones from the top and frequent engagements.

Respondent 1 mentioned:

“Indeed, risk culture is important in any organisation for us to inculcate this requirement. Top-down approach, i.e., buy-in from the top for lower staff to appreciate this process, consistent messaging from the top on this, and setting in a balanced scorecard, i.e., KPI, which means ‘what’s in it for me’ must be there to support eco-system sustainability. In addition, the structured process to re-enforce the requirement should be in place for a more pervasive experience.”

Respondent 2 mentioned:

“I believe in a pervasive risk culture; once risk assessment in decision-making and robust risk management itself are accepted within the organisation, the risk culture will mature automatically. Controls should not be too rigid so as not to create a rigid environment; internalisation of the importance of risk management is key.”

Respondent 3 mentioned:

“In order to enable high business acceptance of incorporating risk management into decision-making, the organisation should develop a strong risk culture that emphasises the importance of risk management and encourages employees to take responsibility for managing risks in their particular areas. This may be accomplished through continual training and awareness programmes that develop a risk awareness and risk-taking culture.”

Respondent 4 stated:

“The implementation to achieve pervasive culture always starts with the right process setting, e.g., inserting the requirement in the memorandum of authority, which is like a mandate that businesses must adhere to all the time, process implementation, and execution. The need for all parties to be involved and understand the rationale behind the process and how the process can add value to them.”

Respondent 5 shared:

“This can be implemented if concerted efforts are established via a dedicated and focused team and intervention plan that outline the overall strategies, plan, and execution, which can be done via a phased implementation across the group. And the survey or assessment is to be carried out to gauge the level of acceptance and to evaluate the level of risk culture.”

Respondent 7 stated:

“By developing a strong risk culture, it can promote risk awareness and acceptance throughout the organisation. This involves promoting an environment where risk management is seen as an integral part of decision-making and where individuals at all levels are empowered and encouraged to identify, assess, and manage risks.”

Respondent 8 stated:

"Other factors, like KPIs and culture, are also important in ensuring acceptance of incorporating risk into the decision-making process. The hard way to shape an organisational culture could be by imposing KPIs."

Respondent 9 stated:

“Organisation structures where risk practitioners are centralised can be enablers of capability and business knowledge, and closer to business for decentralised risk management teams are also helping to inculcate the risk culture.”

"In addition, in my organisation, there is a committee that inculcates culture operationally by revisiting the practices, finding gaps, and improving them. We have tools and governance processes to assist in the implementation of a mature risk culture groupwide."

Respondent 10 stated:

"Risk culture, system, and KPI play a role in creating a risk-minded organisation. I think this takes time, and it must be prevalent across the group, irrespective of seniority level. Introducing risk assessment in decision-making as a compulsory requirement for any decision-making is a start to creating the risk culture."

Respondent 11 mentioned:

"Indeed, risk culture is important in any organisation for us to inculcate this requirement. A top-down approach (buying in from the top for lower staff to appreciate this process), consistent messaging from the top on this, and setting a balanced scorecard, i.e., KPI (what's in it for me), must be there to support eco-system sustainability. In addition, the structured process to re-enforce the requirement should be in place for a more pervasive experience."

Respondent 12 mentioned:

"This, however, is not known to everyone in the organisation, and continuous upskilling and sharing/awareness sessions must be done by the risk managers to ensure the pervasiveness of the practises and to inculcate the risk culture."

Respondent 13 stated:

"Yes, the risk culture system and KPI will fuel the implementation of risk in decision-making. These can be efficiently implemented if the tone is set from the top."

Respondent 14 stated:

“Risk culture, system, and KPI setting contribute to the overall success and acceptance of risk management in the decision-making process.” These can be set as the tone from the top, from the board down to the leadership team and further down to each C-Suite member; e.g., the Executive Vice President of respective businesses. Continuous assurance is also important to confirm that risk in decision-making is indeed practiced. A substance-over-form approach (not too rigid) is also important, i.e., corporations can provide high-level guidance, but how businesses actually implement it can vary according to their suitability.”

Respondents highlighted the critical role of a pervasive risk culture in supporting the implementation of a risk-based decision-making framework within organisations. They highlighted that a strong risk culture facilitates the acceptance and integration of risk management practices at all organisational levels. Key suggestions included setting a tone from the top to ensure buy-in, consistent messaging regarding risk's importance, and incorporating KPIs to embed risk considerations into daily business activities. Respondents also stressed the necessity of continuous training and awareness programs to promote risk awareness and responsibility. The establishment of robust risk management structures, supported by dedicated teams and governance processes, was identified as essential to inculcate and sustain a risk-conscious environment. Ultimately, the development of a pervasive risk culture was seen as integral to enhancing the agility and resilience of organisations in the face of volatile environments, thus enabling informed and timely decision-making.

Focus Group Findings

There were 2 focus groups being set as part of data collection to triangulate the data collected from case study interviews. Ten participants have shared their business and risk views on this research topic. Code names are used in the analysis based on focus group discussion profiles table in section 4.3. Findings revealed from Focus Group 1 and Focus Group 2 are shown in Table 11 below:

Table 11: Summary of Major Themes Emerged for RQ3 from Focus Groups Discussions

Themes	Number of Occurrence	Participants
Roles and Responsibilities	5	FG1Zul, FG2Mar, FG2Azr, FG2Yok, FG1Zar
System	5	FG1Zul, FG1Nab, FG2Zak, FG2Azr, FG2Mar
Capability	4	FG2Mar, FG2Azr, FG1Dil, FG2Yok
KPIs	4	FG1Zul, FG2Yok, FG2Zak, FG2Mar
Resources and Knowledge Management	3	FG2Yok, FG1Sul, FG2Mar,
Knowledge Management	2	FG2Yok, FG2Mar
Pervasive Risk Culture	2	FG1Sul, FG2Mar

The major themes that emerged from the discussion on other determinant factors and emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company are capability, KPIs, roles and responsibilities and system. In both focus groups discussions, they have identified clarity of roles and responsibilities are critical to increase awareness and ownership of managing risks. Some of the excerpts are as follows:

Participant FG2Mar commented:

“As for clear responsibility, we are pretty clear that it is responsibility of the paper owner to talk to mitigation owner, the mitigation strategy is also reviewed by risk manager where we make sure the plan is tangible and SMART target and achievable.”

Participant FG2Azr shared:

“So, clear roles and responsibilities to identify risks of the business and also own up the risk can be one of the factors to enhance the implementation better.”

Participant FG1Zul argued that when roles and responsibilities are not clear, it leads to issue

with disputing ownership to manage the risks:

“... most of them clear but some groups may appear to not acknowledge their ownership”

There was also view from Participant FG2Yus on using system to map the roles and responsibilities and hence tracking of KPIs performance can be done.

“So with the system, roles and responsibility mapping is clear and it can set as KPIs for those who is responsible.”

The analysis revealed themes clear roles and responsibilities, capability, KPIs, system, resources and knowledge management and pervasive are among the other determinant factors and emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company. They were deemed crucial for effective risk management implementation. FG1Nab and FG2Yok emphasised the importance of building a risk-aware culture and sharing knowledge through communities of practice.

Summary of Findings for RQ3

In addressing the research question on other determinant factors and emergent properties that may provide a greater implication of risk-based decision-making framework to create value for the company, several key insights emerged. Competency and capability are crucial, emphasising the need for comprehensive training and practical experience to develop the necessary skill sets for effective risk assessment and decision-making. The integration of risk assessments into strategic planning, coupled with continuous learning and cross-functional exposure, was highlighted as essential. KPIs play a pivotal role in embedding risk management processes into organisational objectives, motivating alignment and accountability through balanced scorecards and measurable metrics.

Furthermore, the clarity of roles and responsibilities, supported by proper engagement and training, was identified as vital for understanding and executing risk management processes. Adequate resources and knowledge management systems are necessary for accurate risk assessment, particularly for emerging risks, while flexibility and agility in the process are crucial for better implementation. Investing in robust risk management software platforms

ensures standardized processes, data quality, and real-time analytics. Finally, fostering a pervasive risk culture through top-down support, consistent messaging, and continuous training is integral to embedding risk considerations into daily business activities and sustaining a risk-conscious environment. These factors collectively contribute to further enhance an effective risk-based decision-making framework implementation, improving organisational resilience and informed decision-making.

4.5 Summary of Findings from Case Study and Focus Group

The Word Cloud Top 30 Frequent Words in Figure 31 indicate that commonly mentioned terms include risk assessment, value, management acceptance, capability, incorporating processes and culture. These terms highlight the relevance of these aspects in business decision-making process, as identified during the case study interviews when respondents were questioned by the researcher.



Figure 31: Word Cloud Top 30

Thematic analysis provides insights into the key areas of focus for each research question, along

with the perspectives of different participants, enabling a comprehensive understanding of the discussions. Overall, the narrative analysis highlights the significance of structured risk management frameworks, informed decision-making, and a collaborative risk culture in enhancing business value creation.

The study's findings highlight several critical elements that are pivotal in implementing and practicing a risk-based decision-making framework to achieve business value creation as summarised in Table 12 below:

Table 12: Summary of Findings from Case Study Interviews and Focus Groups Discussions

Research Objective(s)	Findings
To explore the key elements of organisation's risk management practices in incorporating risk management into the decision-making process.	Key elements in institutionalising risk-based decision-making framework that have been identified are as follows: a) Risk governance b) Integration of risk assessment into decision-making process (Risk Practice) c) Involvement of relevant parties (Collaboration and Partnership)
To investigate the implication of risk assessment in business decision-making framework implementation and practices on business value creation.	Implications that have been identified are as follows: a) Achievements goals and objectives b) Business value creation c) Business acceptance d) Risk culture Overall, the above contributes to the organisation's business performance, supporting sustainability and future growth.
To analyse the other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company.	Other determinant factors and emergent properties identified through findings analysis are: a) Process and Procedure with clear roles and responsibilities b) Capability and Knowledge Management c) Risk Management System d) Value Management System & Performance Measurement (KPIs)

Risk governance, risk practices, and collaboration and partnership have been identified as the key elements for risk-based decision-making frameworks which lead to the achievements of

business goals and objectives through awareness and informed decisions and business value creation. These also improve business acceptance in practising the framework and hence inculcate risk culture within the organisation, which helps maintain business competitiveness. This contributes to the organisation's business performance, supporting sustainability and future growth. Process and procedures, capability and knowledge management, value management system and performance measurement, and risk management system were identified as other determinant factors and emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company. The proposed conceptual framework for risk-based decision-making framework is discussed in the next section.

4.6 Risk-Based Decision-Making Framework

The aims and objectives of the conceptual framework are to achieve three main outcomes: value creation aligned with ERM's key principles, improved business acceptance which will enhance the decision-making process, and fostering a pervasive risk culture within the organisation, leading to sustainable and long-term value creation. Value creation is realised when the process integrates rigorous risk management activities with the decision-making process to meet business objectives, supporting the organisation's vision and mission. This approach ensures that value for the organisation is pursued for future growth, in addition to preserving initial value.

The value is derived from its ability to function cohesively, adapt swiftly to changes, and identify opportunities and risks efficiently. Additionally, it performs a comprehensive analysis that uncovers new review streams, providing business managers and decision-makers with enhanced value by facilitating better decision-making. When potential risks that could impede the achievement of business objectives are identified, necessary actions or mitigation strategies can be determined and agreed upon as part of advancing the proposal. To achieve these objectives, relevant parties involved must manage and bridge the gap to ensure that risks are mitigated and the value of the proposal is realised.

The achievement of business acceptance is inherently intangible and may be challenging to quantify; however, it becomes evident through engagement in the process. Acceptance is gauged by factors such as agreements, cooperation, consideration, and the willingness to

collaborate while incorporating risk assessment into business activities. Companies assess acceptance in various ways, including feedback, surveys, outcomes from compliance or assurance programs, and discussions at all organisational levels, from top management down to operational management. Embracing new policies, standards, or processes requires time and effort as part of an organisation's journey, which is common in most companies.

Business acceptance is closely linked to the realization of value creation, facilitating business managers' incorporation of risk into decision-making processes. The first pillar of this conceptual framework, value creation, significantly contributes to enabling business acceptance. This framework is interconnected and integrated, fostering positive acceptance of a risk-based environment within the organisation. Shared practices, norms, and beliefs within the organisational ecosystem represent its culture. A strong cultural foundation focused on achieving organisational objectives is crucial. Value creation and robust business acceptance promote positive perceptions throughout the organisation at all levels. Consequently, this enhances receptiveness and fosters the development of a pervasive risk culture, integrating risk considerations into business activities and processes.

In summary, the three key outcomes identified are crucial to the conceptual framework of this study in attaining the organisation's strategic objectives and business goals. The Risk-Based Decision-Making Framework – Value Creation Approach was developed to encapsulate the research study's findings, which include the key elements of the risk-based decision-making framework implementation, the implications of its effective implementation, and the enablers necessary to achieve optimal results from the framework's deployment. The proposed framework will be discussed in the next chapter.

4.7 Conclusion

This chapter discusses the study's findings in order to describe the incorporation of risk into the decision-making process and its impacts on business value creation. The findings cover three research questions through thematic analysis and narrative analysis approaches. The names of the total of fourteen respondents from case study interviews and ten from focus groups discussions used in discussing the outcomes of this study were pseudonyms, as part of observing the ethical consideration and agreement made with all respondents during the data gathering process. The following chapter discusses the findings presented in this chapter and thus provides some recommendations, including a proposed risk-based decision-making framework.

CHAPTER FIVE

DISCUSSION & CONCLUSION

5.1 Introduction

This discussion section covers at length all the findings and links them to the research questions and the research objectives. Some literature reviews are used to support the points with responses cited from respondents, particularly on the identification of themes and sub-themes and their significance in the academic literature. This study topic is regarding the incorporation of risk assessment in the decision-making process and its impact on business value creation. The presentation of the discussion of the findings in this chapter was linked to the research questions and research objectives.

5.2 Recapitulation of the Findings

This section recaps the findings gathered from the case study interviews and focus groups transcripts based on thematic analysis and narrative analysis approaches. Data was gathered using purposive sampling approach from fourteen respondents through semi-structured interviews and ten participants from two focus groups discussions who work in selected oil and gas organisations in Malaysia. The transcripts of interviews were imported into the qualitative analysis tool, i.e., NVivo 12 Plus, for further analysis as prescribed by Hutchison et al. (2010) as well as Mohd Tobi (2019). Several themes and sub-themes were identified and linked to respective research questions accordingly. Emerging themes were observed, and further analysis revealed findings of the following objectives:

- 1) To explore the key elements of organisation's risk management practices in incorporating risk management into the decision-making process.
- 2) To investigate the implication of risk assessment in business decision-making framework implementation and practices on business value creation.
- 3) To analyse the other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company.

The main findings for RQ1 are risk governance, risk practices, and collaboration and partnership are three key elements for making informed decisions through effective risk-based decision-making framework implementation and practices. Each theme has its own sub-themes, which were discussed in the respective section. As for RQ2, findings revealed four key implications upon successful implementation and practices of risk-based decision-making framework which are goals and objectives, value creation, business acceptance, and risk culture. Similarly, there are several elements being surfaced out from the findings analysis to further explain for the identified implication. In the next research question, i.e., RQ3, there are six other determinant factors and emergent properties identified as providing greater implication of risk-based decision-making framework to create value for the company. They are capability and competency, KPIs, responsibilities and accountabilities, systems and digital platforms, and pervasive risk culture. Furthermore, triangulation method was used in the research works through data inputs from focus groups discussions where the findings are used to validate results through cross-verification. This offers a more holistic view by integrating multiple perspectives which provide more reliable and convincing findings.

5.3 Discussion of Findings and Results

The analysis of this research's findings and results has contributed significantly to the existing body of knowledge within this field of study. The subsequent discussions are structured in accordance with the study's research questions.

5.3.1 Discussion for Research Question One

The findings of RQ1 i.e. to explore key elements of organisation's risk management practices in incorporating risk management into the decision-making process are outlined according to the research objectives and the research questions of this study. The research study have identified and grouped the outcomes of the findings analysis into three key elements which are i) risk governance, ii) integration of risk assessment into decision making, and iii) involvement from relevant parties.

Risk Governance

Governance refers to the overall governing structure and processes in the organisation. The Securities and Exchange Commission (2017) defines corporate governance as the process and structure used to direct and manage the business and affairs of the company with a view to enhancing business prosperity and corporate accountability, with the ultimate objective of realising long-term shareholder value while taking account of the interests of other stakeholders. It specifies the rights and responsibilities of the various stakeholders in the organisation, outlining the rules and regulations and process of decision-making in achieving the company's goals and objectives (Mohamad Nor & Ishak 2017). The OECD (1999) also outlines corporate governance structure, objectives, and processes for achieving them as per Appendix I. It sets the foundation and structure of the organisation by providing the manner in which the organisation is to be governed and administered. In the context of this study, governance refers to governing risk management matters in the organisation.

The deployment of governance in the organisation requires steer and mandate from the appointed boards of directors where the top leadership team to cascade down the requirements throughout all levels in the organisation. In addition, for board of directors of Malaysian companies including oil and gas companies are required to comply with statutory requirements, accountable and responsible to implement risk management policy, and oversee the compliance and implementation of risk management as stated in the guidelines issued by Bursa Malaysia and the Malaysian Code of Corporate Governance (MCCG). In larger oil and gas companies, it is noted that there is a dedicated Chief Risk Officer (CRO) and Board Governance and Risk Committee. These establishments become the sounding board and allow for relevant parties to deliberate, accept, mitigate or avoid risks of any strategic, tactical and transactional decisions made for the company. Alshebli and Alhajri (2023) stated that the board of directors' responsibilities include anticipating risks, developing a mitigation plan, and performing the necessary action in managing risks for the organisation.

According to Lipton et al. (2015), the board committee needs to have enough visibility of what has been mandated to them through an appropriate mechanism of risk oversight roles. Although they are not involved in daily operations, they should satisfy themselves with the fact that risk

management policies and procedures have been established, communicated, and implemented by relevant parties. The establishment must be consistent with the company's strategy and risk appetite where it is practised as prescribed and where actions are planned and executed to reach a pervasive risk culture. Principle A in MCCG (2017), one of the board's key roles is to be collectively responsible for the long-term success of a company and the delivery of sustainable value to its stakeholders, which includes governing and setting the strategic direction of the company while exercising oversight on management. In conclusion, the line of sight should be clear and made available for the board committee to assess, as they are responsible for the successful steering, implementing, practicing, and complying with the governing requirements.

Aside from that, championing the implementation of governing requirements is one of the critical duties that need to be carried out in the organisation. Brodeur et al. (2010) stated that the roles of the board should be greater than just preparing and approving the ERM programme for the organisation. There is also a need to ensure the organisation is at the level of best practices such as a proper documentation and communication with stakeholders across the organisation. Policy and Framework serve as mother documents in the organisation with regard to providing directions, guardrails, mandatory parameters, and guidance on areas that the organisation would like to govern. Shakatreh et al. (2023) stated that policy documents in the organisation are vital for effective risk management in conducting their business activities. Additionally, according to Hopkin (2018), to govern a risk management or decision-making process, it cannot be treated separately on its own. A framework should be presented to support the process. Hence, policy and framework are crucial for an organisation to operate its business. Mohamad Nor and Ishak (2017) stated that these documents are to be developed, approved by the board and executed by the management accordingly. This is especially critical for large organisations, as the structure and level of organisation require consistency and clear direction setting where the employees are able to steer towards the same vision, mission, goals, and objectives of the organisation. Yap (2021) also advocated that the board is playing an active role in corporate governance policy and accountable to continuously improving it from time to time. Muigua (2022) also agreed that to promote corporate sustainability, organisations need to continue embracing the outlined principles. This denotes the significance of risk governance as one of the key elements in initiating a risk-based decision-making process in an organisation.

Integration of Risk Assessment into Decision Making

Tihanyi et al., (2014) stated that mandates and requirements set by the organisation's owners through its leadership system, which comes with control protocols, rights, and other practises for the relevant parties to take actions on behalf of the organisation to execute some transactions or business activities. Therefore, the incorporation of risk management into business decision-making process by stating its requirements in the policy and framework documents is fundamental. The mandate needs to be prescribed to ensure employees are aware of the authorised activities and level of risks than they can undertake as well as the right approving authority for them to seek from for any business deals or transactions that above the set threshold. Mitchell et al., (2023) propagated for objective boundaries with less subjective judgement. Therefore, clear instruction to reduce ambiguity and increase effective business turnaround is critical in setting up the mandate.

Integration of risk management into the decision-making process allows seamless practice of risk-based decision-making process. Ricardianto et al. (2023) stated that risk management can be integrated into company strategy and this allows better competitive advantage over its competitors. Likewise, Grant (2016) shared that to achieve goals, integration and consistency between decision and action are required; therefore, an integrated process needs to be in place. In fact, it is simpler for the relevant parties to understand and adopt when the process is set as a "straight through processing" approach. This improves agility, efficiency, and seamless efforts to combine the processes as a value chain. By inserting a control check in the process, the integration of risk assessment into the business decision-making process can be enabled. This has been stated in Principle B of the Malaysian Code on Corporate Governance (MCCG): governance structure, process controls, and performance-focused risk management should be integrated at all levels and throughout the operations in order to become a successful company. In doing so, gatekeepers are set to monitor and report compliance with the requirement; this will increase the level of practises in general. This may sound like a compliance-based practice, but by going through the rigor, the practise will start to commence, thereby facilitating the

decision-maker to make informed decisions. The findings revealed that the integration of the risk-based decision-making process should happen at all business levels. However, management fatigue needs to be considered to ensure the resources are not drained for the unnecessary additional non-value-added steps. The risk management process and parties to be involved need to be reviewed from time to time to ensure the requirement can be achieved with optimal resource deployment (ISO 31000, 2018). This will improve the efficiency and effectiveness of business activities on continuous basis.

The process needs to be structured to achieve clear end-to-end steps, clarity of roles and responsibilities, and ownership of the relevant parties. Process is an integral part of business activities as it provides clarity, consistency of practices, and sustainability of the steps to be taken. Hammer and Champy (1993) viewed a business process as a set of activities whose purpose begins with one or more inputs that produce a result that gives value to the intended party whereas Senkus et al., (2021) shared that processes require proper prescription, where any relationship between steps in the process must be adequately defined. On top of that, a well-defined process will make respective parties aware of their roles, especially when it involves monitoring a risk or potential threat to the business. According to Hammer and Champy (1993), when there are several parties or functions involved in the process, this often brings complications to the business due to unclear accountabilities and responsibilities. Hence, a process should be designed effectively by ensuring it covers clear steps and structure, although it should be flexible and practical enough during execution, provides clarity of roles and responsibilities of the relevant parties while considering less confusion among the many parties involved, and prescribes an agile process without any potential blockage or show stopper in the decision-making activities. This enables the achievement of the intended business objectives and competitive advantage.

Aside from the fact that risk governance is put in place, policies and frameworks are established, risk management processes are embedded in the decision-making process, and processes have been written accordingly to ensure effective implementation, the next important element is to communicate these to all stakeholders where exchanges of ideas and risk matters need to be aligned. Communication and consultation are amongst the critical steps prescribed in ISO 31000 (2018) Risk Management Framework. Stakeholders need to be appraised on the direction and expectations of risk-based decision-making process requirements. Alshebli and Alhajri

(2023) suggested that there is a need for the identified risks to be understood and managed where proper communication to stakeholders must happen in the risk management process. Shakatreh et al. (2023) also revealed that effective communication between employees and managers results in better risk management. Hence, these suggest the importance of communication, and hence, for better risk management process deployment, the requirements and action plans must be communicated and conveyed across the organisation. The message must be clear and consistent throughout the various levels and multiple business segments, especially in a larger oil and gas organisation with multiple business segments and operating units. In order to create pervasive risk practices, integration of risk assessment into decision-making process is an integral component in the conceptual framework. This need to be clearly documented, communicated and implemented throughout the organisation.

Involvement of Relevant Parties

Similar to cooperation, collaboration is when people in the organisation work together to complete a task towards achieving common goals set for them. In the context of the risk-based decision-making process, the act of working collectively serves as collaboration between business managers, risk managers, and other subject matter experts in ensuring they are able to achieve the goals of the business proposal. When they are working together, they are forming partnership arrangements between them. Partnership and collaboration are often used interchangeably. According to Carpino (2014), for a risk manager to be a business partner while maintaining his compliance role means he acknowledges the role of working and collaborating closely with the business units and understands the importance of doing so for the benefit of the organisation.

Mikes (2008) suggests that CRO's roles in the corporate strategy of the organisation are being interpreted as business-partner roles where they influence the stakeholders by integrating risk into key business decisions. This denotes the risk function of a strategic advisor, which serves as a good avenue to incorporate risk analytics and experts' assessments for informed decision-making. Therefore, this suggests the benefits of collaboration for organisations where the impacts are greater than when parties are working in silos. They need to team up to leverage each other's expertise and strengths. This will maximise the potential opportunities for the organisation. Collaboration and partnership in the risk assessment process have been identified

as one of key elements in initiating a risk-based decision-making process. In doing so, understanding respective roles and responsibilities is key. In fact, ISO 31000 (2018) Risk Management Framework outlines the requirements to assign roles and responsibilities and identify as well as communicate with those individuals and authorities involved to ensure they have enough understanding of their roles and expectations from each of them. Soin and Collier (2013) agreed that through understanding roles leads to accountability, which will foster trust in the process and working arrangements with stakeholders. This is essential and critical for oil and gas company as some matters must be represented by authorised professionals, such as legal managers or safety managers due to high risk and highly regulated nature of business. Sheedy and Canestrari-Soh (2023) also agreed that a larger organisation with multiple business segments and operating units is require even more clarity of roles given its large organisational structure and multiple levels in order to adopt an agile working environment. Accountabilities need to be clearly documented and sanctioned for each executive so that any potential misconduct or damage can be traced for accountability (Sheedy & Canestrari-Soh 2023).

The role of risk management as an independent party serves as a control or secondary check in the decision-making process. According to Kaplan and Mikes (2016), enterprise risk management functions in the organisation should also act as an independent overseer in addition to a business partner or an independent facilitator. Carpino (2014) agreed that the default role is to adopt independent, cop, or gatekeeper roles to safeguard the reputation of the company, although there may be additional roles to be played beyond this conservative stance. Therefore, for good governance of a process, there should be an independent party check to ensure the process is managed with proper control (ISO 31000, 2018). Nonetheless, Viscelli et al., (2016) commented that risk manager could go beyond the traditional risk management role by facilitating the risk management process but at the same time as ‘check and balance’ role. Thus, involvement from relevant parties and awareness of their respective roles and responsibilities are critical to ensure effective implementation and practice of risk-based decision-making framework.

Overall, embedding the risk assessment process into the decision-making activities can be done through the incorporation of the governance requirement in the policy or framework document. Secondly, design a process to insert the process accordingly where a control check to govern

and ascertain the compliance of this process where the regimented process will turn into a regular practise and become their normal activity once they mature. Lastly, involvement from relevant parties as part of collaboration and partnership between business managers, risk managers and subject matter experts are also crucial as to minimise confusion, redundancy of resources, delay in the process and ‘check and balance’ for informed decisions, hence reduce cost and achieve more value to the organisation.

5.3.2 Discussion for Research Question Two

The findings of the implications of risk assessment in business decision-making framework implementation and practices on business value creation in oil and gas companies in Malaysia are outlined according to the research objectives and the research questions of this study. The research study have identified and grouped the outcomes of the findings analysis into four implications which are i) strategic goals and business objectives, ii) value creation, iii) business acceptance and iv) risk culture.

Strategic Goals and Business Objectives

Goals and objectives have been identified as one of the implications of initiating a risk-based decision-making process. Findings revealed that achievement of goals and objectives and awareness of potential exposures were among the responses received. Power (2007) agreed that with the implementation of risk management, companies are being managed, controlled, and legalised to achieve their business goals and objectives. Shakatreh et al. (2023) also argued that in order for the organisation to achieve the set goals and objectives, policy statements play a critical role in enabling the performance of the company, where managing risk is key. Setting goals and objectives is essential in any organisation, and it sets the path of its vision. By doing so, it will set priorities and position the company for long-term success (Singh & Singh 2021). It is essential to establish clear goals and objectives before initiating the process. This ensures that all participants have a unified and aligned purpose. Additionally, it delineates specific actions for stakeholders to undertake in order to accomplish these objectives. Virlics (2013) emphasised the significance of making informed decisions to derive maximum value from the assessment process, as failure to do so may result in financial difficulties for the organisation. Therefore, risk management is essential in the decision-making process to enable the

organisation to achieve its goals and objectives effectively.

ISO 31000 sets that risk management is to ensure the management of exposure must be done to impede any potential hindrance in meeting the business goals and objectives. The ultimate aim of a business is always to achieve its set goals. Therefore, risk management is to ensure business managers understand the potential risks and opportunities for them to achieve their business objectives (Ricardianto et al., 2023). Power (2007) stated that uncertainties such as operational risks, strategic risks, and reputational risks have significantly increased over time and require the business to manage them. Appropriate mitigation plans and assigning the right parties to execute action plans to reduce the likelihood of exposure occurrences are critical to ensuring the achievement of goals and objectives is feasible. Hence, Belli (1996) advocated that the incorporation of risk management into the decision-making process enables business managers to be aware of the uncertainty and potential risks that they are subject to where appropriate investment decisions can be made. The information on threats obtained through the risk management process should be used by the business managers or relevant parties to evaluate the impacts on them so that a prudent risk mitigation plan can be done and executed accordingly to achieve their business goals and objectives (Alshebli and Alhajri 2023). The findings indicated that a risk-based decision-making process helps achieve goals and objectives due to its structured and rigorous approach. It increases awareness of potential exposures, leading to the development of mitigation plans and fostering a balanced and comprehensive perspective. This process also contributes to value creation through increased awareness and subsequent actions. Consequently, business managers can effectively manage risks while potentially identifying and capitalising on new opportunities.

Aside from that, responses received from respondents stated that the risk-based decision-making process also facilitates the stakeholders involved to have balanced and holistic perspectives. The review and challenge approach to risk assessment enables the analysis and discussion surrounding the proposal, including the pros and cons as well as impacts on the overall goals and objectives of the proposal and the organisation at large. Shakatreh et al. (2023) agreed that the impact of performing risk management in the business process can be seen through the achievement of business performance and growth. In summary, the risk-based

decision-making process identified in this research study has contributed to the achievement of goals and objectives.

Value Creation

The researcher aims to determine if value creation can result from integrating risk management into decision-making processes. Interview responses indicated that deploying a risk-based decision-making process by relevant parties could lead to value creation. This approach requires a clear understanding of value creation and value protection concerning business objectives and measuring value creation, which may be tangible or intangible. Kaplan and Mikes (2016) also stated that value creation is a crucial objective in developing effective risk management in organisations. Apart from that, sustainable value for the organisation can be achieved through the creation of a competitive advantage where the organisation is able to offer better value to its customers (Kotler and Armstrong, 2018). Managers collaborate using all available information, both qualitative and quantitative, to assess risks, render decisions, and allocate the appropriate resources for mitigating risks in order to achieve value creation for the organisation (Kaplan and Mikes, 2016). This involves efficient management to improve quality, reduce waste, and cut costs. Strategic planning with a long-term vision will enhance the organisation's value. Furthermore, the organisation should establish value creation as an objective for all stakeholders to ensure the organisation's continued viability and relevance in the market. Natale et al. (2022) have suggested that attaining value creation is often the primary goal of a company in its pursuit of sustainable resilience. In fact, ISO 31000 also advocated that value creation is feasible with the proper risk management process in place, as uncertainty in the environment has both exposure and opportunities.

The researcher seeks to ascertain how value protection is perceived and whether it contributes to value creation. Traditionally, risk has been viewed as exposure; thus, risk management often entails safeguarding businesses from risk or exposure, with a focus on value protection. Shakatreh et al. (2023) asserted that mitigating adverse risks that may affect the organisation can enhance project value. They also suggested that while value is generated through the implementation of risk management practices, these processes concurrently contribute to value protection. Alshebli and Alhajri (2023) proposed that the organisation will continuously develop, innovate, and create value when all parties adopt a balanced approach by integrating

risk analysis into the decision-making process. The research findings indicated that protection is regarded as an aspect of value creation because comprehending potential exposure prompts actions that both preserve and generate value.

The assessment and analysis of the findings revealed strong convictions among respondents that risk-based decision-making processes positively impact business value creation, thereby supporting the attainment of business goals and objectives. Consequently, the goal of achieving value creation should be aligned with the organisation's mission and vision to avoid any conflicting directions.

Business Acceptance

Business acceptance has been identified as one of the implications of initiating a risk-based decision-making process. The analysis of business acceptance in the organisation allows the organisation to plan for process implementation from the initiation of its policy or framework to the actual implementation of the process. Implementation strategy requires change management behaviour study in the organisation as any new policy and requirement may pose a threat to certain stakeholders where a necessary approach is to be undertaken to handle them. Mitchell et al., (2023) stated that the level of business acceptance varies among stakeholders in the organisation, and any unwillingness may limit the achievement of having an effective establishment of the vision and purpose of the implementation. In this study, the researcher posed queries on the level of business acceptance in their organisation to study the implication of the risk-based decision-making process on the stakeholders involved. The majority of respondents indicated that they experienced strong business acceptance within their organisation as a result of implementing a risk-based decision-making process. This acceptance primarily stemmed from the necessity to comply with established policy and framework requirements. Additionally, there were cases where business acceptance was attributed to a thorough understanding of the advantages provided by a rigorous risk-based decision-making process for their business activities.

It is a natural organisational behaviour to incorporate additional steps into their processes only when the overall value creation is evident. Therefore, the process must be recognised as an essential and integral component of the business operations. The key to achieving business acceptance lies in stakeholders recognising the value or benefits it offers. Furthermore, when

the process aids them in attaining their goals and objectives, it incentivises them to engage with the process diligently. Findings from the study revealed that the strong acceptance can be further evidenced by acknowledgement from the decision maker when he or she requires a proper risk assessment and sign-off from the risk manager or finance manager as the gatekeeper prior to making his or her decision. This shows that in an organisation with a mature risk culture, the constituents or stakeholders welcome the process of check and balance. The process would eventually become part of their business process, where less enforcement is required due to their strong acceptance.

Nonetheless, there was mixed acceptance noted in larger organisations with multiple business segments and operating units. Stronger acceptance can be felt at the top management and corporate levels, but not as much at the middle and working levels. Some reasons for this include the early stage of implementation, where stakeholders find them challenging to follow, unclear accountability and responsibility for managing identified risks, and a lengthy process requiring more time and resources, thus being labelled as a 'showstopper'. Additionally, challenges have been observed at the initial stage of implementing the risk-based decision-making process. A continuous message to business managers and relevant parties is necessary to highlight that protecting and creating value in their business proposals will lead to full embracement of the requirements, resulting in the best outcomes. Ongoing communication efforts are essential to ensure the sustainability of business acceptance and practices. In conclusion, while there were mixed findings regarding the acceptance of risk-based decision-making processes, the majority indicated that business acceptance is a key outcome from implementing this framework. This acceptance stems from the benefits associated with the process, such as making informed decisions, creating value, and achieving organisational goals.

Risk Culture

Risk culture has emerged as one of implications of effective implementation of a risk-based decision-making process. This study aims to deepen the understanding of how a risk culture is established within an organisation. The researcher posed questions to case study interviews respondents and focus groups discussions regarding this aspect to determine if the integration of risk management into business activities through a structured process would foster a widespread risk culture. In this study context, risk culture is defined as the norms of behaviour

for everyone in the company: sharing, embracing, and discussing the company's present and future risks (Levy et al. 2010). Aside from that, Shah (2009) considered the formal incorporation of risk management into the decision-making process at all levels of the organisation as a risk management culture. Schein (1983) commented that culture is not explicit behaviour that can be seen, articulated, or written down but rather the underlying behaviour based on community assumptions and values. In fact, maturity of the risk culture can also be demonstrated through the confidence and acceptance shown by employees on embracing the risk management process. Likewise, Aziz et al. (2018) also agreed that for effective implementation of risk-based decision-making framework, a cultural shift within the organisation where risk management is viewed as a critical component of strategic planning and operational execution needs to happen. This involves training and awareness programs to ensure that all employees understand the importance of risk in their daily decision-making processes. Aziz et al. (2018) advocated for continuous training and awareness programs as part of building the pervasive risk culture in the organisation so as all employees understand the importance of risk in their daily decision-making processes.

Findings analysis of this research study indicated that a mature risk culture involves integrating the risk management process into regular business activities, as evidenced by employees consistently practicing risk management and often originating from organisations with strong compliance cultures. Worthington et al. (2009) noted that a robust risk culture is also evident when a business is resilient enough to withstand external shocks and respond effectively. Additionally, a strong risk culture is observed when business managers and risk managers follow the guidance from leadership and structured governance bodies and functions on risk management requirements and incorporate it into their daily activities, such as assessing risk-reward trade-offs before making informed decisions. Kurniawan et al. (2017) also agreed that risk culture forms a significant contribution to business strategies' implementations as it requires greater involvement and participation from top management.

In summary, findings indicated that a risk culture has been observed and felt when a risk-based decision-making framework is implemented and practiced within organisations. However, some responses also highlighted occasional discrepancies, particularly in larger organisations with multiple business segments and operating units, where communication and understanding

of the process sometimes vary and objectives are not consistently defined or aligned. For these responses, the value system for integrating risk management into business activities remains primarily compliance-focused, with a risk culture that is gradually progressing and improving. Achieving a meaningful experience requires a commitment of time and effort, along with continuous awareness and capability development sessions to nurture a risk-aware culture within the organisation. This usually begins with implementing a mandatory risk-based decision-making process to promote a robust risk culture. It necessitates enforcement, visible value creation, and stakeholder commitment.

5.3.3 Discussion for Research Question Three

The researcher aims to explore additional elements or factors that may enhance the implementation of a risk-based decision-making framework, resulting in better implications for the organisation. By having the knowledge on these enablers will help the organisation particularly in oil and gas industry to better plan and prepare for effective implementation of risk-based decision-making framework towards meeting business value creation for the organisation. The study has identified and categorised the outcomes of the findings into four enablers: i) process and procedure, ii) capability and knowledge management, iii) risk management system, and iv) value management system and performance measurement.

Process and Procedure

ISO 31000 (2018) outlines design principles in its framework for risk management responsibilities and accountabilities in any process that is required. This is to ensure a clear understanding between parties and authorities in the organisation, especially when it comes to managing risks. The research study found that clear process and procedure which clarify roles and responsibilities as well as accountabilities are one of the enablers for greater implication of the risk-based decision-making process to create value for the company. The benefits of having clarity surrounding this will smooth the process flow and exchange of information and knowledge. Ashby et al. (2019) claimed that having this clarity will facilitate and enable better ownership and accountability of risk and provide transparent audit trails. This becomes even significance for a larger organisation due to its business structure. Therefore, this needs to be clearly documented and communicated to the relevant parties involved as part of process and procedures with regards to risk-based decision-making framework. Aside from that, reviews

and updates on process and procedure including roles and responsibilities need to be done on a regular basis as changes may occur or the process is no longer relevant for business managers and risk managers to follow through anymore. This ensures process and procedures continued to remain relevant and aligned with the organisation's needs. The other findings identified for the process of risk-based decision-making process to create value is through agile, flexible and practical process and procedures in place. Lastly, Ashby et al. (2019) suggested that communications between business units and functions as well as risk management and internal audit functions must be clear to avoid any inefficiency or ineffective applications of process and procedures. It also helps to minimise any potential disputes and miscommunication among parties involved and hence limit the achievement of business value creation.

Capability and Knowledge Management

Learning capability is crucial for organisations to adapt to a volatile market (Hitt and Ireland, 2000). Education and awareness programmes enhance employee competency. Upskilling is essential to maintain quality in risk assessment, which must provide accurate information and analysis. According to Virlics (2013), improper processing of information increases the chances of risky events. Shmatkova and Karminska-Bielobrova (2023) emphasised the importance of modern managers using various risk assessment methods and tools in decision-making, highlighting the need for continuous capability development. Their study found that respondents agreed on the critical nature of this element and were of the opinion that capability and competency are important for relevant parties involved to practise a risk-based decision-making process. In addition, findings resorted to a few critical outcomes that highlight the importance of capability and competency in the risk-based decision-making process, which are, firstly, to provide risk assessment with accurate and quality information to decision-makers for making informed decisions, and secondly, to create trust and confidence for stakeholders.

Analysing gap requirements, adopting a structured approach, and implementing on-the-job training programs are essential considerations in capability and competency development. Given the diverse levels of competency within the organisation, the program should not follow a one-size-fits-all model. Each level and functional need must be studied. There are groups of employees with varying degrees of experience and knowledge in business and risk management processes. Therefore, the approach should be tailored to meet the specific requirements of each group. This includes knowledge of the business as well so that risk managers are well equipped

and business acumen and having broader perspectives to cater for business dynamism in the market. Therefore, there is a need to improve capability to also be agile to cover new business areas. It can be concluded that capability and competency play key enabling roles for better implication of risk-based decision-making processes to business value creation.

Apart from that, to enable effective risk analysis and assessment by business managers and risk managers, having useful, relevant and meaningful data and information are crucial. There is a concept of "garbage in, garbage out" usually used in computing environments where inaccurate data input will generate inaccurate results when the information is simply insufficient (Grime 2010). Data or knowledge stored must have the merits or quality to support any risk analysis or report. Securing and analysing useful data is critical if the advantages of getting the data ready and available can be costly, as the information is valuable for the decision-maker to make informed decisions (Virlics 2013). Additionally, the data sufficiency led to better prediction in the risk assessment to land with high probable decisions where manager must determine the plausibility and possibility of the risk occur in addition to his own expert judgement based on their expertise and experience in the area of decision-making. Hence, having sufficient and reliable resources, will facilitate manager to make the risk trade-offs decision making by providing better assessment on the potential impacts which should exceed the expected values (Shmatkova and Karminska-Bielobrova, 2023). Accurate data and knowledge concerning emerging risks, as well as historical data, are essential when an assessment necessitates comprehensive information. The absence of such data can significantly constrain the effectiveness of the insights and evaluations presented in the risk assessment. In conclusion, effective knowledge management, encompassing data availability and resources, serves as a critical enabler for enhancing the implication of risk assessment on decision-making processes towards creating value for the company.

Value Management System and Performance Measurement

As prescribed by ISO 31000 (2018), the goal of risk management in an organisation is to create and protect values through improvement in performance, innovation, and the achievement of objectives. In shaping human behaviours, performance targets need to be set in order to shape attitudes that skew toward potential benefits that they may receive. In fact, balanced scorecard measures by Kaplan (1992) outlines the strategy and vision of the company, where the relevant

parties need to adopt the necessary behaviour and take actions to achieve the goals. It serves to steer them in the direction that they need to arrive at. The research study found that setting KPIs as one of the enablers for creating a greater implication of risk assessment on decision-making processes towards creating value for the company. Generally, all responses received from case study interviews and focus groups on embedding risk-based decision-making processes requirements to improve KPIs were positive. It means the incorporation of these requirements into KPI does motivate business managers and risk managers to embrace risk-based decision-making processes more diligently, which hence helps to increase business acceptance and shape a strong risk culture in the organisation. Value management system and performance measurement facilitate the alignment of directions and objectives towards achieving common goals and objectives if they are set properly (Rappaport, 1986). Aside from that, it promotes clear communication of accountability. Sheedy and Canestrari-Soh (2023) concluded that executives exhibit better performance and carefulness in practising risk management to ensure that favourable performance is achieved in their respective accountable areas. This suggests that employees are biased towards the benefits or rewards set for them. Furthermore, it must be tagged the individual's business and functional roles in the organisation and designed with specific, measurable, and actionable KPIs. According to Rappaport (2006), the value management theory states that strategic decisions should be made to maximise value where the management process would follow to suit the focus towards creating shareholder value for the managers. In summary, value management system and performance measurement is paramount to achieve better implication of risk-based decision-making framework implementation to create value for the organisation.

Risk Management System

As technology and advancement become more critical based on Industry Revolution 4.0 and the Internet of Things nowadays, this research study analysed responses on this matter to ascertain whether this can be one of the enablers for better implication of risk-based decision-making processes to create value for the company. According to Schönherr et al. (2022), digital transformation adds value to organisations through knowledge retention, real time communication and agile processes. Hence, risk management system and any digital platforms to support risk-based decision-making process become prerequisites for effective

implementation and essential consideration in any business activity moving forward. This is evidenced by the fact that most transactions are based online and paperless in this current environment. ElMassah and Mohieldin (2020) shared that through digital transformation, process changes can be facilitated better for achieving sustainable practices, strategies, and organisation goals.

The research study found that among key benefits are process standardisation, agility with real-time processing and information, easy retrieval for monitoring and reporting, and a centralised data repository for easy safekeeping and tracking. It can also be used as part of artificial intelligence (AI) to pre-empt the users for any potential exposure or risk. This AI facilitates the generation of interim risk assessment report for business managers and risk managers to highlight risk situations and provide recommendations based on predictive functions using historical data and real-time data in the market. Paraschivescu (2016) suggested that the integration of systems has a significant impact on the manner in which organisations make informed decisions. The integration of processes that are captured in the risk system and digital platform will expedite the process and, hence, lead to agility in the decision-making process itself on top of facilitating data repository and quick retrieval for future reference, analysis, and audit exercises. Schönherr et al. (2022) also suggested that digitalization contributes to the organisational learning process and the advancement of sustainable processes. This summarises the need to have a system and digital platform in place as an enabler to garner greater implication of risk-based decision-making processes for the organisation to stay agile and competitive in this current volatile market.

5.4 Contribution of the Study

The result of this study supports the incorporation of risk into the business decision-making process in oil and gas companies in Malaysia. This approach enables informed decisions for high-value and high-risk business matters in this commoditised and volatile industry, which significantly contributes to Malaysia's GDP, employment, and economy. The risk-based decision-making process practised by respondents' organisations has demonstrated that value creation results from this method, thus supporting the **Risk-Based Decision-Making Framework – Value Creation Approach** designed as an outcome of this study illustrated in Figure 32 below for oil and gas companies in Malaysia which can also be applied by all

companies regardless of their size and industry. The framework consist of three major parts which are key elements for effective implementation and practices, implications of the framework implementation to business value creation and lastly the other enablers that support greater implications of the framework implementation.

Key Elements

Three critical elements have been identified from the data findings analysis: Risk Governance, Integration of Risk Assessment in Decision Making, and Involvement of Relevant Parties. Establishing risk governance through an appropriate governance structure, policy, and framework provides direction and mandates for top management and employees to operate within defined boundaries. The governance structure enables the board of directors to maintain oversight through decision-making and reporting processes. Furthermore, integrating the risk assessment process with business decision-making through policies and frameworks ensures compliance and can be incorporated as a regular practice as it matures. These processes necessitate the involvement of relevant parties, including business managers, risk managers, and subject matter experts, who contribute their expertise towards achieving business objectives.

Implications

Four positive implications have been identified from the data findings analysis: Strategic Goals and Business Objectives, Value Creation, Business Acceptance and Risk Culture. This approach increases awareness of potential risks, leading to better mitigation plans and a balanced perspective. It helps business managers manage risks effectively while also identifying new opportunities for growth and value creation, ultimately leading to meeting the strategic goals and business objectives. Consequently, it influences and motivates business managers to embrace the process willingly which in turns leading to pervasive risk culture.

Other Enablers

The research study has also explored the other determinants factors and emergent properties which support greater implication of risk-based decision-making framework implementation towards business value creation. There are four enablers: Process and Procedure, Capability

and Knowledge Management, Risk Management System, and Value Management System and Performance Measurement. These enablers have been identified as the factors to advance the implementation to be more effective, sustainable and reliable. As the decision-making process is a vital part of the business activities in the organisation, it is crucial for the organisation to consider wholesome approach to ensure the framework implementation is carried out with careful planning, execution, and regular evaluation. Hence, taking into account these enablers into the framework implementation is equally important.

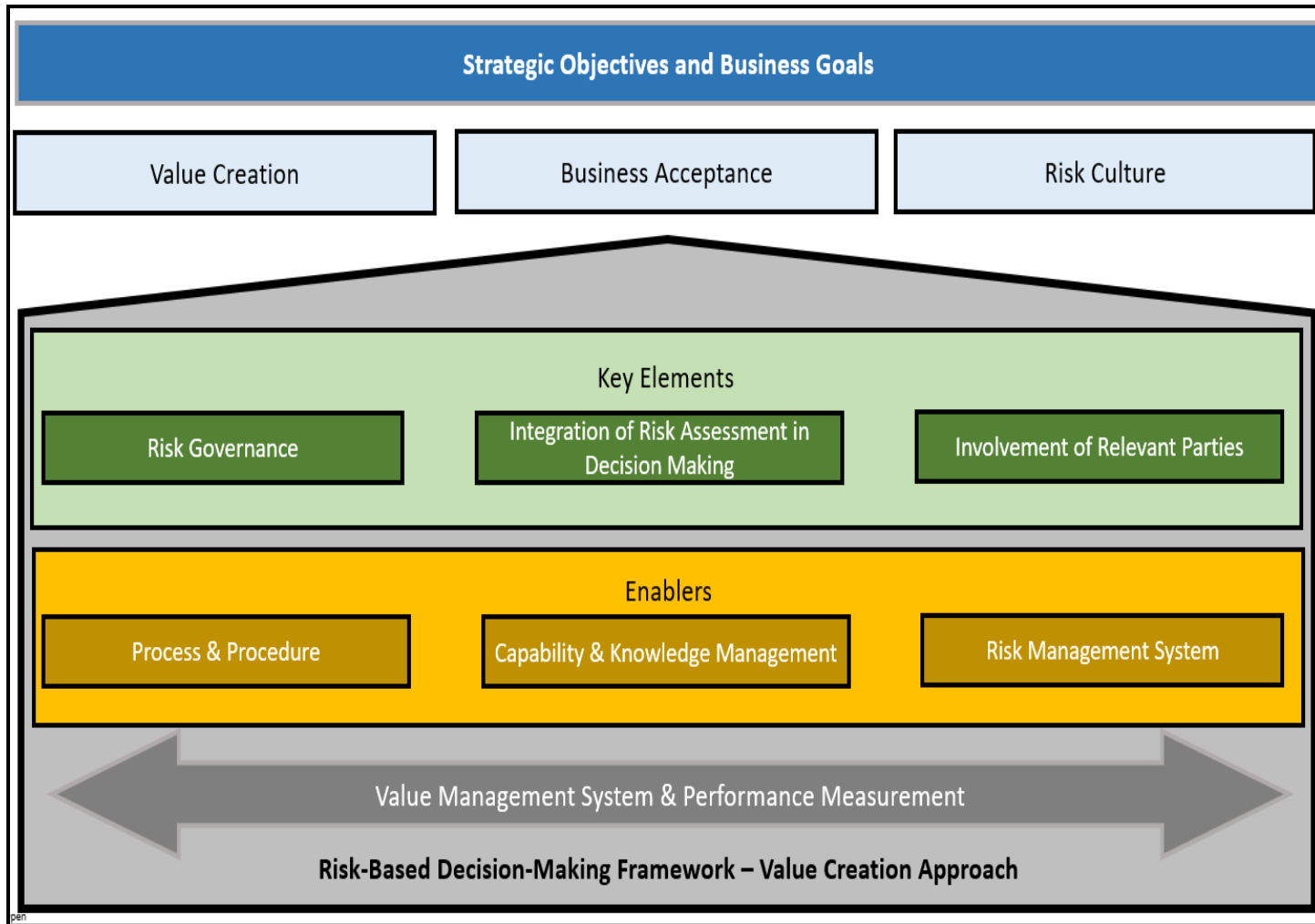


Figure 32: Risk-Based Decision-Making Framework – Value Creation Approach

The findings and observations collected from the study have been analysed and organised to develop the framework for broader application by companies, including those from other industries in Malaysia. However, the framework should be adapted to fit a company's organisational structure, priorities, practicality, risk appetite, and operational structure. The theoretical and business implications of the research are discussed in subsequent sub-sections.

5.4.1 Theoretical Implication

This study found that incorporation of risk management into business decision-making process enabled organisation to achieve their strategic goals and business objectives. The informed decisions with emphasis of risk-reward trade-offs help decision maker to understand the plausibility of achieving the objectives and at the same time potential key exposures where certain actions can be planned and acted upon. They are guided by governance, policy and framework, process and mandate granted by shareholders to them. The interactions within the stakeholders make a wholesome assessment and inclusion of perspectives to increase the company's long-term value and growth. By understanding other determinant factors and emergent properties from this study assist the organisation to carefully plan the implementation of risk-based decision-making framework for better results and implications to the business.

The main theoretical contributions of this research are the enhanced understanding and applications of agency theory, stakeholder theory, value management system and decision-making models which can be integrated and used to design the Risk-Based Decision-Making Framework – Value Creation Approach. Establishing a clear principal-agency relationship with appropriate governance, guidance, and information exchange between parties is essential in an organisation. The delegated authority and communication must be transparent and mutually agreed upon to achieve business objectives and value creation that benefit both shareholders and employees. Additionally, strategic management and decision making involve various stakeholders, alignment between and among these stakeholders are crucial to ensure the achievement of value for the organisation. In order

to ensure all are aligned, the alignment of value management system which typical KPIs setting or balanced scorecard should be an important factor in ensuring the motivation and focus towards achieving the business goals. These are considerations and elements to be put together in designed the risk-based decision-making framework.

The study also identified several enablers that enhance the implementation of a risk-based decision-making framework. These include clear processes and procedures that outline responsibilities, capability and knowledge management that support the quality and accuracy of risk analysis, value management systems and performance measurement that provide appropriate motivation and incentives to employees, and risk management systems that offer digitalisation to facilitate seamless and agile processes. All these findings contributed to the enhanced applications of the underpinning theories which have been discussed in Chapter 2 into the new framework which promote the incorporation of risk management into business decision-making process towards creating value to the organisation particularly oil and gas companies in Malaysia. This is in line with the research aim which is to present a research topic that can contribute to the existing knowledge pool in the same area of research on risk management being integrated into the business decision-making process.

Overall, this newly proposed framework encompasses key elements essential for the effective implementation and practice of a risk-based decision-making framework. These elements include risk governance, integration of risk assessment in decision making, and the involvement of relevant parties. The successful implementation of this framework enables the organisation to achieve its strategic objectives and business goals, create value, gain business acceptance, and foster a robust risk culture. Business acceptance and a strong risk culture contribute to the development of a sustainable, pervasive risk culture within the organisation. While these outcomes are intangible and challenging to quantify, their presence is evident towards goal achievement and value creation.

While industry standards and frameworks such as ISO31000 and the ERM Framework by COSO exist, and various literature reviews address risk management and decision-making processes, there remain opportunities for future research on the tangible measurement or

quantification of value creation directly attributed to risk management efforts in the decision-making process. It is currently challenging to precisely identify the exact value derived solely from risk management contributions. Consequently, this study lays the groundwork for further research on similar topics related to risk-based decision-making processes.

5.4.2 Business Implication

Research findings corroborate the Risk-Based Decision-Making Framework – Value Creation Approach as its newly proposed framework, where the practical application is to create value in the business decision-making process for organisations to achieve their goals and objectives. The risk-based decision-making framework as depicted in Figure 5.1 above would enable the following to be achieved:

- 1) Providing comprehensive guidance on the incorporation of risk management into the business decision-making process
- 2) Alleviating transparency and awareness of business risks for informed decisions in oil and gas companies in Malaysia
- 3) Enhancing the competencies and capabilities of risk managers, business managers, and all parties involved in the decision-making process

This study revealed that key elements are crucial for the implementation of a risk-based decision-making process, which in turn enables the organisation to achieve its goals and objectives, create value, improve business acceptance, and form a pervasive risk culture. Other enablers can be considered for better implementation of the risk-based decision-making process. The identified enablers for better outcomes and implementation are capability and competency of relevant parties involved in the process, embedding the requirement and value creation into the KPI setting, outlining clear process and procedures especially on clarity of responsibilities and accountabilities, providing sufficient resources and knowledge management, and lastly setting up a risk system and digital platform.

The recent case on Malaysian Airlines Berhad (MAS) and Brahim Foods' Services contract termination at the end of June 2023 as part of MAS's transformation initiative has caused some issues with regards to their twenty thousand meals per day supply requirement in-flight services (NST, 2023). This serves as a good example of the importance of risk assessment prior to making any decision to avoid potential risks to the company's reputation and financial performance. Although the transformation initiative is to improve the company's financial performance, there should be a proper business continuity plan as a mitigation plan to source for secondary in-flight service supplies as an alternative. Otherwise, it may cause severe impacts on business operations and, most importantly, on the company's reputation and goodwill, especially for a national flag carrier and globally reputable company.

5.5 Recommendations of the Study

The experiences of healthy growth in risk management practises are highly positive, although there are still increasing business failures and a more transparent environment (Kaplan and Mikes, 2016). This has suggested that for an organisation to stay agile, flexible, guarded, and prepared for possible exposures that may impede their business objectives and goals, there is a need for critical consideration to incorporate risk assessment for the decision-maker to be aware of the potential upside and downside of the decisions they make. Likewise, Virlics (2013) suggested that a business organisation have a proper process to assess risks for any business or investment proposal, as it requires proper understanding prior to making decisions, failing which the investment should not be made.

There are several methods and methodologies that can be used to perform a risk assessment on a business proposal, for example, the use of SWOT analysis tools, etc. In fact, public-listed companies in Malaysia need to comply with the requirements under Paragraph 15.26(b) of Bursa Malaysia Securities Berhad's Main Market Listing Requirements. A 'Statement on Risk Management and Internal Control' must be disclosed and signed off by the companies' directors in their annual report, together with financial performance and positions, as well as other reporting disclosure requirements. Raja

Ahmad et al. (2016) mentioned that there are guidelines issued by Bursa Malaysia Securities Berhad and other bodies to ensure the companies are able to practise risk management adequately.

Additionally, risk management practices within Malaysian companies are significantly shaped by the MCCG (Mohamad Nor and Ishak, 2017). Many organisations adhere to enterprise risk management standards or frameworks such as ISO 31000 and the ERM Framework to guide their risk management activities. While these frameworks address risk management at the enterprise level, it is equally important to manage risks at the transactional level through a risk-based decision-making framework. Implementing this framework can further enhance organisational risk management practices. Managers must make informed decisions based on sufficient information and a rational decision-making process, although some decisions may rely on individual judgment, professional insight, gut feeling, and past experiences (Shmatkova and Karminska-Bielobrova, 2023). Therefore, based on the findings and analysis in this study, it would be recommended that organisations, including companies from other industries within or outside Malaysia, adopt and adapt the risk-based decision-making framework for their respective implementation and deployment. The framework is designed not only for oil and gas companies but also to fit all companies' sizes and nature of business. Moreover, the framework may be altered to suit the companies' capabilities and capacities.

5.6 Limitations of the Study and Suggestions for Future Studies

5.6.1 Limitations of the Study

This study gathered responses from fourteen respondents and ten participants from two focus groups. They are business managers or risk managers who are working for selected few oil and gas companies in Malaysia. There are a few identified limitations being observed in this study. As this study narrowed its focus on oil and gas companies in Malaysia in view of their contribution to Malaysian GDP and the highly volatile industry where oil and gas crude and products are commodity products subject to price, supply, and demand variation worldwide, the scope of the study was very limited to a specific

industry in Malaysia. Aside from that, this study had not tested the application of the framework on its practicality as a risk-based decision-making framework in smaller organisations, as most of the samples in this study covered larger organisations with dedicated risk management functions or departments in place.

In addition, this study explores value creation of risk-based decision-making process behavioural experience from a qualitative research approach through feedback and inquiries made from respondents, and no data collection on the quantification of value creation is made on risk-based decision-making process contribution to their businesses or organisations. Hence, it would not state the tangible value of the value created by deploying the process.

5.6.2 Suggestions for Future Studies

Therefore, as suggestions for future studies to explore further knowledge of this area, future research may consider exploring broader industries other than managers from oil and gas companies. This may enable a greater and more in-depth understanding of other elements or variables that can improve business value creation through the incorporation of risk management into the business decision-making process.

Furthermore, the researcher would also like to suggest a study on the practicality of the framework for small organisations. This would enable a ‘fit for purpose’ approach to deploying the framework. It is also to ensure the introduction of enhanced frameworks can be applied and fit to the organisation’s capability and capacity, especially its resources and financial abilities. Lastly, as this study is not exploring the measurement or quantification of value creation resulting from the deployment of risk-based decision-making process, future studies to understand relevant methods and applications would add value to future research in this area of knowledge as well.

5.7 Conclusion

This study is aimed at identifying and understanding the key elements in initiating risk in the decision-making process, the successive impacts of the process implementation, and

other enablers for better implementation of the process. NVivo 12 Plus software was used to make it easier to analyse the findings through thematic coding steps. After that, narrative analysis was used to figure out what the findings mean based on the fourteen respondents' interview transcripts. The outcomes of the findings were used to restructure and streamline the proposed framework for risk-based decision-making process implementation. Various elements have been taken into account to make the framework more comprehensive as guidance for any organisation to use as a reference in implementing risk-based decision-making processes. The framework was developed to be practical for application by all companies, regardless of their sizes and structures. The implementation should be guided by their respective capabilities and capacities of resources.

The findings analysis revealed that most of the respondents and participants feedbacks were consistent about the achievement of business value creation on the organisation by practising a risk-based decision-making process besides other implications namely the achievement of strategic goals and business objectives, positive business acceptance and pervasive risk culture. The consistency of results is noted from the analysis of findings from in-depth inquiries or interviews made with fourteen business managers and risk managers as well as ten participants from two focus groups held. These respondents and participants are employees of selected few oil and gas companies in Malaysia. The same consistency is predicted if more respondents were selected for this study. Saturation level was achieved when recurring themes and patterns noted which revealed that further sampling would not yield additional new data. Among the key criteria of the purposive sampling were seniority of position and their involvement in the decision-making process in the organisation. The breadth and depth of their working experiences and knowledge in the research area have been emphasised to ensure the quality of the data is not compromised. Inadvertently, this has given assurance that the proposed conceptual framework would fit for application.

The result of the study would further strengthen the existing risk-based decision-making process in the organisation by providing the emphasis of key elements and further clarification on the implications of the process on the business and organisation. This work

contributes to the development of a new holistic theoretical framework that integrates various relevant aspects previously unconsidered. It enhances value creation within a risk-based decision-making framework by managing both negative and positive risks. Additionally, this new framework integrates key elements and enablers with the goal of achieving favourable outcomes for the organisation. It aligns with strategic objectives and business goals to promote sustainable growth through value creation.

It would also assist in addressing some misconceptions or misunderstandings about the incorporation of risk into the decision-making process as a 'showstopper' and non-value creation for the business with additional steps that may reduce their agility and competitiveness in the business. Hence, with the results from this study, it is expected to amplify the acceptance and realisation of the value created by this framework implementation. Additionally, this study would also provide insights to other organisations that are planning to initiate this process. Aside from that, the strength of this study would be the identified enablers for better implementation of risk-based decision-making processes, which serve as additional knowledge to assist the organisation in the effective implementation of the process.

In order to achieve pervasive outcomes in framework implementation and deployment, a strong mandate from the organisation's board of directors and shareholders must be in place. This has been discussed in the discussion and analysis of findings on risk governance comprehensively. The directive from the leadership is crucial for advancing the organisation's progress. This approach ensures that effective risk practices are initiated and adhered to by stakeholders, with collaborations and partnerships within the organisation being vital. Without these, the implementation of a risk-based decision-making framework would not yield the intended favourable impacts. To strengthen the implementation further, the organisation should ensure the enablers are in place to ensure the sustainability of value creation and realisation from the risk-based decision-making process in the organisation are intact. As mentioned earlier, the risk-based decision-making framework could be further strengthened and improved with future studies, as advocated.

REFERENCES

- Abrahamsen, E.B., Abrahamsen, H.B., Milazzo, M.F. & Selvik, J.T., 2018. Using the ALARP principle for safety management in the energy production sector of chemical industry. *Reliability Engineering & System Safety*, 169, pp.160-165.
- Abosag, I., Yen, D. A. & Barnes, B. R., 2016. What is dark about the dark-side of business relationships? *Industrial Marketing Management*, 55, 5–9.
- Adabor, O. & Buabeng, E., 2021. Asymmetrical effect of oil and gas resource rent on economic growth: Empirical evidence from Ghana. *Cogent Economics & Finance*. tandfonline.com
- Adair, W. L., Okumura, T. & Brett, J. M., 2001. Negotiation behavior when cultures collide: The United States and Japan, *Journal of Applied Psychology*, Vol. 86, No. 3, pp. 371–385
- Adams, J., (2014). Managing Risk: framing your problems, BoeringerIngelheim Alumni Seminar, SchlossGracht, Cologne 9-11
- Ahmad, M. and Wilkins, S., 2025. Purposive sampling in qualitative research: A framework for the entire journey. *Quality & Quantity*, 59(2), pp.1461-1479.
- Ahmad, T. & Zhang, D., 2020. A critical review of comparative global historical energy consumption and future demand: The story told so far. *Energy Reports*. sciencedirect.com
- Agarwal, S., Goel, R. & Vashishtha, P.K., 2014. A literature review of agency theory. *Indian Journal of Research*, 3(5), pp.51-52.
- Aguilera, R. V., Filatotchev, I., Gospel, H., & Jackson, G., 2008. An organizational approach to comparative corporate governance: Costs, contingencies, and complementarities. *Organization Science*, 19(3), 475–492. doi:10.1287/orsc.1070.0322
- Alam, M.K., 2021. A systematic qualitative case study: questions, data collection, NVivo analysis and saturation. *Qualitative Research in Organizations and Management: An International Journal*, 16(1), pp.1-31.
- Alawneh, R., Ghazali, F., Ali, H. & Sadullah, A.F., 2019. A Novel framework for integrating United Nations Sustainable Development Goals into sustainable non-

- residential building assessment and management in Jordan. *Sustainable Cities and Society*, 49, p.101612.
- Alexandra, L., 2025. Risk Management Frameworks in the Oil and Gas Industry.
- Al-Janabi, Y.T., 2020. An overview of corrosion in oil and gas industry: upstream, midstream, and downstream sectors. *Corrosion inhibitors in the oil and gas industry*, pp.1-39.
- Alshebli, A. & Alhajri, T., 2023. 'Internationally accepted risk management strategies: a comparative study,' *AAU Journal of Business and Law*, vol. 7, no. 1.
- Aluchna, M., 2023. Agency Theory. In: Idowu, S.O., Schmidpeter, R., Capaldi, N., Zu, L., Del Baldo, M., Abreu, R. (eds) *Encyclopedia of Sustainable Management*.
- Alzoubi, H.M. & Aziz, R., 2021. Does emotional intelligence contribute to quality of strategic decisions? The mediating role of open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), p.130.
- Amram, M., Kulatilaka, N. & Henderson, J., 1999. Managing business risk by IT investment: the real options view, Retrieved from <https://people.bu.edu/nalink/papers/Infrastructure12.pdf>
- Andersen, T.J. & Roggi, O., 2012. Risk management and value creation.
- Andrews, M., Sclater, SD., Squire, C. & Tamboukou, M., 2004. Narrative research. *Qualitative research practice*, pp.109-124.
- Asean Centre for Energy, 2024. 'ASEAN Oil and Gas Updates 2024' retrieved from <https://aseanenergy.org/wp-content/uploads/2024/12/ASEAN-Oil-and-Gas-Updates-2024.pdf>
- Ashby, S., Bryce, C. & Ring, P., 2019. Risk and performance: embedding risk management. https://www.researchgate.net/publication/333149509_Risk_and_performance_Embedding_risk_management
- Athearn, J.L., 1971. What is risk?. *The Journal of Risk and Insurance*, 38(4), pp.639-645.
- Armstrong, C.S., Guay, W.R. Mehran, H. & Weber, J.P., 2016. The role of financial reporting and transparency in corporate governance. *FRBNY Economic Policy Review*
- Aven, T., 2016. Risk assessment and risk management: Review of recent advances on

- their foundation. *European Journal of Operational Research*, 253(1), 1-13.
- Aven, T., 2017. 'Improving risk characterisations in practical situations by highlighting knowledge aspects, with applications to risk matrices', *Reliability Engineering & System Safety*, vol. 167, pp. 42-48.
- Aydin, N., Seker, S. & Şen, C., 2022. A new risk assessment framework for safety in oil and gas industry: Application of FMEA and BWM based picture fuzzy MABAC. *Journal of Petroleum Science and Engineering*, 219, p.111059.
- Aziz, N.A.A., Manab, N.A. & Othman, S.N., 2016. Sustainability risk management (SRM): An extension of enterprise risk management (ERM) concept. *International Journal of Management and Sustainability*, 5(1), pp.1-10.
- Aziz, A., Kurniawan, T. & Razak, M., 2018. The Influence of Risk Culture on Organisational Performance. *Journal of Risk and Financial Management*, 11(3), 45-62.
- Aziz, K.A., Yazid, A.S., Mahmud, M.S., Rashid, N., Salleh, F., Ghazali, P.L. and Mahmood, S., 2018. Enterprise risk management (ERM) practices among Malaysian SMEs: The three steps process to identify adopters and non-adopters of ERM for SMEs. *International Journal of Academic Research in Business and Social Sciences*, 8(11), pp.1232-1245.
- Baker, M., 2006. *Translation and conflict: a narrative account*, London, UK: Routledge.
- Ballwieser, W., 2009. Shareholder Value als element von corporate governance. *Zeitschrift für betriebswirtschaftliche Forschung*, 61, 93–101.
- Banerjee, S.B., 2008. Corporate social responsibility: The good, the bad and the ugly. *Critical Sociology*, 34, 51–79.
- Banks, G.C., Knapp, D.J., Lin, L., Sanders, C.S. and Grand, J.A., 2022. Ethical decision making in the 21st century: A useful framework for industrial-organizational psychologists. *Industrial and Organizational Psychology*, 15(2), pp.220-235.
- Barbosa, F., Bresciani, G., Graham, P., Nyquist, S. and Yanosek, K., 2020. Oil and gas after COVID-19: The day of reckoning or a new age of opportunity. *McKinsey & Company*, 15, p.2020.
- Barney, J. B., 1991. Firm resources and sustained competitive advantage. *Journal of*

- Management*, 17(1), 99-120.
- Barney, J., 1988. Agency theory, employee stock ownership and a firm's cost of equity capital. Unpublished working paper, Texas A&M University, College Station.
- Barton, T.L, Shenkir, WG. & Walker, P.L., 2002. *Making enterprise risk management payoff: how leading companies implement risk management*, Financial Times/Prentice Hall PTR., Upper Saddle River, NJ.
- Bâtcă-Dumitru, C.G., Şendroi, C. & Denisia, L., 2023. A New Challenge in the Risk Management: Sustainability Risks.
- Baxter, P. & Jack, S., 2008. Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report*, 13(4), pp.544-559.
- BDO Oil and Gas Risk Factor Report 2016, Regulatory risks, Retrieved from http://media.hypersites.com/clients/1149/filemanager/Newsletters/2016-NR-Oil-Gas-Riskfactor-Report-Brochure_May2016.pdf
- Beasley M.S., Clune R., & Hermanson D.R., 2005. 'Enterprise risk management: an empirical analysis of factors associated with the extent of implementation,' *Journal of Account Public Policy*, vol. 24, pp. 521–531.
- Beermann M, 2011. 'Linking corporate climate adaptation strategies with resilience thinking,' *Journal of Cleaner Production*, vol. 19, pp. 836–842.
- Belli, P., Anderson, J.R., Barnum, H.N., Dixon, J.A. & Tan, J., 1996. *Handbook on economic analysis of investment operations: analytical tools and practical applications*, World Bank Institute.
- Ben-Haim, Y., 2012. Doing our best: Optimization and the management of risk. *Risk Analysis: An International Journal*, 32(8), pp.1326-1332.
- BERNAMA, 2024. 'From dependency to preparedness: The case of oil stockpiling in ASEAN', *BERNAMA Thoughts*, 4 March. Retrieved from <https://www.bernama.com/en/thoughts/news.php?id=2388154>.
- Berg, L.B., 2001. Qualitative research methods for the social sciences.
- Bharathy GK, & McShane MK 2014. 'Applying a systems model to enterprise risk management,' *Emergency Medicine Journal*, vol. 26, no. 4, pp. 38–46.
- Bhatti, A.A., Raza, A., Shahani, A.K., Zehra, N. & Khokhar, M., 2023. Risk Assessment

- and Decision Making in Stock Exchange. *Winter 2023*.
- Bhattacharya, P. & Hutchinson, F.E., 2022. Malaysia's oil and gas sector: constant expectations despite diminishing returns. Retrieved from <https://www.iseas.edu.sg/articles-commentaries/iseas-perspective/2022-21-malaysias-oil-and-gas-sector-constant-expectations-despite-diminishing-returns-by-pritish-bhattacharya-and-francis-e-hutchinson/>
- Bitektine, A., 2008. Prospective case study design qualitative method for deductive theory testing. *Organizational Research Methods*, 11, 160–180
- Blair, M.M., 1995. *Ownership and Control: Rethinking Corporate Governance for the Twenty-First Century*. Washington, DC: The Brookings Institution Press.
- Bloomberg, 2024. Kazakhstan's compensation claims against Kashagan Oil Firms Jump to \$150 billion. Retrieved from <https://www.bloomberg.com/news/articles/2024-04-17/kazakhstan-s-compensation-claims-against-kashagan-oil-firms-jump-to-150-billion>
- Blume, K.H., 2016. Value-based management as a tailor-made management practice? A literature review. *Journal of Management & Governance*, 20, pp.553-590.
- Boghean, F., 2020. August. Integrating Risk Management into Decision Making. In *16th Economic International Conference NCOE 4.0 2020* (pp. 105-114). Editura Lumen, Asociatia Lumen
- Boivie, S., Withers, M.C., Graffin, S.D. & Corley, K.G., 2021. Corporate directors' implicit theories of the roles and duties of boards. *Strategic Management Journal*, 42(9), pp.1662-1695.
- Bosse, D. A., & Phillips, R. A., 2016. Agency theory and bounded self-interest. *Academy of Management Review*, 41(2): 276-297.
- Boyatzis, R., 1998. *Transforming qualitative information: thematic analysis and code development*, Thousand Oaks, CA: SAGE.
- Bradley, M., Schipani, C.A., Sundaram, A.K. & Walsh, J.P., 1999. The purposes and accountability of the corporation in contemporary society: Corporate governance at a crossroads. *Law and Contemporary Problems*, 62(3), 9-86.
- Braun, V. & Clarke, V., 2006. 'Using thematic analysis in psychology,' *Qualitative*

Research in Psychology, vol. 3, no. 2, pp. 77–101.

Bridoux, F. & Stoelhorst, J.W., 2022. Stakeholder theory, strategy, and organization:

Past, present, and future. *Strategic Organization*, 20(4), pp.797-809.

Brodeur, A., Buehler, K., Patsalos-fox, M. & Pergler, M., 2010. A board perspective on enterprise risk management, https://www.mckinsey.com/~media/mckinsey/dotcom/client_service/risk/working%20papers/18_a_board_perspective_on_enterprise_risk_management.pdf

Bromiley, P., McShane, M., Nair, A. & Rustambekov, E., 2015. ‘Enterprise risk management: review, critique, and research directions,’ *Long Range Planning*, vol. 48, no. 4, pp. 265-276.

Bromiley, P., Rau, D. & McShane, M.K., 2016. ‘Can strategic risk management contribute to enterprise risk management? A strategic management perspective, In T. J. Andersen (Ed.), *The Routledge companion to strategic risk management* (pp. 140-156), Routledge New York, NY 10017.

Brown, R., 2020. Implications of Decision-making on Problem-Solving and Creativity. *Organizational Behavior and Human Decision Processes*, 25(4), 567-580. Bursa Malaysia, 2014. List of companies under main market. Retrieved from <http://www.bursamalaysia.com/market/listed-companies/list-ofcompanies/main-market>

Bugg-Levine, A. & Emerson, J., 2011. Impact investing: Transforming how we make money while making a difference. John Wiley & Sons.

Busco, C., Giovannoni, E., Riccaboni, A., Frigo, M., & Scapens, R., 2006. Towards integrated governance: The role of performance measurement systems. In M. Epstein (Ed.), *Performance measurement and management control: Improving organisations and society* (pp. 159–186). Oxford: Elsevier.

Caillaud, S. & Flick, U., 2017. Focus groups in triangulation contexts. *A new era in focus group research: Challenges, innovation and practice*, pp.155-177.

Çakmak, E. E. & Acar, S., 2022. The nexus between economic growth, renewable energy and ecological footprint: An empirical evidence from most oil-producing countries. *Journal of Cleaner Production*. [HTML]

- Carlsson, R.H., 2001. *Ownership and value creation: strategic corporate governance in the new economy*, Wiley.
- Carpino, M., 2014. 'The in-house counsel as legal risk manager and business partner: are these roles compatible?,' *The International In-house Counsel Journal*, vol. 8, p.1.
- Chang, C.H., Jingjing Xu, J. & Song, D.P., 2015. 'Risk analysis for container shipping: From a logistics perspective', *The International Journal of Logistics Management* 26(1), 147–171. <https://doi.org/10.1108/IJLM-07-2012-0068>
- Charmaz, K. & Belgrave, L.L., 2012. Qualitative interviewing and grounded theory analysis. In: *The SAGE handbook of interview research: the complexity of the craft*, SAGE Publications, Inc, United States.
- Chen, H.-L., Hsu, W.-T., & Chang, C.-Y., 2016. Independent directors' human and social capital, firm internationalization and performance implications: An integrated agency-resource dependence view. *International Business Review*, 25(4), 859-871. <https://doi.org/10.1016/j.ibusrev.2015.10.010>
- Chen, M.C., Cheng, S.J. & Hwang, Y., 2005. An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. *Journal of intellectual capital*, 6(2), pp.159-176.
- Chong, C. K., 2024. Malaysia's Economic Outlook in a Changing Economic Landscape for 2024. *INSAP Economic Report*.
- Choong C.K., 2004. INSAP ECONOMIC REPORT Malaysia's Economic Outlook in a Changing Economic Landscape for 2024. Institute of Strategic Analysis & Policy Research.
- Christensen, C. & Raynor, M., 2013. *The innovator's solution: Creating and sustaining successful growth*. Harvard Business Review Press.
- Cohen, L., Manion, L. and Morrison, K., 2002. *Research methods in education*. routledge.
- Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2004. Enterprise risk management - integrated framework, Retrieved from <https://www.coso.org/guidance-erm>
- Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2013.

- Internal control - integrated framework, Retrieved from <https://www.coso.org/guidance-on-ic>
- Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017, Enterprise risk management: integrating with strategy and performance, Retrieved from <https://www.coso.org/guidance-erm>
- Connell, B., 2004. Enterprise governance: Getting the balance right. London: CIMA/IFAC.
- Corbin, J. & Strauss, A., 2008. *Basics of qualitative research: techniques and procedures for developing Grounded Theory*, SAGE Publications, Inc, USA.
- Cresswell, J.W., 1994. *Research design: Qualitative, Quantitative and Mixed Approaches*. Thousand Oak, California: Sage Publications.
- Creswell, J.W., 1998. *Qualitative Inquiry and Research Design Choosing Among Five Traditions*. Thousand Oaks, CA: Sage Publications.
- Creswell, J.W., 2005. Research design: Planning, conducting, and evaluating quantitative and qualitative research. Upper Saddle River, NJ: Pearson Education.
- Creswell, J.W., 2008. *Research design: Qualitative, quantitative, and mixed methods approach (3rd ed.)*, Thousand Oaks, CA: Sage Publications Inc.
- Creswell, J.W., 2016. *Research Design.: Qualitative, Quantitative, Mixed Methods Approaches*. University Of Nebraska-Lincoln.
- Creswell, J.W. & Poth, C.N., 2016. Qualitative inquiry and research design: Choosing among five approaches. Sage publication
- Dahwa, C., 2024. Adapting and blending grounded theory with case study: a practical guide. *Quality & Quantity*, 58(3), pp.2979-3000.
- Darkhabani, M., 2022. Impact of Covid-19 Pandemic on the risk and return trade-off: The role of diversification, *The EUrASEANs: Journal on Global Socio-Economic Dynamics*, vol. 3, no. 34, pp. 71-82.
- Daud, N.M., 2020. The impact of risk assessment on research & development value chain: a model approach, University of Wales Trinity Saint David.
- Davidson, C., 2009. 'Transcription: imperatives for qualitative research', *International*

- Journal of Qualitative Methods*, vol. 8, no. 2, pp. 35-52.
- Davis, J. H., Schoorman, F. D. & Donaldson, L., 1997. Toward a stewardship theory of management. *Academy of management review*, 22(1), 20-47.
- Deloitte & Touche, 2008. Perspectives on ERM and the risk intelligent enterprise – Enterprise Risk Management Benchmark Survey, Deloitte Development LLC. Retrieved from http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_risk%20consulting-ERMBenchmarkSurvey_110308.pdf
- Deloitte & Touche, 2019. Sustainability Risk Management Powering performance for responsible growth, retrieved from <https://www2.deloitte.com/content/dam/Deloitte/my/Documents/risk/my-risk-sdg12-sustainability-risk-management.pdf>
- Demirer, R., Ferrer, R. & Shahzad, S.J.H., 2020. Oil price shocks, global financial markets and their connectedness. *Energy Economics*, 88, p.104771.
- Denzin, N.K. & Lincoln, Y.S., 2017. Introduction: The discipline and practice of qualitative research, In Denzin, N. K. and Lincoln, Y. S. (Eds.), *The SAGE 352 Handbook of Qualitative Research (5th Ed.)*, Thousand Oaks, California, SAGE Publications, pp. 1–20.
- Desouza, K., 2003. Knowledge management don't just manage crises. *New Zealand Management*, 51.
- Dey, A., 2008. Corporate governance and agency conflicts. *Journal of Accounting Research*, 46(5), 1143–1181. doi:10.1111/j.1475-679X.2008.00301.
- Dmytriiev, S.D., Freeman, R.E. & Hörisch, J., 2021. The relationship between stakeholder theory and corporate social responsibility: Differences, similarities, and implications for social issues in management. *Journal of Management Studies*, 58(6), pp.1441-1470.
- Duan, X., Zhao, X., Liu, J., Zhang, S. & Luo, D., 2021. Dynamic risk assessment of the overseas oil and gas investment environment in the big data era. *Frontiers in Energy Research*, 9, p.638437.
- Duffy, K., Ferguson, C. & Watson, H., 2004. 'Data collecting in grounded theory: some practical issues', *Nurse Researcher*, vol. 11, no. 4, pp. 67-78.

- Easterby-Smith, M.P., Thorpe, R. & Jackson, P., 2008. *Management research: theory and research*, SAGE Publication.
- Ebneyamini, S. & Sadeghi Moghadam, M.R., 2018. Toward developing a framework for conducting case study research. *International journal of qualitative methods*, 17(1), p.1609406918817954.
- Eccles, R.G., Ioannou, I. & Serafeim, G., 2014. The impact of corporate sustainability on organizational processes and performance. *Management science*, 60(11), pp.2835-2857.
- EcoMENA, 2024. Biggest Risks in the Oil and Gas Industry and How to Mitigate Them. Retrieved from <https://www.ecomena.org/risk-assessment-oil-and-gas-industry/>
- Eeckhoudt, L., Gollier, C. & Schlesinger, H., 2005. *Economic and financial decisions under risk*, Princeton University Press.
- Egila, A., Kamal, M.M. & Tjahjono, B., 2022. Oil and Gas Supply Chain: Analysing Stakeholder Sustainability Risk Perception. In *International Conference on Energy and Sustainable Futures* (pp. 41-50). Cham: Springer Nature Switzerland.
- Elgharbawy, A. & Abdel-Kader, M., 2013. Enterprise governance and value-based management: A theoretical contingency framework. *Journal of Management & Governance*, 17(1), 99–129. doi:10. 1007/s10997-012-9220-y
- Elkjaer, B. & Simpson, B., 2011. Pragmatism: A lived and living philosophy. What can it offer to contemporary organization theory?. In *Philosophy and organization theory* (pp. 55-84). Emerald Group Publishing Limited.
- ElMassah, S. & Mohieldin, M., 2020. ‘Digital transformation and localizing the Sustainable Development Goals (SDGs)’, *Ecological Economics*, vol. 169, no. 10.
- Ernst & Young, 2006. Managing risk across the enterprise: the value of enterprise risk management, Retrieved from http://www.wlu.ca/documents/35471/Managing_Risk_Across_the_Enterprise.pdf
- Esayas, S., & Mahler, T., 2015. Modelling compliance risk: A structured approach. *Artificial Intelligence and Law*, 23(3), 271–300. Esin, C., Fathi, M. & Squire, C.,

2014. Narrative analysis: The constructionist approach. *The SAGE handbook of qualitative data analysis*, pp.203-216.
- Eskerod, P., 2020. A stakeholder perspective: Origins and core concepts. In *Oxford Research Encyclopedia of Business and Management*.
- Etokakpan, M.U., Solarin, S.A., Yorucu, V., Bekun, F.V. & Sarkodie, S.A., 2020. Modeling natural gas consumption, capital formation, globalization, CO2 emissions and economic growth nexus in Malaysia: Fresh evidence from combined cointegration and causality analysis. *Energy Strategy Reviews*, 31, p.100526. sciencedirect.com
- Ezeh, M.O., Ogbu, A.D., Ikevuje, A.H. & George, E.P.E., 2024. Optimizing risk management in oil and gas trading: A comprehensive analysis. *International Journal of Applied Research in Social Sciences*, 6(7), pp.1461-1480.
- Fabiano, B., Pettinato, M., Reverberi, A.P. & Currò, F., 2019. Human factors and safety management: A field study on safety performance in the process industry. *Chemical Engineering*, 77.
- Fassin, Y., 2009. The stakeholder model refined. *Journal of business ethics*, 84, pp.113-135.
- Fayezi, S., O'Loughlin, A. & Zutshi, A., 2012. Agency theory and supply chain management: a structured literature review. *Supply chain management: an international journal*, 17(5), pp.556-570.
- Filatotchev, I. & Wright, K., 2006. The life cycle of corporate governance. *Journal of Evolutionary Economics*, 16(3), 337–340.
- Floersch, J., Longhofer, J.L., Kranke, D. & Townsend, L., 2010. 'Integrating thematic, grounded theory and narrative analysis: a case study of adolescent psychotropic treatment,' *Qualitative Social Work*, vol. 9, no. 3, pp. 407-425.
- Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L. & De Colle, S., 2010. *Stakeholder Theory: The State of the Art*. New York: Cambridge University Press.
- Friedman, A. L., & Miles, S., 2006. *Stakeholders: Theory and practice*. Oxford, UK: Oxford

- Friedman, M., 2007. The social responsibility of business is to increase its profits.
In *Corporate ethics and corporate governance* (pp. 173-178). Berlin, Heidelberg: springer berlin heidelberg.
- Gates, S., Nicolas, J.L. & Walker, P.L., 2012. 'Enterprise risk management: a process for enhanced management and improved performance,' *Management Accounting Quarterly*, vol. 13, no. 3, pp. 28-38.
- Gersel, J. & Johnsen, R., 2020. Toward a novel theory of rational managerial deliberation: Stakeholders, ethical values, and corporate governance. *Academy of Management Learning & Education*, 19(3), pp.269-288.
- Glaser, B. and Strauss, A., 1967. The discovery of grounded theory: strategies for qualitative research. Chicago: Aldine
- Gibbs, G.R., 2018. *Analyzing qualitative data*. SAGE Publications.
- Gigerenzer, G. & Selten, R., 2002. Bounded rationality: The adaptive toolbox, Cambridge, Massachusetts, MIT Press
- Ghani, S.A. and Rosdi, D., 2019. The relationship between environmental performance and corporate governance towards environmental disclosure of oil and gas companies operating in Malaysia upstream projects. *International Journal of Academic Research in Business and Social Sciences*, 9(3).
- Gill, P. & Baillie, J., 2018. Interviews and focus groups in qualitative research: an update for the digital age. *British dental journal*, 225(7), pp.668-672.
- Gillespie, A., Glăveanu, V. & de Saint Laurent, C., 2024. *Pragmatism and methodology: doing research that matters with mixed methods*. Cambridge University Press.
- Gioia D.A., 1999. Practicability, paradigms, and problems in stakeholder theorizing. *Acad Manag Rev* 24(2):228–232
- Gjerdrum, D. & Peter, M., 2011. 'The new international standard on the practice of risk management—a comparison of ISO 31000: 2009 and the COSO ERM framework,' *Risk Management*, vol. 31, no. 21, pp. 8-12.
- Glaser, B.G. & Strauss, A., 1967. The discovery of grounded theory: strategies for qualitative research. Chicago, Ill: Aldine Pub. Co.
- Glette-Iversen, I., Flage, R. & Aven, T., 2023. Extending and improving current

- frameworks for risk management and decision-making: A new approach for incorporating dynamic aspects of risk and uncertainty. *Safety science*, 168, p.106317.
- Golafshani, N., 2003. 'Understanding reliability and validity in qualitative research', *The Qualitative Report*, vol. 8, no. 4, pp. 597-607.
- Gómez-Bezares, F., Przychodzen, W. & Przychodzen, J., 2016. Corporate sustainability and shareholder wealth—Evidence from British companies and lessons from the crisis. *Sustainability*, 8(3), p.276.
- Gonzalez-Porras, L., Heikkinen, A. & Kujala, J., 2020. Understanding stakeholder influence: Lessons from a controversial megaproject. *International Journal of Human Resources Development and Management*, 21, 191–213.
- Goodstein, J. D. & Wicks, A. C., 2007. 'Corporate and stakeholder responsibility: Making business ethics a two-way conversation'. *Business Ethics Quarterly*, 17, 375– 98
- Gordon, L.A., Loeb, M.P. & Tseng, C.Y., 2009. 'Enterprise risk management and firm performance: A contingency perspective. *Journal of Accounting and Public Policy*, vol. 28, no. 4, pp. 301-327.
- Grant, R.M., 2016. *Contemporary strategy analysis (9th edition)*, USA: John Wiley & Sons Ltd.
- Greene, Jennifer C., & Jori N.H., 2010. Dialectics and pragmatism: Being of consequence. In *Handbook of Mixed Methods in Social and Behavioral Research*, 2nd ed. Edited by Abbas Tashakkori and Charles Teddlie. Thousand Oaks: Sage, pp. 113–43.
- Grünig, R., Kühn, R. & Morschett, D., 2022. "Defining the Strategic Objectives for the Company." In *The Strategy Planning Process*.
- Gupta, K., Crilly, D., & Greckhamer, T., 2020. Stakeholder engagement strategies, national institutions, and firm performance: A configurational perspective. *Strategic Management Journal*, 41, 1869–1900.
- Hamel, G. & Prahalad, C. K., 1989. Strategic intent, *Harvard Business Review*, Vol. 67, No. 3, pp. 63-78

- Hammer, M, & Champy, J 1993, *Reengineering the corporation: a manifesto for business revolution*, Harper Business.
- Hampton, J 2015, *Fundamentals of enterprise risk management: how top companies assess risk, manage exposure, and seize opportunity*, Amacom.
- Hartley, J., 2004. Case study research. In: C. C. & G. Symon, ed. *Essential guide to qualitative methods in organizational research*. London: Sage, pp. 323-333.
- Harrison, J. S., Barney, J. B., Freeman, R. E. & Phillips, R. A. (Eds.), 2019. *The Cambridge handbook of stakeholder theory*. Cambridge University Press
- Harrison, J. S., & Wicks, A. C., 2021. Harmful stakeholder strategies. *Journal of Business Ethics*, 169, 405–419. University Press.
- Hasani, S. M., & Fathi, Z., 2012. Relationship the Economic Value Added (EVA) with Stock Market Value (MV) and Profitability Ratios. *Interdisciplinary Journal of Contemporary Research in Business*, 4(3), 406-415. 8. Irala, D.
- Hassan, M., 2023. Exploratory Research-Types, Methods, and Examples [online]
- Hay, A., 2018. Bringing the heart and soul back in: Collaborative inquiry and the DBA. *Academy of Management Learning & Education*, 18: 59–80.
- Haywood, L.K., Forsyth, G.G., De Lange, W.J. & Trotter, D.H., 2017. ‘Contextualising risk within enterprise risk management through the application of systems thinking,’ *Environment Systems and Decisions*, vol. 37, pp. 230-240.
- Hillman, A.J. & Keim, G.D., 2001. Shareholder value, stakeholder management, and social issues: what's the bottom line?. *Strategic management journal*, 22(2), pp.125-139.
- Hjorth, R., 2017. The shortfall of risk assessment for decision-making. *Nature nanotechnology*, 12(12), pp.1109-1110.
- Hopkin, P., 2018. *Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management*. Kogan Page Publishers.
- Howard, R.A., 1968. The foundations of decision analysis. *IEEE transactions on systems science and cybernetics*, 4(3), pp.211-219.
- Hoyt, R.E. & Liebenberg, A.P., 2011. ‘The value of enterprise risk management,’ *The Journal of Risk and Insurance*, vol. 78, pp. 795-822.

- Huebner, C. C., 2020. *Petronage: The Political Economy of a National Oil Company and Local Content in Malaysia*
- Hutchison, A.J., Johnston, L.H. & Breckon, J.D., 2010. 'Using QSR-NVivo to facilitate the development of a grounded theory project: an account of a worked example', *International Journal of Social Research Methodology*, vol. 13, no. 4, pp. 283-302.
- IEA (2022), *Southeast Asia Energy Outlook 2022*, IEA, Paris
<https://www.iea.org/reports/southeast-asia-energy-outlook-2022>, Licence: CC BY 4.0
- Inayat-Hussain, S. H., Fukumura, M., Muiz Aziz, A., Jin, C. M., Jin, L. W., Garcia-Milian, R., Vasiliou, V., & Deziel, N. C., 2018. Prioritization of reproductive toxicants in unconventional oil and gas operations using a multi-country regulatory data-driven hazard as International Integrated Reporting Council, 2013. *Value creation: background paper*, Retrieved from
<http://www.integratedreporting.org/wp-content/uploads/2013/07/IR-Background-Paper-Value.pdf>
- Inayat, W. & Jahanzeb Khan, M., 2021. A study of job satisfaction and its effect on the performance of employees working in private sector organizations, Peshawar. *Education Research International*, 2021(1), p.1751495. wiley.com
- International Organisation for Standardization (ISO), 2018. *ISO 31000: 2018 risk management – guidelines*, Retrieved from
<https://www.iso.org/standard/65694.html>
- Iraci, J, & Howell, RS 2017, *Risk management and data science a future together*, Retrieved from <https://www.linkedin.com/pulse/risk-management-data-science-future-together-joseph-iraci>
- Islam, A. & Tedford, D., 2012. 'Risk determinants of small and medium-sized manufacturing enterprises (SMEs) – An exploratory study in New Zealand', *Journal of Industrial Engineering International* 8, 12.
<https://doi.org/10.1186/2251-712X-8-12>
- Jahidi, Z., Abd-Karim, S. B., & Mohd-Danuri, M. S., 2024. Operational Regulatory

- Minimise Risks in the Malaysian Oil and Gas Industry. *Journal of Project Management Practice*, 4(1), 01-16. Jalilvand, A. & Moorthy, S., 2023.
- Triangulating Risk Profile and Risk Assessment: A Case Study of Implementing Enterprise Risk Management System. *Journal of Risk and Financial Management*, 16(11), p.473.
- Jensen, M.C. & Meckling, W.H., 1976. 'Theory of the firm: managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, vol. 3, no. 4, pp. 305–360.
- Jensen, M. C., 2002. Value maximization, stakeholder theory, and the corporate objective function. *Business Ethics Quarterly*, 12(2), 235-256.
<https://doi.org/10.2307/3857812>
- Johnson, P. & Clark, M., 2006. *Business and management research methodologies*, London: Sage.
- Johnson, A., 2019. Communicating Scientific Management Principles to Business Decision-Makers. *Academy of Management Review*, 15(3), 112-128.
- Jones, B.D., 2002. Bounded rationality and public policy: Herbert A. Simon and the decisional foundation of collective choice. *Policy Sciences*, 35(3), pp.269-284.
- Kähkönen, A.K., Katrina L. & Jukka H., 2018. Sustainable supply management practices: Making a difference in a firm's sustainability performance. *Supply Chain Management: An International Journal* 23: 518–30.
- Kahneman, D., 2003. Maps of bounded rationality: Psychology for behavioral economics. *American economic review*, 93(5), pp.1449-1475.
- Kahneman, D., Slovic, P., & Tversky, A., 1982. *Judgment under uncertainty: Heuristics and biases*. Cambridge University Press, New York
- Kalina, I., Khurdei, V., Shevchuk, V., Vlasiuk, T., & Leonidov, I. (2022). Introduction of a Corporate Security Risk Management System: The Experience of Poland. *Journal of Risk and Financial Management*.
- Kaplan, R.S., 1992. *The balanced scorecard measures that drive performance*, Harvard Business Review.
- Kaplan, R.S. & Mikes, A., 2016. 'Risk management—the revealing hand,' *Journal of*

- Applied Corporate Finance*, vol. 28, no. 1, pp. 8-18.
- Kaplan, R.S. & Norton, D.P., 2005. The balanced scorecard: measures that drive performance, *Harvard Business Review*, vol. 83, no. 7, p. 172.
- Kast, R. & Lapied, A., 2006. *Economics and finance of risk and of the future*, John Wiley & Sons Ltd, England.
- Kaushik, V. & Walsh, C.A., 2019. Pragmatism as a research paradigm and its implications for social work research. *Social sciences*, 8(9), p.255.
- Kepner, C.H. & Tregoe, B.B., 2005. *The new rational manager (rev. ed.)*, New York, NY: Kepner-Tregoe.
- Khan, I., Irfan, M., Hou, F. & Mubarik, M.S., 2024. 'Dynamics of economic growth in ASEAN-5 countries: a panel ARDL approach', *Discover Sustainability*, 5(1). Springer. Retrieved from <https://link.springer.com/article/10.1007/s43621-024-00351-x>.
- Khanyle, D. & Cluett, J.D., 2018. Sensemaking and Unknowable in Risk Management. Cross-Cultural Dialogue as a Conflict Management Strategy, pp.84-100.
- Kimura, S., Morikawa, T. & Phoumin, H., 2017. Oil Supply Resilience in ASEAN.
- King, N., 2004. Using interviews in quantitative research,' *Essential Guide to Qualitative Methods in Organisational Research*, vol. 2.
- Kiser, E., 1999. Comparing varieties of agency theory in economics, political science, and sociology: An illustration from state policy implementation. *Sociological Theory*, 17(2), pp.146-170.
- Kivits, R. & Sawang, S., 2021. *Dynamism of Stakeholder Engagement*. NY, NY: Springer International Publishing.
- Kliem, R. L. & Ludin, I. S., 2019. Reducing project risk. CRC Press.
- Klitgaard, R., 1988. *Controlling Corruption*. Berkeley: University of California Press.
- Knafl, K., & Breitmayer, B. J., 1989. Triangulation in qualitative research: Issues of conceptual clarity and purpose. In J. Morse (Ed.), *Qualitative nursing research: A contemporary dialogue* (pp. 193-203). Rockville, MD: Aspen.
- Kotler, P. & Armstrong, G., 2018. *Principles of Marketing (17th Eds)*, Pearson

Education Limited.

- Korkmaz, O., 2022. Sustainability Risk Management: A Survey of the Literature. (S. Ö. Grima, Ed.) Insurance and Risk Management for Disruptions in Social, Economic and Environmental Systems: Decision and Control Allocations within New Domains of Risk
- Korkmaz, Ö., 2022. Do oil, coal, and natural gas consumption and rents impact economic growth? An empirical analysis of the Russian Federation. *Resources Policy*.
- Kraidt, L., Shah, R., Matipa, W., & Borthwick, F., 2019. Analyzing the critical risk factors associated with oil and gas pipeline projects in Iraq. *International Journal of Critical Infrastructure Protection*, 24, pp.14-22.
- Kraus, V. & Lehner, O.M., 2012. 'The nexus of enterprise risk management and value creation: A systematic literature review,' *ACRN Journal of Finance and Risk Perspectives*, vol. 1, no. 1, pp. 91-16.
- Krueger, R.A., 1997. *Developing questions for focus groups* (Vol. 3). Sage publications.
- Kücükgül, E., Cerin, P. & Liu, Y., 2022. Enhancing the value of corporate sustainability: An approach for aligning multiple SDGs guides on reporting. *Journal of Cleaner Production*, 333, p.130005.
- Kuhn, Thomas S. 1970. *The Structure of Scientific Revolutions*, 2nd ed. Chicago: University of Chicago Press.
- Kujala, J., Sachs, S., Leinonen, H., Heikkinen, A. & Laude, D., 2022. Stakeholder engagement: Past, present, and future. *Business & Society*, 61(5), pp.1136-1196.
- Kurniawan, R., Zailani, S.H., Iranmanesh, M. & Rajagopal, P., 2017. 'The effects of vulnerability mitigation strategies on supply chain effectiveness: risk culture as moderator,' *Supply Chain Management: An International Journal*, vol. 22, no. 1, pp. 1-15.
- Lai, F.W., Azizan, N.A. & Samad, M.F., 2010. 'A theoretical appraisal of value maximizing enterprise risk management,' *International Journal of Accounting Information Science and Leadership*, vol. 3, no. 6, pp. 23-41.
- Lalonde, C. & Boiral, O., 2012. 'Managing risks through ISO 31000: a critical

- analysis,' *Risk Management*, vol. 14, pp. 272-300.
- Lam, J., 2003. *Enterprise risk management: from incentives to controls*, John Wiley & Sons, Inc.: Hoboken, New Jersey.
- Langley, A., 1999. 'Strategies for theorizing from process data,' *Academy of Management Review*, vol. 24, no. 4, pp. 691–710.
- Largani, M.S., Kaviani, M. and Abdollahpour, A., 2012. A review of the application of the concept of Shareholder Value Added (SVA) in financial decisions. *Procedia-Social and Behavioral Sciences*, 40, pp.490-497.
- Laude, D., 2020. Advancing quantitative measurement in stakeholder theory: Indices of stakeholder engagement and stakeholder relationship types [Unpublished doctoral thesis, University of St. Gallen].
- Lawrenz, F., Keiser, N. & Lavoie, B., 2003. Evaluative site visits: A methodological review. *American journal of evaluation*, 24(3), pp.341-352.
- Lawson, R. & White, L.R., 2018. Maintaining relevance in-the digital age: in the face of technological change, the management accounting profession needs to refocus on providing actionable cost information to support internal decision making or risk becoming obsolete,' *Strategic Finance*, vol. 99, no. 10, pp. 26-32.
- Lee, D., 2016. "Safety Challenges in the Oil and Gas Industry". *Occupational Safety Journal*, 10(2), 15-28.
- Lee, S., 2017. The Role of Decision-makers in Problem-solving and Environmental Governance. *Journal of Environmental Management*, 5(1), 78-85.
- Levy, C., Lamarre, E. & Twining, J., 2010. *Taking control of organisational risk culture*, McKinsey & Company.
- Licandro, O., Burguete, J.L.V., Ortigueira-Sánchez, L.C. & Correa, P., 2024. Corporate Social Responsibility and Financial Performance: A Relationship Mediated by Stakeholder Satisfaction. *Administrative Sciences*, 14(1), p.15.
- Li, W., Chien, F., Hsu, C.C., Zhang, Y., Nawaz, M.A., Iqbal, S. and Mohsin, M., 2021. Nexus between energy poverty and energy efficiency: estimating the long-run dynamics. *Resources Policy*, 72, p.102063.
- Lin, T.C., 2018. Incorporating social activism. *BUL Rev.*, 98, p.1535.

- Lipton, A., Rose, D. & Katz, U., 2015. Risk Management and the Board of Directors, Retrieved from <https://corpgov.law.harvard.edu/2018/03/20/risk-management-and-the-board-of-directors-5/>
- Liu, G., Zeng, Q., & Lei, J., 2022. Dynamic risks from climate policy uncertainty: A case study for the natural gas market. *Resources Policy*.
- Locke, K. & Golden-Biddle, D., 2002. An introduction to qualitative research: Its potential for industrial and organizational psychology. In S. Goldberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp. 99–118). Oxford, UK: Blackwell.
- Lunenburg, F.C., 2010. 'The decision-making process,' *National Forum of Educational Administration & Supervision Journal*, vol. 27, no. 4.
- Ma, Y., Yang, J., Feng, P., & Zhang, C., 2020. The challenges and key technology of drilling safety in the area of the arctic. *Springer Series in Geomechanics and Geoengineering*, 522–532. https://doi.org/10.1007/978-981-13-7127-1_48
- Malaysian Code on Corporate Governance, 2017. Kuala Lumpur: Securities Commission, Retrieved from <https://www.sc.com.my/api/documentms/download.ashx?id=4d1f5610-cf41-455c-9c20-21fa4c310f46>
- Maditinos, D.I., Šević, Ž. & Theriou, N.G., 2007. Investors' behaviour in the Athens Stock Exchange (ASE). *Studies in economics and Finance*, 24(1), pp.32-50.
- Madden, T.J., Fehle, F. & Fournier, S., 2006. Brands matter: An empirical demonstration of the creation of shareholder value through branding. *Journal of the Academy of Marketing Science*, 34(2), pp.224-235.
- Malaysiakini, 2025. 'Strengthening regional cooperation: Highlights of the 25th SOMTC Meeting and Its Related Meetings in Putrajaya'. Retrieved from <https://www.malaysiakini.com/announcement/747570>.
- Malaysia Energy Statistics Worldometer, 2020. Malaysia oil, Retrieved from <https://www.worldometers.info/oil/malaysia-oil/#oil-reserves>
- Malay Mail, 2020. 'Year-end roundup 2019: tax revenue remains a 'catch-up' game for boosting govt coffers in Malaysia, Retrieved from <https://www.malaymail.com/news/malaysia/2019/12/16/tax-revenue-remains-a-catch-up-game-in-boosting->

- Mango, D., 2007. An Introduction to insurer strategic risk topic 1: risk management of an insurance enterprise. *Enterprise Risk Analysis*, Guy Carpenter & Company, 200, pp.144-172.
- Maqtan, R., Othman, F., Wan Jaafar, W.Z, 2022. A scoping review of flash floods in Malaysia: current status and the way forward. *Nat Hazards* 114, 2387–2416 (2022). <https://doi.org/10.1007/s11069-022-05486-6>
- March, J. G., 2010. Primer on decision making: How decisions happen. New York, NY: Simon & Schuster.
- Market Realist, 2014. BP lost 55% shareholder value after the Deepwater Horizon incident. Retrieved from <https://finance.yahoo.com/news/bp-lost-55-shareholder-value-225105539>.
- Marr, B., 2008. ‘Making the invisible visible: identifying the enablers of future value,’ *Journal of Accountancy*, vol. 206, no. 3, p. 64.
- Mauboussin, M.J., 2011. What shareholder value is really about. *Harvard Business Review*. Retrieved from <https://hbr.org/2011/10/ceos-must-understand-what-crea>.
- McGahan A.M., 2021. Integrating insights from the resource-based view of the firm into the new stakeholder theory. *Journal of Management* 47: 987282.
- McGrath, R. G., 2013. Competition for the Future: How Innovation Can Make the Future Stronger. Harvard Business Review Press.
- McKinsey & Company, 2024. Global Energy Perspective 2023: Oil outlook. Retrieved from <https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2023-oil-outlook>
- McNally, J.S., 2013. The 2013 COSO framework & SOX compliance, p. 9.
- Md. Sum, R., 2013. ‘Risk management decision making, *Proceedings of International Symposium of Analytic Hierarchy Process*’. Retrieved from <https://scholar.google.com.my/citations?user=oD6wbfYAAAAJ&hl=en>
- Meredith, J., 1998. Building operations management theory through case and field research. *Journal of Operations Management*, 16, 441–454.

- Merriam, S. B., 1998. *Qualitative Research and Case Study Applications in Education*.
Revised and Expanded from “Case Study Research in Education”: ERIC.
- Merton R.C., 2005. You have more capital than you think. *Harvard Business Review* 83(11), 84-94.
- Meyer, T. & Reniers, G., 2013. *Engineering risk management*, Retrieved from <https://www.degruyter.com/document/doi/10.1515/9783110285161/html?lang=en>
- Mfinanga, F.A., Mrosso, R.M. & Bishibura, S., 2019. ‘Comparing case study and grounded theory as qualitative research approaches,’ *Focus*, vol. 2, no. 5, pp. 51-56
- Mikes, A., 2008. ‘Chief risk officers at crunch time: compliance champions or business partners?,’ *Journal of Risk Management in Financial Institutions*, vol. 2, no. 1, pp. 7-25.
- Mikes, A. & Kaplan, R.S., 2014. October. Towards a contingency theory of enterprise risk management. AAA.
- Mikes, A., Oyon, D. & Jeitziner, J., 2016. ‘Risk management: towards a behavioral perspective, Retrieved from https://www.researchgate.net/publication/304783773_Risk_management_Towards_a_behavioral_perspective
- Ministry of Finance Malaysia, 2023. Fiscal Updates 2023
<https://www.mof.gov.my/portal/pdf/ekonomi/ringkasan-fiskal/2023/fiscal-updates-2023.pdf>
- Ministry of Finance Malaysia, 2024. S&P Global And Fitch Ratings Reaffirm Malaysia’s Sovereign Credit Ratings, Stable Outlook.
<https://www.mof.gov.my/portal/en/news/press-release/s-p-global-and-fitch-ratings-reaffirm-malaysias-sovereign-credit-ratings-stable-outlook>
- Mitchell, S.L., Packard, M.D. & Clark, B.B., 2023. ‘Good governance, bad governance: a refinement and application of key governance concepts,’ *International Journal of Business Governance and Ethics*, vol. 17, no. 4, pp. 471-494.
- Mitnick, B.M., 2019. Origin of the theory of agency: an account by one of the theory's originators. *Available at SSRN 1020378*.
- Muigua, P.D., 2022. ‘Embracing environmental, social and governance (ESG) Principles

- for sustainable development in Kenya,' *Journal of Conflict Management & Sustainable Development*, vol. 9, no. 2, pp. 1-28.
- Munteanu, V., Danaita, D., Hurbean, L. & Bergler, A., 2012. November. The value-based management approach: From the shareholder value to the stakeholder value. In *Proceedings of the INTERNATIONAL MANAGEMENT CONFERENCE. 6 (2012)* (pp. 39-44).
- Mocsary, G., 2013. The Future of Shareholder Wealth Maximization. *LoLa Liberty, Editor*.
- Moeller, R.R., 2011. '*COSO enterprise risk management: establishing effective governance, risk, and compliance processes*,' New Jersey: John Wiley & Sons, Inc.
- Mohamad Nor, M.N. & Ishak, S., 2017. Corporate governance and risk management in Malaysia, *8th International Conference of the Asian Academy of Applied Business (Aaab) 2017*. Retrieved from https://www.researchgate.net/publication/322355517_CORPORATE_GOVERNANCE_AND_RISK_MANAGEMENT_IN_MALAYSIA/link/5a558a2e45851547b1bd6fd1/download
- Mohd Tobi, D.S,U., 2019. *Qualitative research, interview analysis with NVivo 12*, Rezqi Publication, Shah Alam, Selangor.
- Monahan, G., 2008. *Enterprise risk management: a methodology for achieving strategic objectives*, Hoboken: John Wiley & Sons.
- Moon, M.D., 2019. Triangulation: A method to increase validity, reliability, and legitimation in clinical research. *Journal of emergency nursing*, 45(1), pp.103-105.
- Näsi, J., 1995b. What is stakeholder thinking? A snapshot of social theory of the firm. In J. Näsi (Ed.), *Understanding stakeholder thinking* (pp. 19–32). Helsinki: LSR Julkaisut Oy.
- Natale, A., Poppensieker, T. & Thun, M., 2022. Risk & resilience practice: from risk management to strategic resilience, *The McKinsey Quarterly*.
- Negi, A. & Kumar, A., 2018, April. Long-term electricity demand scenarios for India:

- implications of energy efficiency. In *2018 International Conference on Power Energy, Environment and Intelligent Control (PEEIC)* (pp. 462-467). IEEE.
- New Straits Times, 2023. Netizens rejoice over Malaysia Airlines and Brahim's divorce, Malaysia General Business Sports and Lifestyle News, Retrieved from nst.com.my
- New Straits Times, 2024. 4 sectors driving the Malaysian economy. Retrieved from <https://api.nst.com.my/business/2024/07/1077718/4-sectors-driving-malaysian-economy>
- Njie, B. & Asimiran, S., 2014. Case study as a choice in qualitative methodology. *Journal of research & method in Education*, 4(3), pp.35-40.
- Noble, H. & Smith, J., 2015. 'Issues of validity and reliability in qualitative research', *Evidence Based Nursing*, vol. 18, no. 2, pp. 34-35.
- Nocco, B.W. & Stulz, R.M., 2006. 'Enterprise risk management: theory and practice. *Journal of Applied Corporate Finance*, vol. 18, no. 4, pp. 8-20.
- Novoa, A., Shackleton, R., Canavan, S., Cybele, C., Davies, S.J., Dehnen-Schmutz, K., Fried, J., Gaertner, M., Geerts, S., Griffiths, C.L., Kaplan, H., Kumschick, S., Le Maitre, D.C., Measey, G.J., Nunes, A.L., Richardson, D.M., Robinson, T.B., Touza, J. & Wilson, J.R.U., 2018. A framework for engaging stakeholders on the management of alien species. *Journal of Environmental Management*, 205, 286–297
- Nwajei, U.O.K., Bølviken, T. & Hellström, M.M., 2022. Overcoming the principal-agent problem: The need for alignment of tools and methods in collaborative project delivery. *International Journal of Project Management*, 40(7), pp.750-762.
- OECD, 1999. *OECD Principles of Corporate Governance*, Paris: OECD Publishing.
- Oliveira, A., 2007. A discussion of rational and psychological decision-making theories and models: The search for a cultural, ethical decision-making model, *Electronic Journal of Business Ethics and Organization Studies*, Vol. 12, No. 2, pp. 12–17
- Olson, D.L. & Wu, D.D., 2010. 'A review of enterprise risk management in supply chain,' *Kybernetes*, vol. 39, no. 5, pp. 694-706.
- Omer, M.A. & Noguchi, T., 2020. A conceptual framework for understanding the

- contribution of building materials in the achievement of Sustainable Development Goals (SDGs). *Sustainable Cities and Society*, 52, p.101869.
- Palacios-Alfonso, Y.C., 2018. 'A blueprint for research success: review of introduction to community oral history,' *The Qualitative Report*, vol. 23, no. 2, p. 502.
- Panda, B. & Leepsa, N.M., 2017. Agency theory: Review of theory and evidence on problems and perspectives. *Indian journal of corporate governance*, 10(1), pp.74-95.
- Panigrahi, S.K. & Azizan, A., 2014. Comparing Traditional and Economic Performance Measures for Creating Shareholder" s Value: a Perspective from Malaysia. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4(4), pp.280-289.
- Paraschivescu, A.O., 2016. 'The advantages of the process of integrating quality management system,' *Economy Transdisciplinarity Cognition*, vol. 19, no. 2, p. 48.
- Parker, D. W., Dressel, U., Chevers, D., & Zeppetella, L., 2018. Agency theory perspective on public-private-partnerships: International development project. *International Journal of Productivity and Performance Management*. Retrieved from <https://doi.org/10.1108/IJPPM-09-2016-0191>
- Payne, G.T. & Petrenko, O.V., 2019. Agency theory in business and management research. In *Oxford research encyclopedia of business and management*.
- Pedrini, M. & Ferri, L. M., 2019. Stakeholder management: A systematic literature review. *Corporate Governance*, 19(1), 44-59. Retrieved from <https://doi.org/10.1108/CG-08-2017-0172>
- Petravičius, T. & Tamošiūniene, R., 2008. Corporate performance and the measures of value added, *Transport*, vol. 23, no. 3, pp.194-201.
- Petronas, 2019. Petronas Annual Report 2019, Retrieved from <https://www.petronas.com/sites/default/files/uploads/content/2022/PETRONAS-Annual%20Report-2019-v2.pdf>
- Phillips, R., Freeman, R. E. & Wicks, A. C., 2019. What stakeholder theory is not. *Business Ethics Quarterly*, 13(4), 479-502. Retrieved from

<https://doi.org/10.2307/3857968>

- Pillay, M. & Jefferies, M.C., 2015. 'A revised framework for managing construction health and safety risks based on ISO 31000,' *Proceedings CIB W099 Belfast 2015*, p. 468.
- PricewaterhouseCoopers, 2015. Oil and gas in Malaysia: Exploring growth in a dynamic marketplace. Retrieved from <https://www.pwc.com/my/en/publications/2015-oil-n-gas-in-msia-overview.html#:~:text=This%20document%20discusses%20some%20of%20the%20emerging%20themes,oil%20prices%20and%20the%20impact%20of%20emerging%20markets>.
- Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press.
- Power, M., 2007. *Organized uncertainty: designing a world of risk management*, Oxford; New York: Oxford University Press.
- Power, M., 2009. 'The risk management of nothing,' *Accounting, Organizations and Society*, vol. 34, no. 6-7, pp. 849-855.
- Pratt, MG, & Bonaccio, S 2016, Qualitative research in IO psychology: Maps, myths, and moving forward. *Industrial and Organizational Psychology*, 9(4), pp.693-715.
- PwC Publication, 2015. Oil and gas in Malaysia: exploring growth in a dynamic marketplace.
- Quintão, C., Andrade, P. & Almeida, F., 2020. How to improve the validity and reliability of a case study approach?. *Journal of Interdisciplinary Studies in Education*, 9(2), pp.264-275.
- Radner, R. & Shepp, L., 1996. Risk vs. profit potential: A model for corporate strategy. *Journal of economic dynamics and Control*, 20(8), pp.1373-1393
- Raja Ahmad, R.A., Zakaria, N.B., Yunus, R., Ahmad, S.A. & Abdullah, N., 2016. 'Risk management and internal control disclosure among Malaysian listed issuers,' *Malaysian Accounting Review*, vol. 15, pp. 297-313.
- Rappaport, A., 1986. *Creating shareholder value: the new standard for business*

- performance*, Free press.
- Rappaport, A. (1998). *Creating shareholder value: A guide for managers and investors* (2nd ed.). New York: The Free Press.
- Rappaport, A., 2006. 'Ten ways to create shareholder value,' *Harvard Business Review*, vol. September, pp. 66–78.
- Rashid, Y., Rashid, A., Warraich, M.A., Sabir, S.S. & Waseem, A., 2019. Case study method: A step-by-step guide for business researchers. *International journal of qualitative methods*, 18, p.1609406919862424.
- Razak, S.E.A., Mustapha, M., Shah, S.M. & Kasim, N.A.A., 2024. Sustainability risk management: Are Malaysian companies ready?. *Heliyon*, 10(3).
- Retail SEE Group, 2022. The World's Top 10 Most Valuable Brands in 2022. Retrieved from <https://retailsee.com/the-worlds-top-10-most-valuable-brands-in-2022/>
- Renn, O., Blättel-Mink, B. & Kastenholz, H., 1997. Discursive methods in environmental decision making. *Business strategy and the environment*, 6(4), pp.218-231.
- Rhenman, E., 1968. *Industrial democracy and industrial management*. London, UK: Tavistock.
- Ricardianto, P., Lembang, A., Tatiana, Y., Ruminda, M., Kholdun, A., Kusuma, I., Sembiring, H., Sudewo, G., Suryani, D. & Endri, E., 2023. 'Enterprise risk management and business strategy on firm performance: the role of mediating competitive advantage,' *Uncertain Supply Chain Management*, vol. 11, no. 1, pp. 249-260.
- Riessman, C.K., 2008. *Narrative methods for the human sciences*, Thousand Oaks, CA: SAGE.
- Riessman, C.K. & Quinney L., 2005. 'Narrative in social work: a critical review,' *Qualitative Social Work*, vol. 4, no. 4, pp. 391–412.
- Roald, G.M., Schruijer, S. & Neergård, G.B., 2024. The Researcher's Facilitating Role in Stimulating a Constructive Group Climate in Online Focus-Group Interviews. *Qualitative Inquiry*, p.10778004241260656.
- Rose, S., Spinks, N. & Canhoto, A., 2014. *Management research: applying the*

principles, Routledge.

Rose-Ackerman, 1978. *Corruption: A Study in Political Economy*. New York: Academic Press.

Ross, S.A., 1973. The economic theory of agency: The principal's problem. *The American economic review*, 63(2), pp.134-139.

Ross, L. & Nisbett, R.E., 1991. *The Person and the Situation* New York, MA.

Rubino, M., 2018. 'A comparison of the main ERM frameworks: how limitations and weaknesses can be overcome implementing IT governance,' *International Journal of Business and Management*, vol. 13, no. 12, pp. 203-214.

Saeed, S., 2025. The crises in the Middle East: reshaping the region's geopolitical landscape and altering the global order. *Asian Review of Political Economy*, 4(1), pp.1-14.

Sajjad, A., Eweje, G. & Tappin, D., 2020. Managerial perspectives on drivers for and barriers to sustainable supply chain management implementation: Evidence from New Zealand. *Business Strategy and the Environment*, 29(2), pp.592-604.

Saldana, J.M., 2015. *The coding manual for qualitative researchers (3rd ed.)*, SAGE Publications.

Sarah, C., Kathrin, C., Ann, R., Guro, H., Anthony, A. & Aziz, S., 2011. The case study approach. *BMC Research Medical Methodology*, 11(1), p.100. (Sarah Crowe; Kathrin Cresswell; Ann Robertson; Guro Huby; Anthony Avery and Aziz Sheikh)

Saudi, N.S.M., Tsen, W.H., Murshidi, M.H., Harun, A.L. & Saayah, A., 2019. The impact of crude oil, natural gas and Liquefied Natural Gas (LNG) prices on Malaysia GDP: Empirical evidence using ARDL bound testing approach. *International Journal of Academic Research in Business and Social Sciences*, 9(6), pp.988-1001.

Saunders, M., Lewis, P. & Thornhill, A., 2009. 'Understanding research philosophies and approaches,' *Research methods for business students*, vol. 4, no. 1, pp. 106-135.

Saunders, M., Lewis, P. & Thornhill, A., 2012. *Research methods for business students*

- (6th ed.), Pearson Education Limited.
- Schein, E.H., 1983. 'The role of the founder in creating organisational culture,' *Organisational Dynamics*, vol. 12, no. 1, pp. 13-28.
- Schiller, F. & Prpich, G., 2014. 'Learning to organise risk managements in organizations: What future for enterprise risk management?,' *Journal of Risk Research*, vol. 17, pp. 999-1017.
- Schleifer, A. & Vishny, R.W., 1986. Large shareholders and corporate control. *Journal of Political Economy*, 94(3), 461-488
- Schoemaker, P. J., & Tetlock, P. E., 2017. Building a more intelligent enterprise. MIT Sloan Management Review, 58(3), 28-36.
- Schoenfeld, A.H., 2010. *How we think: a theory of goal-oriented decision making and its educational applications*, Routledge.
- Schönherr, S., Eller, R., Kallmuenzer, A. & Peters, M., 2023. 'Organisational learning and sustainable tourism: the enabling role of digital transformation,' *Journal of Knowledge Management*, vol. 27, no. 11, pp. 82-100.
- Schormair, M. J., & Gilbert, D. U., 2021. Creating value by sharing values: Managing stakeholder value conflict in the face of pluralism through discursive justification. *Business Ethics Quarterly*, 31, 1–36
- Scott, S.G. & Bruce, R.A., 1995. Decision-making style: The development and assessment of a new measure. *Educational and psychological measurement*, 55(5), pp.818-831.
- Senkus, P., Glabiszewski, W., Wysokinska-Senkus, A. & Panka, A 2021, 'Process definitions-critical literature review,' *European Research Studies Journal*, *European Research Studies Journal*, vol. 3, pp. 241-255.
- Sent, E.M., 2017. Rationality and bounded rationality: You can't have one without the other, *The European Journal of the History of Economic Thought*, Vol. 25, No. 6, pp. 1370-1386
- Settembre-Blundo, D., González-Sánchez, R., Medina-Salgado, S. & García-Muiña, F.E., 2021. Flexibility and resilience in corporate decision making: a new sustainability-based risk management system in uncertain times. *Global Journal*

- of Flexible Systems Management*, 22(Suppl 2), pp.107-132.
- Shad, M.K., Lai, F.W., Fatt, C.L., Klemeš, J.J. & Bokhari, A., 2019. Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *Journal of Cleaner production*, 208, pp.415-425.
- Shafi, H., Akram, M., Hussain, M., Sajjad, S.I. & Rehman, K.U., 2011. Relationship between risk perception and employee investment behavior.
- Shah, J., 2009. 'Supply chain risk management: academic perspective,' *IIMB Management Review*, vol. 21, no. 2, pp. 149-15.
- Shah, S.Q.A., Lai, F.W., Shad, M.K. & Jan, A.A., 2022. Developing a green governance framework for the performance enhancement of the oil and gas industry. *Sustainability*, 14(7), p.3735. NIGERIA. EDITORIAL BOARD.
- Shakatreh, M., Rumman, M.A.A, & Mugableh, M.I 2023, 'Reviewing the framework of risk management: policy and hedging,' *International Journal of Professional Business Review*, vol. 8, no. 1, p. 7.
- Sharpe, W. F., 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, 19(3), 425-442.
- Shatina, S., 2016. Dynamic supply chain capabilities: a case of oil and gas industry in Malaysia (Doctoral dissertation, Doctoral dissertation, Universiti Utara Malaysia).
- Simon, H. A., 1982, Models of bounded rationality, Cambridge, Massachusetts, MIT Press
- Statler, M., 2014. Developing wisdom in a business school? Critical reflections on pedagogical practice. *Management Learning*, 45(4): 397–417.
- Sheedy, E. & Canestrari-Soh, D.S., 2023. 'Does executive accountability enhance risk management and risk culture?' *Accounting & Finance*.
<https://doi.org/10.1111/acfi.13087>
- Shefrin, H., 2016. Behavioral risk management: Managing the psychology that drives decisions and influences operational risk. New York: Palgrave Macmillan.
- Shmatkova, N. & Karminska-Bielobrova, M., 2023. Management decision-making

under risk and uncertainty. *Strategii si politici de management in economia contemporana*.

- Simon, H. A., 1982. Models of bounded rationality, Cambridge, Massachusetts, MIT Press
- Singh, V. & Singh, P., 2021. 'A comprehensive analysis on managing business goals and objectives,' *Journal of Management and Service Science*, vol. 1, no. 1, pp.1-6.
- Sinnaiah, T., Adam, S. & Mahadi, B., 2023. "A strategic management process: the role of decision-making style and organisational performance."
- Skjong, R. & Wentworth, B.H., 2001. Expert judgment and risk perception. In *the eleventh international offshore and polar engineering conference*, OnePetro.
- Slovic, P., Peters, E., Finucane, M.L. & MacGregor, D.G., 2005. Affect, risk, and decision making. *Health psychology*, 24(4S), p.S35.
- Smith, A., 1937. *The wealth of nations [1776]* (Vol. 11937). na.
- Smith, K.G., Collins, C.J. & Clark, K.D., 2005. Existing knowledge, knowledge creation capability, and the rate of new product introduction in high-technology firms. *Academy of management Journal*, 48(2), pp.346-357.
- S&P Global Commodity Insights, 2023. PETRONAS announces exit from South Sudan as the NOC evaluates its international upstream portfolio. *S&P Global*. Retrieved from <https://www.spglobal.com/commodityinsights/en/ci/research-analysis/petronas-announces-exit-from-south-sudan-noc-evaluates-portfolio.html>
- Soin, K. & Collier, P., 2013. 'Risk and risk management in management accounting and control,' *Management Accounting Research*, vol. 24, no. 2, pp. 82-87.
- Šotić, A. & Rajić, R., 2015. The review of the definition of risk. *Online Journal of Applied Knowledge Management*, 3(3), pp.17-26.
- Spivey, M.F. & McMillan, J.J., 2001. Economic Value Added (EVA) and the valuation of small businesses. *New England Journal of Entrepreneurship*, 4(2), p.33.
- Stake, R. E., 1995. The art of case study research. Thousand Oaks, CA: Sage.
- Stapleton, K. & Wilson, J 2017, 'Telling the story: meaning-making in a community narrative,' *Journal of Pragmatics*, vol. 108, no. 1, pp. 60-80.

- Statista, 2023. Average annual Brent crude oil price from 1976 to 2023, Retrieved from <https://www.statista.com/statistics/262860/uk-brent-crude-oil-price-changes-since-1976/>
- Statista, 2024. Leading Oil and Gas Companies Worldwide Based on Revenue up to 4 July 2024, Retrieved from <https://www.statista.com/statistics/272710/top-10-oil-and-gas-companies-worldwide-based-on-revenue/>
- Stewart, G. B., 1991. *The quest for value: A guide for senior managers* (1st ed.). Harper Collins: HarperCollins Publishers.
- Strauss, A., 1987. *Qualitative analysis for social scientists*. New York: Cambridge University Press.
- Stulz, R.M., 2008. Rethinking risk management, In *Corporate Risk Management* (pp. 87-120), Columbia University Press.
- Sulasi, S.B., 2021. Malaysia oil and gas industry: The impact of enterprise risk management implementation framework on business resilience.
- Suri, H., 2011. Purposeful sampling in qualitative research synthesis. *Qualitative research journal*, 11(2), pp.63-75.
- Taiwo, A.C., Festus, A.F. & Ajao, O.S., 2022. FIRMS' ATTRIBUTES AND FINANCIAL PERFORMANCE OF QUOTED COMPANIES: EVIDENCE FROM NIGERIA. *EDITORIAL BOARD*.
- Taleb, N.N., 2007. 'Black swans and the domains of statistics,' *The American Statistician*, vol. 61, no. 3, pp. 198-200.
- Tams, C., & Gentile, M. C., 2020. Giving voice to values: Responsible management as facilitation of ethical voice. Cheltenham: Edward Elgar Publishing.
- Taran, Y., Boer, H. & Lindgren, P., 2013. 'Incorporating enterprise risk management in the business model innovation process,' *Journal of Business Models*, vol. 1, no. 1.
- Testorelli, R., Tiso, A., & Verbano, C., 2024. "Value Creation with Project Risk Management: A Holistic Framework." *Sustainability*, 16(2), 753
- The Conversation, 2020. BP paid a steep price for the Gulf oil spill but for the US a decade later, it's business as usual. Retrieved from <https://theconversation.com/bp-paid-a-steep-price-for-the-gulf-oil-spill-but-for->

the-us-a-decade-later-its-business-as-usual-136905

The Edge Malaysia, 2020. Five dead from Pengerang incident, investigations ongoing.

Retrieved from <https://theedgemalaysia.com/article/five-dead-pengerang-incident-investigations-ongoing>

The Edge Malaysia, 2017. South Sudan rebels demand Petronas consortium's exit.

Retrieved from <https://theedgemalaysia.com/article/south-sudan-rebels-say-seize-four-oil-workers-demand-firms-exit>

The National Affordable Homes Agency 2008, *Risk management strategy*, London: Housing Corporation.

The Star, 2023. GST could add RM25bil to govt revenue, says Ahmad Maslan.

Retrieved from <https://www.thestar.com.my/news/nation/2023/03/09/gst-could-add-rm25bil-to-govt-revenue-says-ahmad-maslan>

The Straits Times, 2021. Malaysia's Petronas delays Pengerang restart, sees challenging year. Retrieved from <https://www.straitstimes.com/asia/se-asia/malaysias-petronas-delays-pengerang-restart-sees-challenging-year>

The US Energy Information Administration data, 2021. Country Analysis Executive Summary: Malaysia. Retrieved from <https://www.eia.gov/international/analysis/country/MYS>

The US Energy Information Administration data, 2022. Today in energy. Retrieved from <https://www.eia.gov/todayinenergy/archive.php?my=Feb2022>

The US Energy Information Administration data, 2024. Today in energy. Retrieved from <https://www.eia.gov/> (accessed on 21 July 2024)

Tiessen, P. & Waterhouse, J.H., 1983. Towards a descriptive theory of Management accounting. *Accounting, Organizations and Society* 8(2-3): 251-267.

Tihanyi, L. Graffin, S. & George, G., 2014. 'Rethinking governance in management research', *Academy of Management Journal*, vol. 57, no. 6, pp. 1535–1543.

Tillema, S., Trapp, R. & van Veen-Dirks, P., 2022. Business partnering in risk management: a resilience perspective on management accountants' responses to a role change. *Contemporary Accounting Research*, 39(3), pp.2058-2089.

Todos, I. & Zarişneac, N., 2015. 'Efficient management of the entrepreneurial risk by

- implementing risk management ISO 31000: 2009,' *Journal of Danubian Studies and Research*, vol. 5, no. 1.
- Trifan, A. & Suciuc, G., 2015. Analysing performance through value creation. *Bulletin of the Transilvania University of Brasov. Series V: Economic Sciences*, pp.319-326.
- Turner, K. & Keetelaar, D., 2005, Risk management guide for small businesses, Risk Management Institute of Australia, Australia, pp. 1–68, viewed 06 September 2014, from <http://www.significanceinternational.com/Portals/0/Documents/2005-smerisk-management-guide-global-risk-alliance-nsw-dsrd.pdf>
- Tversky, A., Kahneman, D., 1974. Judgment under uncertainty: Heuristics and biases. *Science* 185, 1124–1131.
- United Nations Office on Drugs and Crime (UNODC), 2021. 'ASEAN adopts a ground-breaking agreement on border management', *UNODC Regional Office for Southeast Asia and the Pacific*, 28 October. Retrieved from <https://www.unodc.org/roseap/en/2021/10/asean-border-management/story.html>
- Uzonwanne, F.C., 2016. Rational model of decision making, *In Global Encyclopedia of Public Administration, Public Policy, and Governance*, New York, Springer, pp. 1-6
- Vancouver Sun, 2017. Petronas cancels \$11.4-billion LNG project near Prince Rupert. Retrieved from <https://vancouver.sun.com/news/local-news/petronas-cancels-11-4-billion-lng-project-near-prince-rupert>
- Van Der Vegt, G.S., Essens, P., Wahlström, M. & George, G., 2015. 'Managing risk and resilience,' *Academy of Management Journal*, vol. 58, no. 4, pp. 971-980.
- Veltsos, C., 2017. Understanding the COSO 2017 enterprise risk management framework, Part 1: An introduction. *Security Intelligence*. Retrieved from <https://www.pwc.com/us/en/services/consulting/cybersecurity-risk-regulatory/coso-erm-framework.html>
- Viglia, G., Pera, R., & Bigné, E., 2018. The determinants of stakeholder engagement in digital platforms. *Journal of Business Research*, 89, 404–410.
- Virlics, A., 2013. 'Investment decision making and risk,' *Procedia Economics and Finance*, vol. 6, pp. 169-177.

- Viscelli, T.R., Beasley, M.S. & Hermanson, D.R., 2016. 'Research insights about risk governance: Implications from a review of ERM research'. *Sage Open*, vol. 6, no. 4.
- Voss, C., Tsikriktsis, N., & Frohlich, M., 2002. Case research in operations management. *International journal of operations & production management*, 22, 195–219.
- Wang, L., Ang, L.H. & Halim, H.A., 2020. 'A systematic literature review of narrative analysis in recent translation studies,' *Pertanika Journal of Social Sciences & Humanities*, vol. 28, no. 1.
- Waxenberger, B. & Spence, L., 2003. Reinterpretation of a Metaphor: From Stakes to Claims. *Strategic Change*, 12(5), 239-249. <https://doi.org/10.1002/jsc.634>
- Weibel, A., Sachs, S., Schafheitle, S. D., Laude, D. & Liedtke, C., 2020. Stakeholder distrust—A construct in need for better understanding. *Academy of Management Proceedings*, 2020, 16588.
- Whitten S.M., Hertzler G. & Strunz S., 2012. 'How real options and ecological resilience thinking can assist in environmental risk management,' *Journal of Risk Research*, vol. 15, no. 3, pp. 331–346.
- Williams, C., 2019. Traditional vs. ERM – going beyond one-dimensional risk assessment [podcast], ERM Insights by Carol, Retrieved from https://blubrry.com/erm_insights_by_carol/
- Wimpenny, P. & Gass, J., 2000. 'Interviewing in phenomenology and grounded theory: is there a difference?', *Journal of Advanced Nursing*, vol. 31, no. 6, pp. 1485-1492.
- Wu, D. & Olson D.L., 2010. 'Enterprise risk management: coping with model risk in a large bank,' *Journal of the Operational Research Society*, vol. 61, no. 2, pp.179-190.
- Woods, R.B., 2023. Beyond Traditional Risk Management: Integrating Horizon Scanning and Strategic Risk Prioritization. *2022 Editorial Board*, p.209.
- Woiceshyn, J. & Daellenbach, U., 2018. 'Evaluating inductive vs deductive research in management studies: implications for authors, editors, and reviewers,'

Qualitative Research in Organisations and Management: An International Journal, vol. 13, no. 2, pp. 183-195.

- Worthington, W.J., Collins, J.D. & Hitt, M.A., 2009. 'Beyond risk mitigation: Enhancing corporate innovation with scenario planning,' *Business horizons*, vol. 52, no. 5, pp. 441-450.
- Yadav, S., 2021. Agency Theory and Internationalization: A Critical Assessment of Literature.
- Yam, R.C.M., Guan, J.C., Pun, K.F. & Tang, E.P.Y., 2004. An audit of technological innovation capabilities in Chinese firms: Some empirical findings in Beijing, China. *Research Policy*, 33(8), 1123–1140. doi:10.1016/j.respol.2004.05.004.
- Yang, Y., Liu, Z., Saydaliev, H. B. & Iqbal, S., 2022. Economic impact of crude oil supply disruption on social welfare losses and strategic petroleum reserves. *Resources Policy*.
- Yang, J., Rizvi, S. K. A., Tan, Z., Umar, M., & Koondhar, M. A., 2021. The competing role of natural gas and oil as fossil fuel and the non-linear dynamics of resource curse in Russia. *Resources Policy*.
- Yap, R.K.M., 2021. *The role of corporate governance to foreign direct investments on emerging countries in Southeast Asia*, Doctoral thesis, University of Wales Trinity Saint David, Retrieved from <https://repository.uwtsd.ac.uk/id/eprint/1804/>
- Yazo-Cabuya, E.J., Ibeas, A. & Herrera-Cuartas, J.A., 2024. Integrating Sustainability into Risk Management through Analytical Network Process. *Sustainability*, 16(6), p.2384.
- Yazdi, M., Khan, F., Abbassi, R. & Rusli, R., 2020. Improved DEMATEL methodology for effective safety management decision-making. *Safety science*, 127, p.104705.
- Yeboah, A., 2023. Knowledge sharing in organization: A systematic review. *Cogent business & management*, 10(1), p.2195027.
- Yeong, M.L., Ismail, R., Ismail, N.H. & Hamzah, M.I., 2018. 'Interview protocol refinement: fine-tuning qualitative research interview questions for multiracial populations in Malaysia', *The Qualitative Report*, vol. 23, no. 11, p. 16.

- Yin, R., 1984/1994. *Case Study Research: Design and Methods*. Sage ed. London: Thousand Oaks.
- Yin, R. K., 2003. *Case study research design and methods*. Thousand. Thousand Oaks, CA: Sage.
- Yin, R. K., 2004. *The case study anthology*. Thousand Oaks: Sage Publications.
- Yin, R. K., 2009. *Case study research: Design and methods*. 4th ed. Thousand Oaks, CA: Sage.
- Yin, R. K., 2011. *Applications of case study research*. 3rd ed. Thousand Oaks: Sage.
- Yin, R.K., 2011. *Qualitative research from start to finish*, Guilford Press, New York.
- Yin, R.K., 2018. Case study research and applications.
- Yoe, C., 2016. *Primer on risk analysis: decision making under uncertainty*.
- Yu, C., Moslehpour, M., Tran, T.K., Trung, L.M., Ou, J.P. & Tien, N.H., 2023. Impact of non-renewable energy and natural resources on economic recovery: Empirical evidence from selected developing economies. *Resources policy*, 80, p.103221.
- Yu, M. & Zhao, R., 2015. Sustainability and firm valuation: An international investigation. *International Journal of Accounting and Information Management* 23: 289–307.
- Yusof, N.Z.M., 2016. Context matters: a critique of agency theory in corporate governance research in emerging countries. *International Journal of Economics and Financial Issues*, 6(7), pp.154-158.
- Yusoff, I.M., Ramli, A., Alkasirah, N.A.M. & Nasir, N.M., 2018. Exploring the managing of flood disaster: A Malaysian perspective. *Geografia*, 14(3).
- Zajac, E.J. & Goranova, M., 2024. When the principal is the firm's problem: Principal costs and their corporate governance implications. *Academy of Management Review*, (ja), pp.amr-2022.
- Zio, E., 2007. 'An introduction to the basics of reliability and risk analysis, *World Scientific*, vol. 13.
- Zogning, F., 2017. Agency theory: A critical review. *European journal of business and management*, 9(2), pp.1-8.
- Zumente, I. & Bistrova, J., 2021. ESG importance for long-term shareholder value

creation: Literature vs. practice. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), p.127.

APPENDICES

Appendix A: Research Questionnaires and Further Inquiries

Research Question	Further Inquiries on The Research Question
1) How does the organisation adopt and adapt risk management frameworks and implement them into business activities? 2) To what extent is the process being embedded into their business processes, especially in the business decision-making process?	• Is there any risk policy, framework, governance structure and process in place? • Is the risk assessment in the decision-making process needed to be framed in the organisation's policies and standards to enable the process better? • Do risk management activities such as risk assessments embed in business processes, especially business decision-making?
1) How and why would business managers and risk managers view the importance of risk assessment in the decision-making process?	• Why is risk consideration required in business decision-making? • Does risk assessment create value for them and ultimately for the organisation? • How does risk assessment create value for them?

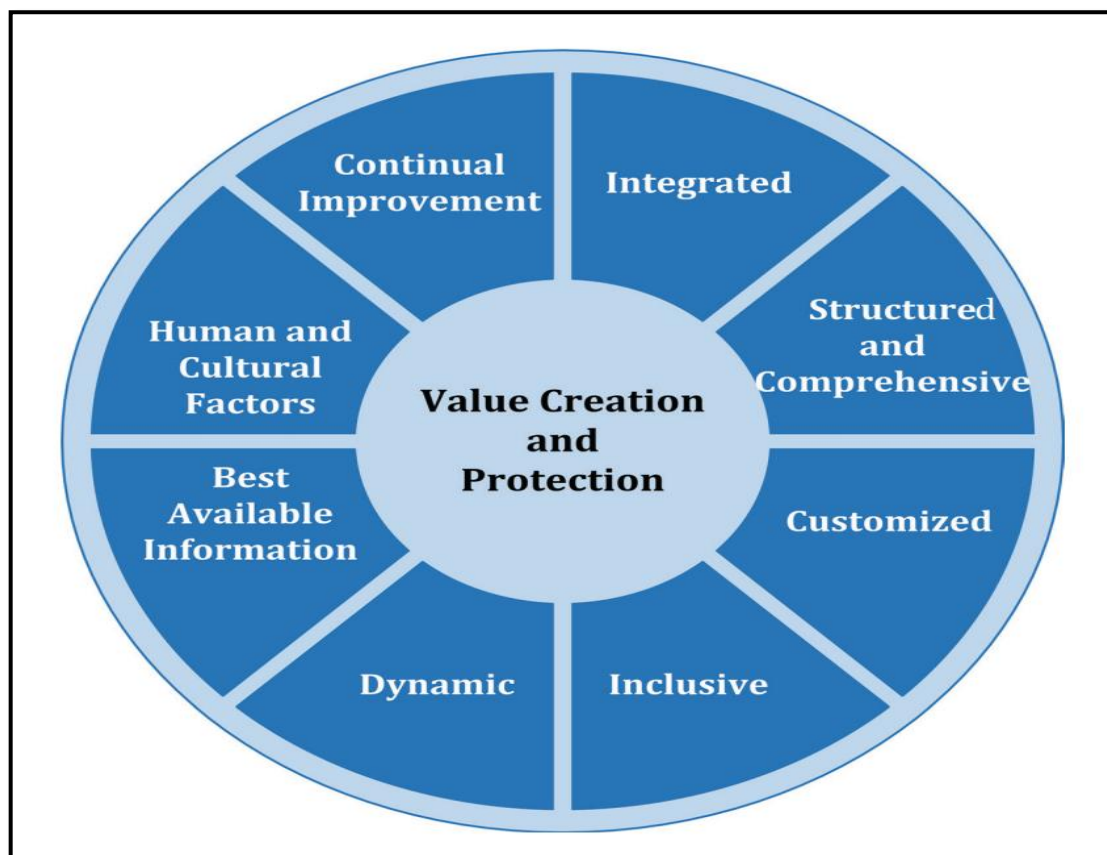
2) How is the level of business acceptance of embedding risk assessment in decision-making? 3) Would this process lead to value creation for their business? 4) How do they define value creation?	• How do they understand the meaning of value creation in their business context? Is there any measurement of value creation in the business or organisation? • Can value protection be considered value creation? • What is the level of business acceptance of embedding risk assessment in decision-making? • What are the challenges faced by businesses in incorporating risk considerations into their decision-making? • What would be the factors that would increase the level of business acceptance? • What would be areas for process improvement to increase the level of value creation?
1) What are the roles of risk management in supporting risk assessment in the business decision-making process? 2) How can we enhance the clarity of the roles and responsibilities of the stakeholders involved?	• Who is involved in the overall process? • Are they clear about their roles and functions in the process? Is segregation of duties and independent checks required? • Do they need an independent risk management structure to govern this process and other risk management processes? • Who is the risk owner? Who is the responsible party to mitigate risk?

3) How can we enhance the quality and support level of business managers?	• What is the level of business and risk knowledge required? • What are the required capability developments for both business and risk managers in contributing value to risk assessment in the decision-making process?
1) What are other enablers to support the incorporation of risk assessment in decision-making process? 2) How can they further shape the culture of embedding risk in their business decision-making process to achieve a pervasive risk culture?	• What are other enablers to support the implementation of risk management in the organisation? • How is the communication of inculcating risk culture cascaded from top to bottom? • Does risk have to be embedded into business and function KPIs? • Do they share business KPIs to ensure full ownership and collaboration commitments? • Is there any tracking, monitoring, following up on mitigation strategies, and reporting done? • Does the complete loop of monitoring risk in investments require? How does an organisation shape its risk culture? • Does top management drive and shape this culture?

Appendix B: Risk Management Principles, Framework and Process

Risk Management Principles

The key fundamentals of ISO 31000 (2018) are driven by its principles, which are outlined in Guidelines Clause 4 as depicted below. The core of ISO 31000 (2018) is still anchored on the risk definition of value creation and protection in view of the business uncertainties that may provide volatility in business opportunities and challenges.



Risk Management Principles
Source: ISO 31000 (2018)

The principles comprise the following:

- 1) **Integrated:** The risk management process is an integral part of all organisational activities, which must always be integrated to ensure seamless connections.

- 2) Structured and comprehensive: an approach to ensure consistency throughout the organisation that allows for comparative analysis of the performance for continuous review and learning processes.
- 3) Customized: ISO 31000 provides a general risk management framework and process that allows users to customise and suit themselves to fit their organisations by assessing their external and internal context in relation to their business objectives and activities.
- 4) Inclusive: Concept or approach of getting all stakeholders involved in the process of risk management for the organisation for their knowledge, understanding, views, ownership, and timely involvement from the start of risk identification to monitoring or reporting the status of the risk for more impactful risk awareness and informed risk management.
- 5) Dynamic: Undertake continuous risk assessment for the organisation as risk can evolve, emerge, vary, or disappear due to external and internal factors. This principle denotes the importance of anticipating, detecting, acknowledging, and responding to the dynamism of risky events in an appropriate and timely manner.
- 6) Best available information: Usual information feed for risk management is based on historical, current information and an estimate or simulation of the future, which is subject to restrictions and uncertainties of the information and projections. Therefore, the information should be made available on a best endeavour basis, in clear time, and to all stakeholders, especially in the process of making business decisions.
- 7) Human and cultural factors: Leadership and risk culture in the organisation play essential roles in steering and shaping risk management implementation and acceptance at all levels throughout the organisation and stage of the business processes. This should also include capability and knowledge management for better understanding, awareness, and acceptance of risk.
- 8) Continual improvement: As part of sustaining the practises in the organisation, the looping process of improvement through lesson learning and experience sharing

is crucial to ensuring best practises within the organisation can be simulated in other parts of the organisation and vice versa.

Risk Management Framework



Risk Management Framework
Source: ISO 31000 (2018)

ISO 31000 introduced a risk management framework with the intent of aiding organisations in integrating and embedding risk management into critical business activities and functions. Without clear integration with critical parts of the organisation, such as governance and business decision-making, the implementation of risk management will be impaired and less effective. Figure above depicts the critical elements or components of business activities that need to be integrated with risk management principles. Support from top management and stakeholders is essential to the development of the framework. Tone for the top will provide a stronger weight in integrating, designing, implementing, evaluating, and improving risk management at every level and across the organisation.

The components of framework are as follows:

- 1) Leadership and commitment: tone from the top and effective oversight bodies in an organisation is important to ensure the integration across all activities and levels in the organisation effectively working. The emphasis that leadership must put forward in managing risk includes, but is not limited to:
- a. Adapt and execute framework components stated in ISO 31000 guidelines;
 - b. Pledge a statement and policy on risk management establishment, implementation, and action plan;
 - c. Make sure the required resources are in place to manage risk, and
 - d. Assign authority, responsibility, and accountability at appropriate levels within the organisation in order to align the risk agenda with its objectives, strategy, and culture; recognise and address all obligations, including voluntary commitments; establish the amount and type of risk that may or may not be taken to guide the development of risk criteria and engage relevant stakeholders; communicate the value of risk management to the organisation and its stakeholders; promote systematic monitoring of risks; and ensure that the risk management framework remains appropriate to the context of the organisation.

The main roles of oversight bodies are overseeing the risk management implementation and practices in the organisation. Expectation from oversight bodies includes the following but limited to:

- a. Make sure risks are sufficiently and appropriately (within the business context) considered in setting up the business objectives of the organisation;
- b. Comprehend and appreciate the risks or exposure that the organisation is subjected to in meeting the set aims and objectives;
- c. Make sure that appropriate systems are in place and operate effectively in managing those risks, and
- d. Outline the requirement that risk information and management are properly cascaded and communicated to relevant stakeholders.

- 2) Integration: As an organisation's set-up may vary according to business sector, structure, market competition, complexity, goals, and strategy, the requirement to embed risk management in every part of the organisation is crucial. This is to ensure less critical areas are left out and to make sure everyone in the organisation is responsible, aware, accountable, and owns the risks of their individual business or function. Integration into the organisation structure, its objectives or purposes, operations, and processes is an iterative and dynamic process that may change from time to time due to evolution and changes in the business landscape. The process must suit the organisation's needs and culture, depending on the set-up. This includes all levels, including the transactional level of decision-making.
- 3) Design: As the ISO 31000 guideline is an open system, each organisation must design its own risk management framework. The designs must understand the organisation's contexts, both external and internal, that are impacting the businesses. External contexts may include but limited to social, cultural, political, legal, regulatory, financial, technological, economic and environmental factors, external stakeholders' relationships, perceptions, values, needs and expectations, networks complexity and dependencies whilst internal context may include, but is not limited to vision, mission and values, governance, organisational structure, roles and accountabilities, strategy, objectives and policies, organisation's culture, standards, guidelines and models adopted by the organisation, capabilities, knowledge management, information system, relationships with internal stakeholders, contractual relationships and commitments, interdependencies and interconnections.

The design should also be able to depict the commitment of the leadership team and oversight bodies through a policy or statement that clearly communicates the organisation's objectives and their commitment to risk management. The commitment should reinforce the other elements stated in the risk management framework, i.e., integration of risk, measurement of risk, reporting and monitoring of risk for communication and continuous improvement. The design should also clearly assign the roles, authorities, responsibilities, and accountabilities of all parties involved throughout the organisation, including the governance requirements from oversight

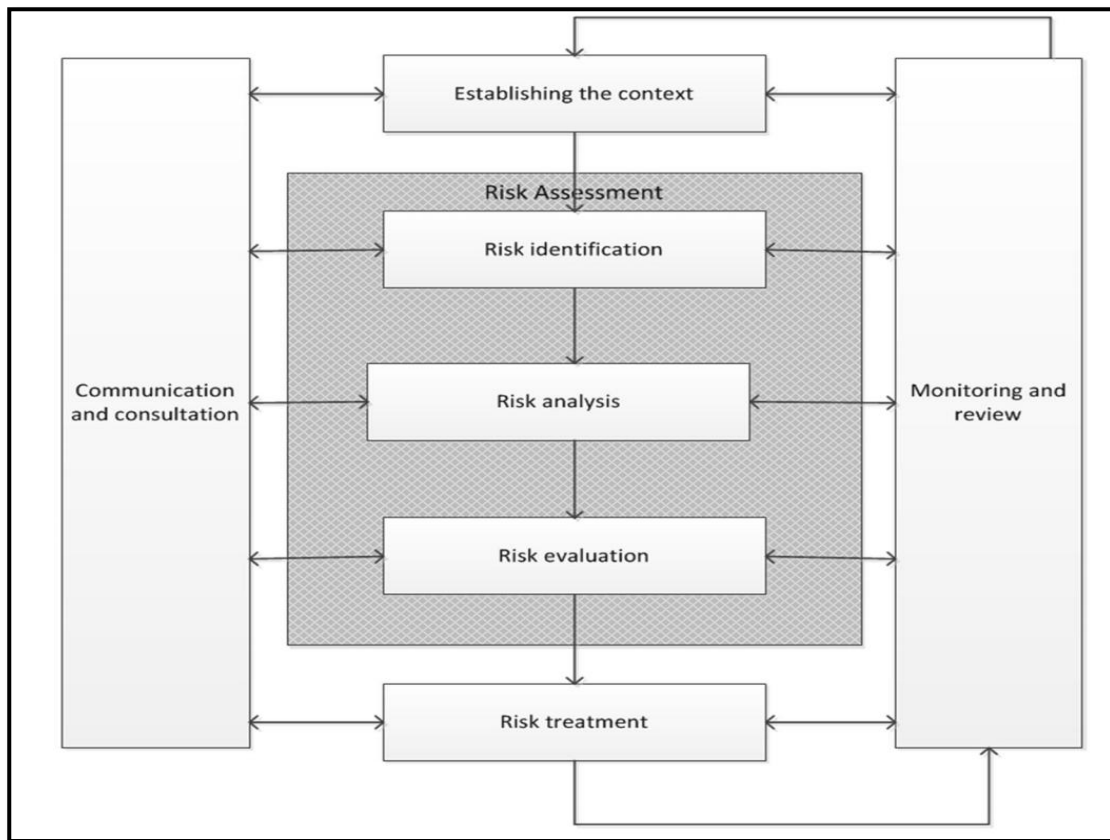
bodies and the leadership team. This must be properly communicated and understood at all levels of the organisation.

The design must also outline the expectations of process documentation, capability development, and expected competency and experience required in managing risk and ensure appropriate allocation of resources and tools are made available for them to exploit in managing the organisation's risks. Continuous engagement, communication, and consultation with experts must be done in a timely and proper manner, with relevant information being collected, synthesized, and communicated as appropriate, and that response is provided and enhancements made.

- 4) Implementation: Implementation of risk management should be done by developing an appropriate plan including time and resources, identifying the various and different intervals and relevant parties involved at each decision-making point in the organisation, making changes by embedding risk requirements in business decision-making processes where appropriate, and making sure the risk agenda is clearly understood, accepted, and practised. Outline and execute continuous engagement and awareness sessions with various parties involved in the businesses and operations. An effective framework will ensure the risk management process is part of all activities and processes in the organisation, especially decision-making, and changes of internal and external factors to the organisation are appropriately considered in the risk assessment activities.
- 5) Evaluation: Measuring the performance and contribution of the risk management framework being put into practise periodically will provide a better indicator of the expected outcomes and lead to a reassessment of its suitability and appropriateness of implementation for the organisation towards achieving the set objectives. Any gap can be further retuned and adjusted to ensure value creation and value protection of the company's resources and assets are intact.
- 6) Improvement: Continuous monitoring of the implementation of the framework is necessary to make sure changes from internal or external factors are monitored and assessed. Any critical or significant changes may warrant a review or reassessment of the risks identified earlier for better mitigation, improvement, or action plans. This

improvement also means checking the suitability, adequacy, and effectiveness of the implemented framework in meeting the organisation's objectives and the manner in which it gets integrated with the activities in the organisation. Any areas for improvement warrant some changes, actions, tasks, and resources in the implementation of the framework in order to protect and create value for the organisation.

Risk Management Process



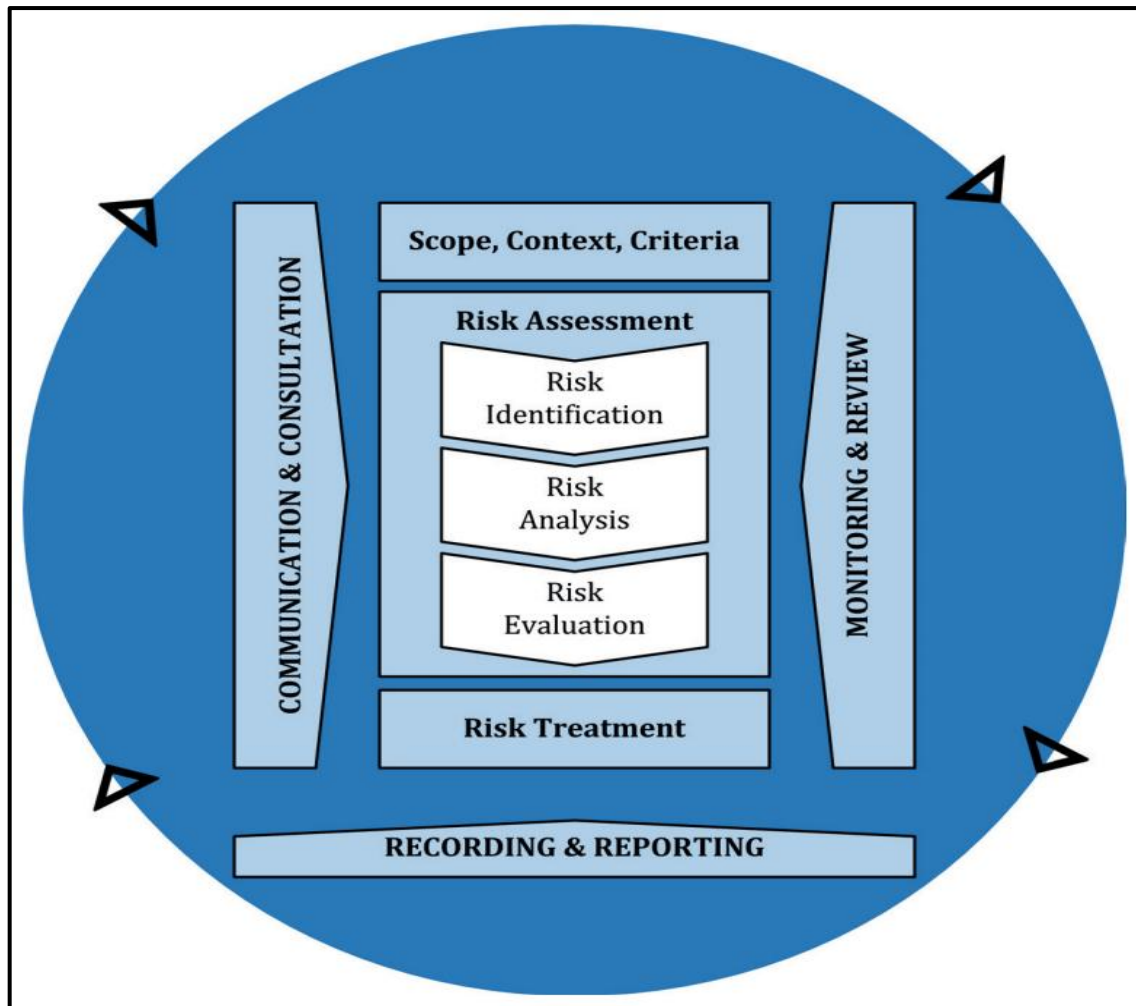
Risk Management Process

Source: Risk management - Guidelines, ISO 31000, 2009

Another major component being prescribed by ISO 31000 to complement its principles and frameworks is the risk management process. Prior to the enhancement, ISO 31000:2009 core elements in the risk process are only three main steps, i.e., establishing the context, risk assessment, and risk treatment, with the establishing context being a critical step to be undertaken to ensure the external and internal context of the coverage

of risk management are critically considered to safeguard the effectiveness of the remaining steps (Haywood et al. 2017). Figure above illustrates the previous version of the risk process in ISO 31000.

The core elements are still intact in the enhanced version, with important steps and connected activities surrounding the risk management process. The presentation of the risk management process depicts the continuity and seamless integration amongst the key activities within the process. As the guidelines propagate an organised application of policies, procedures, and practises in risk management activities in the organisation, they must be supplemented with clear communication, active consultation, forming the organisation's context, performing risk assessment, undertaking appropriate risk treatment, continuous monitoring and reviewing of risk status and relevance, and proper recording and reporting of risk in a timely and accurate manner. The description of the whole process is depicted in figure below.



Risk Management Process
Source: ISO 31000 (2018)

As risk management principles and a risk management framework are emphasised in the guidelines as important and crucial components in any organisation, the risk management process is also to be recognised as an integral part of their business management and decision-making processes. And hence, it must be integrated into all critical parts of the organisation, such as organisational structure, operations, strategies, and processes, and applied across all levels, i.e., strategic, tactical, and operational, in an iterative manner, given that the risks to the organisation change over time. It is broken down into several main components in the risk process, i.e., communication and consultation, scope, context, and criteria; risk assessment; risk treatment; monitoring and review; and recording and reporting. The description of each component is explained below.

- 1) Communication and consultation: The aim of communication in the risk process is to provide information, awareness, and understanding to relevant stakeholders; some actions may be required at their end to manage the exposure, while consultation is to obtain feedback, facilitate assessment, perform analysis, and provide advice and guidance for the risk owners or decision-makers to make informed decisions. These two components work hand in hand to ensure the risk management process is considered throughout. At the end, there is sufficient discussion and rigour in the process, which brings various views from all angles from business managers and experts in assessing the risks that may impede their organisation from achieving its objectives. Parveainen et al. (2021) agreed that clear communication about risks or uncertainty is a crucial component of assessing and managing complex risks. Applying the appropriate measurement method to better articulate the communication can be an advantage in ensuring better comprehension of the impacts on the organisation.
- 2) Scope, context and criteria: Establishing scope, context, and criteria is crucial to focusing on the risks related to the organisation and the business that they are pursuing. This enables an effective risk management process, discussion, deliberation, and risk identification for action and monitoring purposes. Otherwise, the resource allocation will be wasted to focus on something out of context for the organisation. It begins with the right scoping of risk management activities at every organisational level, such as strategic, tactical, operational, projects, etc., as each level will be subjected to different scope, context, and criteria. The risks identified may also be interrelated and interdependent within the organisation, either vertically or horizontally, where a clear understanding of scope and context is crucial. In addition, it enables the alignment of the risk management process with the organisation's objectives.

Agreeing on risk criteria, i.e., amount, level of risk exposure, type of risk, and likelihood, is important to ensure the assessment of risk is within the business context during risk profiling or categorization for standardisation and consistent understanding within the organisation. Defining the amount of risk quantification may help ensure a consistent measurement of risk throughout and ease the process of reporting total risk exposure to the organisation, even though the guidelines recognise that risk

quantification can be both tangible and intangible in nature. However, as the risk is dynamic, the risk criteria set by the organisation require continuous review and amendment to reflect the current business landscape and the type or nature of uncertainties impacting the organisation.

As ISO 31000 is a generic guideline that respective organisations need to undertake the process of customising to their varying requirements, Haywood et al. (2017) suggested that its systems thinking approach allows organisations to adopt the guideline as their risk management framework. This requires emphasis at the context-setting step by using a dynamic model such as casual loop diagrams to better understand the key cause-and-effect assessment between the factors or variables involved that lead to adverse effects on an organisation's ability to meet its business objectives, especially when there are emerging risks and any interrelationship or interdependence risk drivers, to ensure the risk management system is resilient in protecting the organisation's competitive advantage and business continuity.

- 3) Risk assessment: This process involves risk identification, risk analysis, and risk evaluation, which should be done in an organised manner with iteration and together with relevant stakeholders that are impacted and impacting risks to the organisation. As the risk assessment will be used as part of the decision-making process, the information being put into the assessment must be made on the best available basis. This has bearing on the analysis and alternatives being prepared to mitigate and overcome risks to the organisation. Risk identification is the step to find, recognise, and describe risks to the organisation and should be relevant, current, and appropriate to the scope, context, and criteria set earlier.

The next step in risk assessment is risk analysis, in which the goal is to comprehend the nature and attributes of identified risks. Ascertaining the level of risk and the amount that the risk may be tantamount to are among the important actions to do on top of analysing a detailed understanding of uncertainties, their cause and effect, likelihood of incurring, the potential events or scenarios that may trigger or be triggered, their possible controls, and the effectiveness of the controls. Parveainen et al. (2021) suggested having a transparent method that can provide qualitative

descriptions of risks to complement the quantitative risk assessment method. The analysis can range from a quite simple one to an incredibly challenging one with a high degree of complexity and multiple scenarios, interdependencies, and consequences.

However, this should be done within the availability of resources, available information, and timeframe that the organisation can take on, yet still be competitive in the market. Risk analysis outcomes may be subject to conflict of opinions due to various reasons and motives in the organisation, including preferences, views, and judgments. The quality of available data and information, the assumptions used and exclusions rendered, technique limitations, and execution challenges may also impact the risk analysis outcome.

The last step in risk assessment is risk evaluation, where the results from risk analysis are compared in accordance with the set risk criteria, which leads the stakeholders to understand the uncertainties surrounding the business decisions to be made by them. This stage will facilitate the authorised parties to make informed decisions. Possible decisions are: 1) proceed with the decision consciously with no further action. 2) proceed but undertake a risk treatment or mitigation strategy or transfer the risk to a third party. 3) Perform deeper analysis to enhance a better understanding of the exposure and possible returns from the exposure. 4) Avoid the strategy. All discussions at this stage should be recorded and communicated in line with the governance and oversight requirements.

- 4) Risk treatment: The objective of this process is to select, prioritise, and implement alternatives or mitigation strategies to address the risks as discussed during the risk assessment process. The process consists of the articulation and decision of the appropriate options, making an implementation plan and executing it, assessing the effectiveness of the options, and determining whether residual risks are acceptable for any further tweaking and changes to the risk treatments, as the options may also introduce new or additional risks. Risk treatment may not just consider its trade-off benefits, additional costs, expertise, and capital limitations but also social obligations and stakeholder's views. Comprehensive risk treatment by having a timeline, action

party, signpost monitoring, and measurement of risk post-risk treatment is crucial to checking the effectiveness of risk treatment implementation. Relevant parties must be held responsible and accountable to follow through on the required actions.

- 5) Monitoring and review: This stage is to ensure the effectiveness of the end-to-end process designed at all stages is working effectively as intended. It involves steps of planning the monitoring and review process, gathering and analysing the relevant information to ascertain its effectiveness. There must be a performance key indicator agreed upon earlier as the benchmark or signpost for monitoring and review and incorporated as part of the organisation's performance. The assignment of accountable parties is crucial to ensuring the actions are taken seriously.
- 6) Recording and reporting: Documentation and reports are also crucial in the risk process stage, as this allows recorded information for communication and discussion with relevant stakeholders, decision-making, continuous improvement, lesson-learned sharing, statutory reporting to relevant authorities, governance, oversight bodies, etc. The development of records, their retention, and the handling of these documents should be handled with care in terms of sensitivity and accessibility.

Appendix C: Validation Forms Signed by Risk Industry Experts

Note: This page is removed for confidentiality.

Note: This page is removed for confidentiality.

Appendix D: Guidance of Semi-structured Questions

It covers specific topics and sub-topics and how these elements hinge towards achieving business value creation that is aligned with the organisation's strategic objectives developed as follows:

1) Key Elements

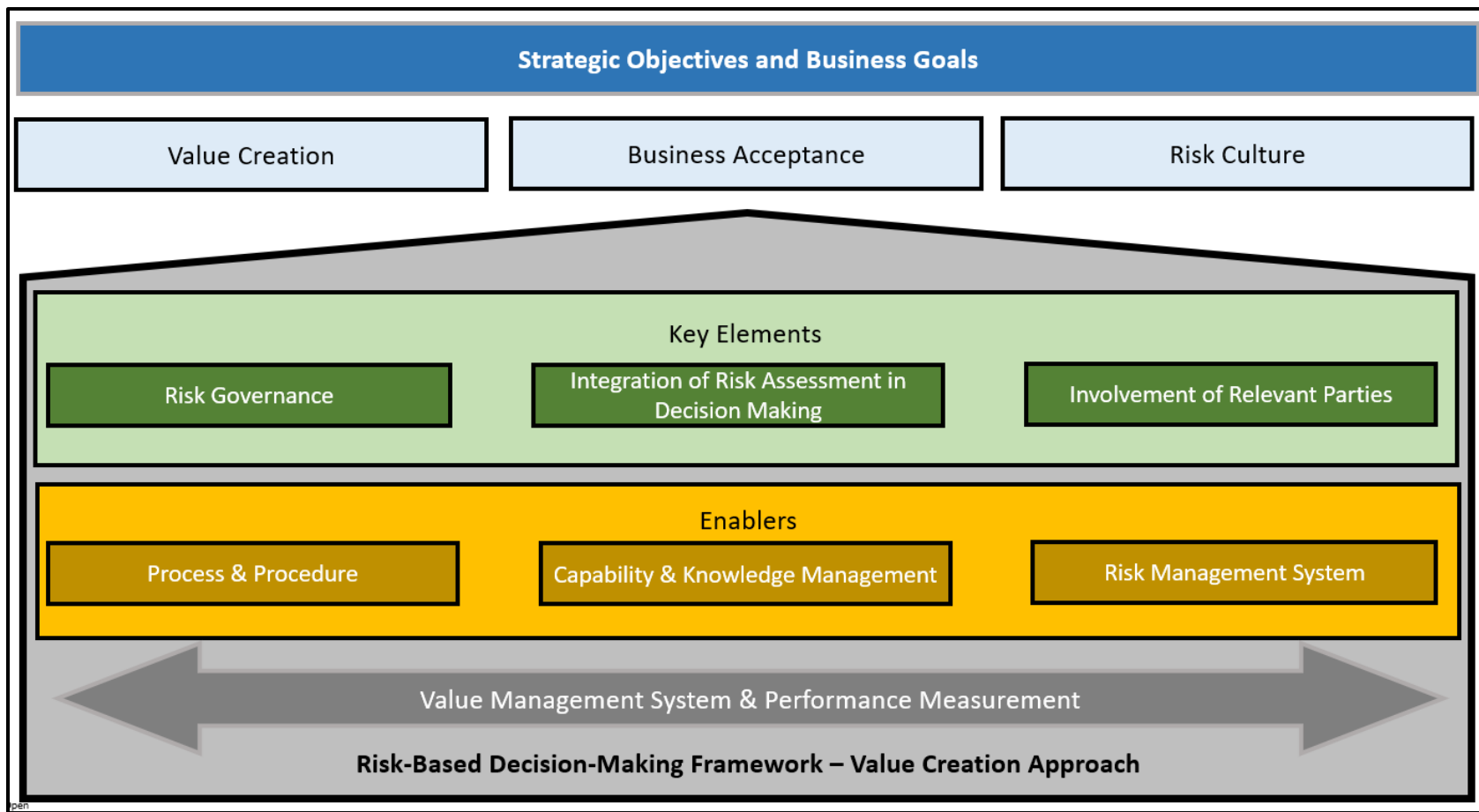
- Risk governance which outlines clear mandate and risk appetite. This is an integral element in providing clarity of risk-based decision-making objectives and context.
- Integration of risk assessment in the decision-making process.
- Involvement of relevant parties who are experts in respective areas relating to the business proposal, including the risk manager and business manager.

2) Implications

- Value creation contributes to overall business growth and performance. The definition of value creation may vary between functional and business managers.
- Business acceptance of incorporating risk into the business decision-making process and, as a consequence, its impact on the business process in terms of agility and seamless connection and collaboration from various parties involved.
- Risk culture is the overall impact of the process as well as the current risk culture set in the organisation and avenues to improve further.

3) Other Determinant Factors or Emergent Properties

- Processes and procedures relating to incorporating risk into the decision-making process, including governance documents and communication to drive risk culture in the organisation
- Capability and knowledge management are important in supporting business managers to execute the process of risk-based decision-making.
- System-related areas that cover risk-based decision-making processes as well as value management and performance measurement systems.



Risk-Based Decision-Making Framework – Value Creation Approach

Appendix E: Sample of Case Study Interview Transcript

Interview Transcription for Respondent 2

Interviewee Code: Respondent 2

Interviewer: Norulaiza Mohamad Daud

Date: Friday, April 8, 4.00 pm

Meeting place: Via Google Meet

Respondent ID	Gender	Position/ Location	Working Experience	Roles in the Decision-Making Process
Respondent 2	Female	General Manager, Industry Shaping & Collaboration, Group Procurement/ Kuala Lumpur, Malaysia	30 years	Business Manager/ Proposal Owner

Interview Transcript (A: Interviewer; B: Respondent):

A: Assalamualaikum and good afternoon, Madam, how are you?

B: Waalaikumsalam, good afternoon to you too. Am fine, how about you?

A: Alhamdulillah am fine too. Madam, I have sent you a request of this interview and some of the background of this research inquiry via email and followed up with a WhatsApp recently, right. In the same email I attached some key topics which represent some of my semi-structured questionnaire to guide our call meeting today. Hope you are ok with this arrangement.

B: Ya ya, I received them. Am ok with the arrangement but was not really read through the details.

A: Understand, understand. Certainly understand that you are very busy and really appreciative of your agreement to spend some time with you. Let me start the discussion

Madam ya in view of time constraints.

B: Sure sure, go ahead, I will be guided by you and your questions... Do interrupt me if I am not answering your question, ha ha ha

A: Alright Madam let's start with the context setting ya. I am currently doing a study for my Doctor of Business Administration with University of Wales Trinity Saint David with collaboration with London School of Commerce and Westminster International College. My research topic is 'Exploring Risk-Based Decision-Making Practices in Malaysian Oil and Gas Companies'. I am grateful that you are willing to participate as you meet the sampling criteria i.e. the respondent must be Malaysian, working with Malaysian oil and gas companies, and involved in business decision-making process. As you are very senior in position and involve in leading your team with high value investments and collaboration with other industry players, I am of the view that your inputs to my research inquiry will be valuable. The results of this study hopefully will benefit other companies within oil and gas or even other industries especially companies with high value investment.

B: Ok, understand.

A: As I mentioned in my email, I am obliged to follow the University's ethical consideration where your details will be kept as anonymous and the organisation's name will also not be mentioned in my findings and findings analysis.

B: That's great, because otherwise, we will need to seek for special approval for me to share some of our practices especially when it involves some information which is not published in the public domain. Ok, let's proceed with the actual interview.

A: Before I proceed further, I would like to seek your permission and view on this interview being recorded for my reference during transcription or would you prefer I write down our conversation and share with you through email for conformation or correction?

B: Ok and am sure you will be following the appropriate ethical considerations as you mentioned earlier.

A: Sure Madam, I take note on that. Ok, let's proceed with my interview questions ya Madam. Can you describe your organisation's risk management governance structure in the organisation?

B: Well, my organisation is pretty big in this industry. It is at a matured stage so our risk governance is centralised and empowered. We do disclose our risk management structure in our Annual Report for public knowledge.

A: To ride on my first question Madam, how risk management is being practiced, is it being embedded in the organisation business activities particularly in decision making? Maybe you could also describe how this being embedded?

B: Yes, currently the practices are being embedded across the business. Oversight structure is well defined with a Board Committee overseeing the implementation of risk management across the organisation.

A: Ok great. I presume your organisation has quite a well-established risk management framework and process. Perhaps can you share with me how is the acceptance of business managers and risk managers with regards to this process of incorporating risk assessment in decision making, and what is your rationale?

B: Risk management in decision making is very powerful as it should not be regarded as an afterthought. I have always viewed risk as an all-encompassing process. It should not be merely seen as what the risk of implementing a certain strategy.

A: How would you view the impact of risk assessment in decision making process to your organisation's operations, strategic growth and/or business plans?

B: There are two side to risk management. – one is risk into thinking and the other is thinking into risk . Even at the onset of thinking of the path, the strategy risk should be foremost in the minds of the leaders. Once the strategy is defined, implementation will also have its set of what ifs and scenarios to be thought of.

A: Ok great. how your organisation define business value creation and your business context of understanding the meaning of value creation. Is there any measurement tool or

methodology used to measure or define value creation in the organisation.

B: In my organisation, any business decision is based on investment return governed by a structured investment framework, we do have a lot of frameworks here ha ha ha. The organisation anchored on a robust portfolio management with a detailed capital allocation where it gets decided at the leadership team approved by Board.

A: In addition, can you also share how your organisation impose the requirement of value creation in the business operations and decision making in the form of KPI setting at portfolio or individual staff basis.

B: We do have our yearly planning. Strategies defined at the organisation level is communicated and translated into respective KPIs at business, departmental and individual level. That's how we measure our value creation so to speak, when we achieve what have been set for us.

A: The next question I want to ask is also regarding value creation. We always get confused whether value protection can be considered value creation in your view? If yes, why would you consider that?

B: In my view, risk management is to both protect the business and also from a robust risk assessment, there could be opportunities that arise. They can happen hand in hand.

A: Ya, it is a good perspective and mostly shared by my other respondents although not all of them. Well, we talk about it earlier on business acceptance. Is there any challenges and limitations to do this? What would be the areas of improvement in order to increase the level of business acceptance?

B: There are definitely challenges, as level of acceptance is different at various levels in the organisation since we are big company. Institutionalisation and internalization are critical in ensuring the acceptance is far reaching. Risk management has to be accepted as a way of life. The framework introduced to be fully embraced. The mindset of people in the organisation has to regard as a way of life not an encumbrance.

A: Yes, understand the fact that your organisation is big hence to reach everyone maybe of challenge.

B: You are right!

A: Generally, organisational behaviour is set to meet the set goals and objectives. Would you think value creation resulting from risk-based decision-making is to facilitate Business Manager to achieve the set goals and objectives and hence increase their acceptance in incorporating risk in decision making? If yes, what is the rationale for this and how it relates?

B: Ok, how do I answer this ha ha ha mmm, ok let's try. Once the business sees the benefit of having a robust risk management and the impact it brings, it will result in more confidence in embracing it fully. The leaders will also need to attest to risk mgmt. and its values.

A: I see. I guess they need to see the process itself can help them to achieve what they want to achieve in effective and agile manner.

B: Yes, indeed you are right, I am a front-liner and that's what I want.

A: Ok Madam, as you are well aware, generally, business manager or individual is biased towards rewards and benefits as one of key drivers to embrace any new process right. Would you think value creation resulting from risk-based decision making is one of the key drivers for Business Manager to increase their acceptance in incorporating risk in decision making?

B: My answer will be the same as previous question. The ultimate driver for any investment is the reward it brings. And with risk assessment in decision making the organisation will have a sounder & informed decision.

A: Ok, ok, I got it. In your organisation, who perform risk or due diligence assessment of business proposal prior to presenting to decision maker for decision?

B: Well, the roles are already defined through an established framework and guideline,

Business people is to embrace the process fully. This is because they know the business risk better than anyone else.

A: how do you see the roles of risk manager or finance manager in supporting this process? Are the roles of personnel involved in this process clear?

B: In my case, risk managers are to provide the check and balance. Communication is key in ensuring the process is fully understood and the other is acceptance at all levels within the organisation. Same goes to the clarity of roles and responsibilities.

A: Do you agree that level of capability and competency is important to support risk assessment in decision making process?

B: Yes of course, required capability is when they have full understanding of the business, what makes it ticks, the movers and shakers.

A: Who else do you think should be involved? What are the required capability developments to enhance this further?

B: Other experts like Legal, Finance, Operation Experts. The processes of risk management in decision making are not a rocket science. Again, the mindset is key in accepting risk as a way of life.

A: Are there any other factors or areas for improvement that need to take into consideration like risk culture, system and KPI setting?

B: I believe in a pervasive risk culture and when robust risk management itself has been accepted within the organisation, automatically the risk culture will mature.

A: What would you suggest having an effective implementation of this process and to enable pervasive risk culture or high business acceptance in incorporating risk management in decision making process?

B: Like I said before, the mindset shift is critical. Controls should not be too rigid, else it will create a rigid environment, the internalization of the importance of risk management

is key!

A: That are all questions to you Madam, I am glad we manage the time perfectly fine. I will email you this interview transcript and would grateful if you could just a quick review and confirm the matter with me ya.

B: Sure, sure. I hope I won't be taking much time to revert. Will see in terms of timing and my work schedule.

A: Sure Madam. Many thanks for your time amidst your busy schedule. It was very kind of you to squeeze your time for me. Much appreciated. I can assure you, your responses and inputs are very valuable to my research.

B: I hope I gave you what you want and hopefully it helps in your thesis. Ok, do let me know if you need more information ya.

A: Thank you again Madam, have a good day and stay safe, bye bye. Assalamualaikum.

B: My pleasure. Bye bye too. Waalaikumsalam.

Appendix F: Ethical Principles for the Conduct of Research

Principle	Description of Principle
Honesty	Honesty in all aspects of research, including in the presentation of research goals, intentions, and findings; in reporting on research methods and procedures; in gathering data; in using and acknowledging the work of other researchers; and in conveying valid interpretations and making justifiable claims based on research findings
Rigour	Rigor, in line with prevailing disciplinary norms and standards: in performing research and using appropriate methods; in adhering to an agreed protocol where appropriate; in drawing interpretations and conclusions from the research; and in communicating the results
Transparency and open communication	Transparency and open communication in declaring conflicts of interest; in the reporting of research data collection methods; in the analysis and interpretation of data; in making research findings widely available, which includes sharing negative results as appropriate; and in presenting the work to other researchers and to the general public.
Care and respect	care and respect for all respondents and subjects of research, including humans, animals, the environment, and cultural objects. Those engaged in research must also show care and respect for the stewardship of research and scholarship for future generations.

Source: University Wales Trinity Saints David's website (2023)

Appendix G: Themes, Sub-Themes, Research Questions and Further Enquiries

Themes / Sub-Themes	Research Questions/ Further Enquiries
RQ 1: Key elements of organisation's risk management practices in incorporating risk management into the decision-making process.	
Risk governance	What is the level of risk management governance and framework implementation in the organisation?
Risk practices	Does risk have to be considered in the decision-making process, and how does the business accept incorporating it into their business activities?
	Do business managers and risk managers understand the reason for the incorporation of risk assessment in decision-making?
Collaboration and partnership	How are risk management roles and their clarities in supporting risk assessment important in the business decision-making process?
RQ 2: Implication of risk assessment in business decision-making framework implementation and practices on business value creation	
Goals and objectives	What are the views of business managers and risk managers regarding the importance of risk assessment in the decision-making process?
	Does value creation from risk-based decision-making facilitate business managers to achieve the set goals and objectives?
Value creation	What is the definition and understanding of value creation from a business context and perspective? Is value protection considered value creation in your view?
Business acceptance	Do they view risk-based decision-making processes as creating value, which hence increases their business acceptance?

	What is your opinion about the level of business acceptance of incorporating risk assessment into decision-making in the organisation?
Risk culture	How can they further shape the culture of embedding risk in their business decision-making process?
RQ 3: Other determinant factors and any other emergent properties that may provide a greater implication of risk assessment in decision-making to create value for the company	
• Competency and capability • KPI setting. • Responsibilities and accountabilities • Resources and knowledge management • System and digitalised platform • Pervasive risk culture	What level of competency and capability are required to enhance the quality of support provided to business managers? What are other enablers to support the incorporation of risk assessment in the decision-making process?

Appendix H: List of Transcripts Exported to NVivo 12 Plus

No	Items Descriptions	Codes	References	Modified on
1	Interview Respondent 1	25	35	5/7/2023 9:11 PM
2	Interview Respondent 2	22	25	5/7/2023 9:11 PM
3	Interview Respondent 3	24	35	10/7/2023 10:09 AM
4	Interview Respondent 4	26	38	5/7/2023 9:11 PM
5	Interview Respondent 5	25	42	5/7/2023 9:11 PM
6	Interview Respondent 6	21	23	10/7/2023 1:20 PM
7	Interview Respondent 7	26	34	10/7/2023 1:26 PM
8	Interview Respondent 8	25	36	5/7/2023 9:11 PM
9	Interview Respondent 9	22	29	5/7/2023 9:11 PM
10	Interview Respondent 10	20	30	5/7/2023 9:11 PM
11	Interview Respondent 11	19	24	5/7/2023 9:11 PM
12	Interview Respondent 12	23	25	5/7/2023 9:11 PM
13	Interview Respondent 13	17	20	11/7/2023 11:38 AM
14	Interview Respondent 14	23	26	5/7/2023 9:11 PM

•

Appendix I: Principles of “Corporate Governance”-OECD June 1999

THE RIGHTS OF SHAREHOLDERS

The corporate governance framework should protect shareholders' rights.

- A. Basic shareholder rights include the right to 1) secure methods of ownership registration; 2) convey or transfer shares; 3) obtain relevant information on the corporation on a timely and regular basis; 4) participate and vote in general shareholder meetings; 5) elect members of the board; and 6) share in the profits of the corporation.
- B. Shareholders have the right to participate in, and to be sufficiently informed on, decisions concerning fundamental corporate changes such as: 1) amendments to the statutes, or articles of incorporation or similar governing documents of the company; 2) the authorisation of additional shares; and 3) extraordinary transactions that in effect result in the sale of the company.
- C. Shareholders should have the opportunity to participate effectively and vote in general shareholder meetings and should be informed of the rules, including voting procedures, procedures, which govern general shareholder meeting:
 - 1. Shareholders should be furnished with sufficient and timely information concerning the date, location and agenda of general meetings, as well as full and timely information regarding the issues to be decided at the meeting.
 - 2. Opportunity should be provided for shareholders to ask questions of the board and to place items on the agenda at general meetings, subject to reasonable limitations.
 - 3. Shareholders should be able to vote in person or in absentia, and equal effect should be given to the votes whether cast in person or in absentia.
- D. Capital structures and arrangements that enable certain shareholders to obtain a degree of control disproportionate to their equity ownership should be disclosed.
- E. Markets for corporate control should be allowed to function in efficient and transparent manner.

1. The rules and procedures governing the acquisition of corporate control in the capital markets, and extraordinary transaction such as mergers, and sales of substantial portions of corporate assets, should be clearly articulated and disclosed so that investors understand their rights and recourse. Transaction should occur at transparent price and under fair conditions that protect the rights of all shareholders according to their class.
 2. Anti-take-over devices should not be used to shield management from accountability.
- F. Shareholders, including institutional investors, should consider the costs and benefits of exercising their voting rights.

THE EQUITABLE TREATMENT OF SHAREHOLDERS

The corporate governance framework should ensure the equitable treatment of all shareholders, including minority and foreign shareholders. All shareholders should have the opportunity to obtain effective redress for violation of their rights.

- A. All shareholders of the same class should be treated equally.
1. Within any class, all shareholders should have the same voting rights. All investors should be able to obtain information about the voting rights attached to all classes of shares before they purchase. Any changes in voting rights should be subject to shareholder vote.
 2. Votes should be cast by custodians or nominees in a manner agreed upon with the beneficial owner of the shares.
 3. Processes and procedures for general shareholder meeting should allow for equitable treatment of all shareholders. Company procedures should not make it unduly difficult or expensive to cast votes.
- B. Insider trading and abusive self-dealing should be prohibited.
- C. Members of the board and managers should be required to disclose any material interests in transactions or matters affecting the corporation.

THE ROLE OF STAKEHOLDERS IN CORPORATE GOVERNANCE

The corporate governance framework should recognise the rights of stakeholders as established by law and encourage active co-operation between corporations and stakeholders in creating wealth, jobs, and the sustainability of financially sound enterprises.

- A. The corporate governance framework should assure that the rights of stakeholders that are protected by law are respected.
- B. Where stakeholder interests are protected by law, stakeholders should have the opportunity to obtain effective redress for violation of their rights.
- C. The corporate governance framework should permit performance-enhancing mechanism for stakeholder participation.
- D. Where stakeholders participate in the corporate governance process, they should have access to relevant information.

DISCLOSURE AND TRANSPARENCY

The corporate governance framework should ensure that timely and accurate disclosure is made on all material matters regarding the corporation, including the financial situation, performance, ownership, and governance of the company.

- A. Disclosure should include, but not be limited to, material information on:
 - 1. The financial and operating results of the company.
 - 2. Company objectives.
 - 3. Major share ownership and voting rights.
 - 4. Members of the board and the key executives, and their remuneration.
 - 5. Material foreseeable risk factors.
 - 6. Material issues regarding employees and other stakeholders.
 - 7. Governance structures and policies.

- B. Information should be prepared, audited, and disclosed in accordance with high quality standards of accounting, financial and non-financial disclosure, and audit.
- C. An annual audit should be conducted by an independent auditor in order to provide an external and objective assurance on the way in which financial statements have been prepared and presented.
- D. Channels for disseminating information should provide for fair, timely and cost-efficient access to relevant information by users.

THE RESPONSIBILITIES OF THE BOARD

The corporate governance framework should ensure the strategic guidance of the company, the effective monitoring of management by the board, and the board's accountability to the company and the shareholders.

- A. Board members should act on a fully informed basis, in good faith, with due diligence and care, and in the best interest of the company and the shareholders.
- B. Where board decisions may affect different shareholder groups differently, the board should treat all shareholders fairly.
- C. The board should ensure compliance with applicable law and take into account the interests of stakeholders.
- D. The board should fulfil certain key functions, including:
 - 1. Reviewing and guiding corporate strategy, major plans of action, risk policy, annual budgets and business plans; setting performance objectives; monitoring implementation and corporate performance; and overseeing major capital expenditures, acquisitions and divestitures.
 - 2. Selecting, compensating, monitoring and, when necessary, replacing key executives and overseeing succession planning.
 - 3. Reviewing key executive and board remuneration and ensuring a formal and transparent board nomination process.

4. Monitoring and managing potential conflicts of interest of management, board members and shareholders, including misuse of corporate assets and abuse in related party transactions.
 5. Ensuring the integrity of the corporation's accounting and financial reporting systems, including the independent audit, and that appropriate systems of control are in place, in particular, systems for monitoring risk, financial control, and compliance with the law.
 6. Monitoring the effectiveness of the governance practices under which it operates and making changes as needed.
 7. Overseeing the process of disclosure and communications.
- E. The board should be able to exercise objective judgement on corporate affairs independent, in particular, from management.
1. Boards should consider assigning a sufficient number of non-executive board members capable of exercising independent judgement to tasks where there is a potential for conflict of interest. Examples of such key responsibilities are financial reporting, nomination and executive and board remuneration.
 2. Board members should devote sufficient time to their responsibilities.
- F. In order to fulfil their responsibilities, board members should have access to accurate, relevant and timely information.