

THE IMPLEMENTATION OF SCIENCE, TECHNOLOGY AND INNOVATION
POLICY IN ADDRESSING THE WELL-BEING OF THE LOW-INCOME
HOUSEHOLDS IN MALAYSIA

NOOR RIZAWATI BINTI NASIR

UNIVERSITI TEKNOLOGI MALAYSIA

THE IMPLEMENTATION OF SCIENCE, TECHNOLOGY AND INNOVATION
POLICY IN ADDRESSING THE WELL-BEING OF THE LOW-INCOME
HOUSEHOLDS IN MALAYSIA

NOOR RIZAWATI BINTI NASIR

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Doctor of Philosophy in (Policy Studies)

Razak Faculty of Technology and Informatics
Universiti Teknologi Malaysia

NOVEMBER 2021

DEDICATION

By

By Allah's grace,

This thesis is dedicated to my husband, *Rizwan bin Mohamad* for his assistance, perseverance, devotion, and compassion.

It is also dedicated to my parents, *Nasir Hassan* and *Timah Ariffin*, despite their disabilities, they taught me knowledge is everything.

Special appreciation also goes to my children, *Aufa* and *Alif*, for their tolerance and understanding.

Not to forget my KA brothers, *Khairul Anuar*, *Khairul Asfani*, *Khairul Azhar*, *Khairul Ashraf*, *Khairul Azwan* and all my sisters-in-law for their unconditional encouragement and prayers.

ACKNOWLEDGEMENT

Bismillahirrahmanirrahim,

In the name of Allah, the Most Gracious and The Most Merciful.

Most of all, I am thankful to Allah for giving me the courage and make ease for me to go through all the difficult times I faced during my PhD journey. I am immensely thankful for the opportunities I had to be in contact with many people who have contributed profoundly towards my understanding of the topic that I was studying.

I would like to express my sincerest gratitude to my supervisor, Ts. Dr. Asnul Dahar bin Minghat and my co-supervisor, Professor Dr. Mustafa Din Bin Subari, who used to be my first supervisor until February 2020, for their continuous support. Their guidance and motivation have inspired me to continue finishing this thesis amid all the predicaments I encountered during my study days. Besides my supervisors, I am also very grateful to all the lecturers in the Perdana Centre of Science, Technology and Innovation Policy and the faculty members of Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia (UTM) for their guidance and assistance, which are unquestionably very important. I could not have imagined having better support from the lecturers and the faculty members. Also, Professor Madya Dr. Khairuddin bin Idris and Dr. Mursyid bin Arshad from Universiti Putra Malaysia, who have exposed me to knowledge in the qualitative study. Without their advice and interest, this thesis would not have been completed.

I am also grateful to the Public Service Department (Jabatan Perkhidmatan Awam – JPA) for funding my doctoral study. Officials in the government departments, agencies, and individual organisations that directly and indirectly engaged in this study also deserve special gratitude for the insightful knowledge shared and assistance in supplying the relevant information and literature required for this study. Their generous assistance and time spent are indeed valuable.

My former colleagues, friends, as well as my fellow postgraduate friends, should also be recognised for their support and encouragement. I extend my heartfelt gratitude to my former boss in the Economic Planning Unit (EPU), Madam Liew Siew Lee, who has taught me a lot. She has been my source of inspiration and encouragement since the first day I met her. My ex-colleagues and close friends, who have helped me a lot, especially Dr. Fazni, Siti Kamariah, Putri, Teh, Zana, Nas, Ain, Aimi, Niza, Farah, Norzat and Dr. Ting. Their advice, as well as tips, are indeed priceless. Unfortunately, it is not possible to mention all here, but they have played their role to inspire me behind the curtain. Thank you, thank you, thank you.

ABSTRACT

As an emerging economy, various policies have been introduced, and a range of policy measures have been undertaken by the Malaysian government to drive the nation's socio-economic development towards realising the high-income and advanced nation's status. Successfully reduced the inequality gap and poverty rate in the past few years, the government focus has expanded to address the low-income households' (LIHs) needs to ensure that this income group is elevated into the middle-income group by 2020. In line with the evolving needs resulting from the global changing socio-economic landscape where the LIHs are more prone to be adversely impacted, the role of science, technology and innovation (STI) has been recognised for its potential to cater to the needs of the LIHs. Several policy measures have been introduced in the STI policy, and programmes have been implemented consistent with the National Policy on Science, Technology and Innovation 2013 - 2020 towards achieving the nation's main goals. Despite the growing significance, there have been limited empirical studies undertaken in STI for social development, particularly in Malaysia's setting. Hence, underpinned by implementation theory and models of implementation, this study explored the implementation of the STI policy and its programmes that aimed to address the LIHs in Malaysia by delving into the potential challenges affecting the implementation process. This exploratory case study adopted a qualitative approach, where data were collected based on semi-structured interview and document analysis to illustrate the implementation of the STI policy and its programmes. Fifteen participants were selected based on the purposive sampling technique, and they consisted of policymakers, programme coordinators, programme implementers, and beneficiaries who were involved directly and indirectly in the STI policy formulation and implementation of the selected programmes. The data from interviews and documents were analysed into themes using Nvivo 12 software and reported in a narrative style. The findings revealed that several challenges influenced the implementation process occurred at the macro and micro-levels that need to be addressed. A policy implementation framework with a corresponding set of elements namely, leadership and commitment (internal), communication and coordination, priority setting, capacity building, support system, funding mechanism, data and information, and monitoring and evaluation (external) was proposed as a guide for future policy development and implementation analysis. This study concludes that clear policy direction, targeted commitment and strong leadership could facilitate effective implementation of the policy, alongside the provision of sufficient enabling environment. Despite several limitations, this empirical study contributes to the knowledge and practice in the field of STI policy, which currently almost limited studies have been carried out on this discourse in Malaysia.

ABSTRAK

Sebagai ekonomi yang baru muncul, pelbagai dasar telah diperkenalkan dan langkah telah diambil oleh kerajaan Malaysia untuk memacu pembangunan sosio-ekonomi negara ke arah merealisasikan status negara berpendapatan tinggi dan maju. Berjaya mengurangkan jurang ketidaksamaan dan kadar kemiskinan dalam beberapa tahun terakhir ini, tumpuan kerajaan telah berkembang untuk menangani keperluan isi rumah berpendapatan rendah (LIH) bagi memastikan kumpulan pendapatan ini meningkat menjadi golongan berpendapatan sederhana pada tahun 2020. Selaras dengan keperluan yang berkembang pesat akibat perubahan sosio-ekonomi global yang mana LIH akan memberikan impak buruk, peranan sains, teknologi dan inovasi (STI) telah diakui dapat menyelesaikan masalah yang dihadapi LIH. Beberapa langkah dasar telah diperkenalkan dalam dasar STI, dan program telah dilaksanakan selaras dengan Dasar Sains, Teknologi dan Inovasi Negara 2013-2020 ke arah mencapai matlamat utama negara. Walaupun bidang STI untuk pembangunan sosial semakin penting, terdapat kajian empirikal yang terhad yang dilakukan di STI untuk pembangunan sosial, terutamanya dalam persekitaran Malaysia. Oleh itu, dengan disokong oleh teori pelaksanaan dan model pelaksanaan, kajian ini meneroka pelaksanaan dasar dan program STI yang bertujuan untuk menangani LIH di Malaysia dengan mengkaji cabaran yang berpotensi mempengaruhi proses pelaksanaannya. Kajian kes berbentuk penerokaan ini menggunakan kaedah kualitatif dimana data diperolehi menerusi temu bual separa berstruktur dan analisis dokumen bagi menggambarkan keseluruhan proses pelaksanaan dasar dan program STI. Lima belas peserta dipilih berdasarkan teknik pensampelan bertujuan, dan mereka terdiri daripada pembuat dasar, penyelar program, pelaksana program dan penerima manfaat yang terlibat secara langsung dan tidak langsung dalam pembuatan dasar dan pelaksanaan dari program terpilih. Data dari temu bual dan dokumen dianalisis secara tematik menggunakan perisian Nvivo 12, dan dilaporkan dalam bentuk naratif. Penemuan kajian menunjukkan bahawa proses pelaksanaan dasar dipengaruhi pelbagai cabaran yang berlaku diperingkat makro dan mikro yang perlu diatasi. Rangka kerja pelaksanaan berserta set elemen yang sesuai iaitu kepimpinan dan komitmen (dalaman), komunikasi dan koordinasi, penetapan keutamaan, pembinaan kapasiti, sistem sokongan, mekanisme pembiayaan, data dan informasi dan pemantauan dan penilaian (luaran) dicadangkan sebagai panduan untuk pembangunan dan analisis dasar pada masa akan datang. Kajian ini merumuskan bahawa hala tuju dasar yang jelas, komitmen yang tersasar dan kepimpinan yang kuat dapat membantu memudahkan pelaksanaan dasar yang lebih berkesan, di samping persekitaran yang mencukupi. Walaupun terdapat beberapa batasan, kajian empirikal ini menyumbang kepada bidang pengetahuan dan praktikal dalam bidang dasar STI, yang pada masa ini hampir tidak ada penyelidikan telah dijalankan pada wacana ini di Malaysia.

TABLE OF CONTENTS

	TITLE	PAGE
	DECLARATION	iii
	DEDICATION	iv
	ACKNOWLEDGEMENT	v
	ABSTRACT	vi
	ABSTRAK	vii
	TABLE OF CONTENTS	viii
	LIST OF TABLES	xiii
	LIST OF FIGURES	xiv
	LIST OF ABBREVIATIONS	xv
	LIST OF APPENDICES	xvii
CHAPTER 1	INTRODUCTION	1
	1.1 Introduction	1
	1.2 Background of the Study	1
	1.3 Problem Statement	7
	1.4 Research Objectives	9
	1.5 Research Questions	10
	1.6 Scope of the Study	10
	1.7 Significance of the Study	12
	1.8 Conceptual Framework	14
	1.9 Theoretical Underpinnings	16
	1.10 Definition of Terms	17
	1.11 Structure of the Thesis	21
	1.12 Chapter Summary	21
CHAPTER 2	LITERATURE REVIEW	23
	2.1 Introduction	23
	2.2 Policy and Public Policy	23

2.3	Policy Cycle	25
2.4	Agenda-setting	27
2.5	Policy Formulation	29
2.6	Policy Implementation	31
2.7	Output, Outcome and Impact	34
2.8	Science, Technology and Innovation Policy	36
2.9	Science, Technology and Innovation Policy for Social Development	38
2.10	Implementation Barriers of STI for Social Development	43
2.11	Theoretical Underpinnings	47
	2.11.1 Implementation Theory	48
	2.11.1.1 Top-down Approach	50
	2.11.1.2 Bottom-up Approach	57
2.12	Relevant Policies Related to this Study	60
	2.12.1 Policies and Programmes for Low-Income Households in Malaysia	60
	2.12.2 Science, Technology and Innovation Policies in the National Development Agenda	65
	2.12.3 National Policies on Science, Technology and Innovation	68
2.13	Previous Studies	72
	2.13.1 International Studies and Practice on Science, Technology and Innovation Policy Implementation	73
	2.13.2 Local Studies and Practice on Science, Technology and Innovation Policy Implementation	78
2.14	Research Gap	84
2.15	Chapter Summary	87
CHAPTER 3	RESEARCH METHODOLOGY	89
3.1	Introduction	89
3.2	Overview of Research Design	89
	3.2.1 Qualitative	90
	3.2.2 Case Study	92

	3.2.2.1	Single case (embedded) design	93
	3.2.2.2	Bounded system	94
3.3		Study Participants	96
3.4		Data Collection	98
	3.4.1	Semi-structured Interview	99
	3.4.2	Interview Questions	100
	3.4.3	Documents	100
3.5		Pilot Interview	101
3.6		Ethical Consideration	102
3.7		Data Management and Analysis	105
	3.7.1	Interview Transcription	105
	3.7.2	Data Management	106
	3.7.3	Reflection on Nvivo Software	107
	3.7.4	Data Interpretation and Presentation	108
	3.7.4.1	Defining Themes	108
	3.7.4.2	Presentation of data	109
3.8		Reliability and Validity	110
	3.8.1	Member Checking	111
	3.8.2	Peer Debriefing	111
	3.8.3	Audit Trail	112
	3.8.4	Triangulation	112
	3.8.5	Quality Interview Questions	113
	3.8.6	Interview Credibility	114
	3.8.7	Selection of Participants	114
	3.8.8	Reaching Saturation Point	115
3.9		Chapter Summary	116
CHAPTER 4		RESULTS AND FINDINGS	117
4.1		Introduction	117
4.2		Macro-level Analysis	117
	4.2.1	The Implementation of Science, Technology and Innovation Policy in Malaysia	118
	4.2.1.1	Policy Content	118

	4.2.1.2	Coordination	126
	4.2.1.3	Commitment	130
	4.2.1.4	Resources	134
	4.2.1.5	Support System	137
	4.2.1.6	Data and Information	141
	4.2.2	The Science, Technology and Innovation Policy Focus	143
	4.2.2.1	Dominant Policy Focus	143
	4.2.2.2	STI Actors and Beneficiaries	147
	4.2.2.3	STI for Social Development	150
4.3		Micro-level Analysis	157
	4.3.1	Initiation Phase	157
	4.3.1.1	Implementation Process	157
	4.3.1.2	Implementation Challenges	164
	4.3.2	Implementation phase	171
	4.3.2.1	Implementation Process	171
	4.3.2.2	Implementation Challenges	189
	4.3.3	Completion phase	202
	4.3.3.1	Implementation Process	202
	4.3.3.2	Implementation Challenges	208
4.4		Key Findings	217
4.5		Chapter Summary	221
CHAPTER 5		DISCUSSION OF POLICY IMPLEMENTATION FRAMEWORK, CONCLUSION, AND IMPLICATION	223
5.1		Introduction	223
5.2		Policy Implementation Framework of Science, Technology and Innovation Policy for Social Development	223
	5.2.1	Policy Focus	227
	5.2.2	Roles of Actors	228
	5.2.3	Leadership	232

5.2.4	Commitment	233
5.2.5	Communication and Coordination	234
5.2.6	Priority Setting	238
5.2.7	Capacity Building	240
5.2.8	Support System	242
5.2.9	Funding Mechanism	246
5.2.10	Data and Information	247
5.2.11	Monitoring and Evaluation	250
5.3	Summary of the Study	251
5.4	Conclusion of the Study	253
5.5	Study Implication	256
5.5.1	Knowledge Implication	256
5.5.2	Practical Implication	258
5.6	Limitation and Future Research	261
5.7	Summary	264

REFERENCES **265**

LIST OF PUBLICATIONS **313**

LIST OF TABLES

TABLE NO.	TITLE	PAGE
Table 1.1	Five Foundations and Six Strategic Thrusts of NPSTI	3
Table 1.2	National STI Landscape	5
Table 2.1	Factors Influencing Implementation Process	33
Table 2.2	Definitions of Input, Output, Outcome and Impact	35
Table 2.3	Definitions and Concepts of New Innovation Approaches	40
Table 2.4	Factors Influencing the Implementation of STI for Social Development	46
Table 3.1	Participants' Profile	97
Table 3.2	Participants' Code	103
Table 3.3	Data Collection Procedure - Semi-Structured Interview	104
Table 3.4	Data Collection Procedure - Document Analysis	104
Table 5.1	Nine Elements of the Policy Implementation Framework	224
Table 5.2	Key Takeaways	255

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
Figure 1.1	Conceptual Framework	14
Figure 2.1	Policy Cycle: Five Policy Stages	26
Figure 2.2	Van Meter and Van Horn's Policy Implementation Model	52
Figure 2.3	Sabatier and Mazmanian's Policy Implementation Model	55
Figure 2.4	Framework for the National Policy on Science, Technology and Innovation	70
Figure 3.1	Research Methodology Framework	116
Figure 4.1	The Concept Mapping of the Overall Findings	220
Figure 5.1	Policy Implementation Framework of STI Policy for Social Development	226

LIST OF ABBREVIATIONS

5MP	-	Fifth Malaysia Plan
6MP	-	Sixth Malaysia Plan
7MP	-	Seventh Malaysia Plan
8MP	-	Eighth Malaysia Plan
9MP	-	Ninth Malaysia Plan
10MP	-	Tenth Malaysia Plan
11MP	-	Eleventh Malaysia Plan
AIM	-	Agensi Inovasi Malaysia - Malaysia Innovation Agency
ASM	-	Academy of Sciences Malaysia
B40	-	Bottom forty percent
DOSM	-	Department of Statistics Malaysia
DSTIN	-	Dasar Sains, Teknologi dan Inovasi Nasional
EPU	-	Economic Planning Unit
ETP	-	Economic Transformation Programme
GTP	-	Government Transformation Programme
IMF	-	International Monetary Fund
IRPA	-	Intensification of Research in Priority Areas
KPI	-	Key Performance Indicator
LIH	-	Low-income household
M40	-	Middle forty percent
MASTIC	-	Malaysian Science and Technology Information Centre
MDG	-	Millennium Development Goal
MESTECC	-	Ministry of Energy, Science, Technology, Environment and Climate Change
MIGHT	-	Malaysian Industry-Government Group for High Technology
MOSTE	-	Ministry of Science, Technology and Environment
MOSTI	-	Ministry of Science, Technology and Innovation
MP	-	Malaysia Plan
MSI	-	MOSTI Social Innovation

MySI	-	Malaysia Social Innovation
NDP	-	National Development Policy
NEM	-	New Economic Model
NEP	-	New Economic Policy
NGO	-	Non-governmental organisation
NIC	-	National Innovation Council
NKEA	-	National Key Economic Areas
NPSTI	-	National Policy on Science, Technology and Innovation
NSC	-	National Science Council
NSCRD	-	National Council for Scientific Research and Development
NSRC	-	National Science and Research Council
NSTP	-	National Science and Technology Policy
NSTP 2	-	Second National Science and Technology Policy
OECD	-	Organisation for Economic Co-operation and Development
R&D	-	Research and Development
R&D&C&I	-	Research, Development, Commercialisation, and Innovation
RMA	-	Research Management Agency
S&T	-	Science and technology
SME	-	Small and Medium Enterprise
SDG	-	Sustainable Development Goal
ST	-	Strategic Thrust
STI	-	Science, Technology and Innovation
T20	-	Top twenty percent
UKM	-	Universiti Kebangsaan Malaysia
UNDP	-	United Nations Development Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
WEF	-	World Economic Forum
YIM	-	<i>Yayasan Inovasi Malaysia</i> – Malaysia Innovation Foundation

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
Appendix A	Interview Protocol	297
Appendix B	Faculty Official Letter for Interview Protocol Validation	307
Appendix C	Faculty Official Letter for Data Collection	308
Appendix D	Written Consent Form	309

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter begins with the elaboration of the research background in which it describes the science, technology, and innovation (STI) policy in Malaysia by concentrating on the policy implementation catering to social issues and challenges emerging from the global socio-economic changes. Subsequently, this chapter discusses the problem statement and the research questions as well as the objectives of the research in the following subsections. The research scope and significance are also explained in the corresponding sub-sections to provide a clear understanding of this study's orientation. Finally, the thesis structure is presented at the end of this chapter.

1.2 Background of the Study

Malaysia is a developing country that is progressing into a high income and advanced nation. During the early years, the country had concentrated on agriculture as its primary source for the economy. Agricultural and rural development strategies have played a notable role in reducing poverty in Malaysia during the period (United Nations Development Programme [UNDP], 2005). As an open economy, the country is increasingly concentrating on knowledge-intensive services and high-technology manufacturing industries as its main economic pillars. Along the way, this country has achieved various important socio-economic milestones, including transforming the people's well-being via equitable access to services and opportunities. Nevertheless, the predicaments faced by the country are not on the economic development per se, but on the social stability as well (Abdul Gapar, 2010).

In the past, the country dealt with various socio-economic challenges, including poverty and inequality. The inception of the New Economic Policy (NEP) in 1971 and the following policies and programmes have successfully aided in lessening inequalities between the rich and poor, as well as decreased poverty rates. The country believes that everyone must benefit from development initiatives and that the inequality gaps would be reduced (Economic Planning Unit [EPU], 2015b). Following the success, the country has reoriented its attention to boost the bottom forty households (B40) (of the country's income distribution) or low-income households' (LIHs) well-being as the poverty rate and inequality gap have reduced. Access to necessities, such as healthcare, education systems and infrastructure, as well as the opportunities for the group of income to be in the economic circuits through entrepreneurship programmes, are among the measures targeting the LIHs. Such efforts support the government's mission to uplift the LIHs' income level, leading to a better living standard (EPU, 2010, 2015d).

As part of the contributors to socio-economic growth, STI is evolving with diverse STI products, processes and services being generated, benefitting many people across the society. The country has performed multiple efforts to ensure that every society member has access to technological infrastructures and services for better living standards. Access to STI has allowed people to be connected with information and knowledge, where it is much easier and cheaper now than ever for people to reach out to more recent sources of knowledge. The deep-rooted technological innovation divide, where technological innovation was only accessible to a particular group of people, has been narrowed down, accelerated by various technological breakthroughs and advanced infrastructures. Internet usage, for instance, has increased to 79 percent in 2016 compared to the year of the 1990s in Malaysia (Khazanah Research Institute [KRI], 2018).

With reference to the policy, policy on STI was not prominent before the 1980s. Science and technology (S&T) was first featured in the Fifth Malaysia Plan, 1986-1990 (5MP) as one of its chapters. The introduction of the S&T chapter in the 5MP served as a crucial step for institutionalising policy on STI (Organisation for Economic Co-operation and Development [OECD], 2016a). In the same year, an

independent STI policy, namely the first National Policy on Science and Technology, 1986-1990 (NSTP), was also adopted to foster the application of S&T for both economic and social development. Before the 1990s, the S&T strategies centred on strengthening the institutional and scientific and educational infrastructures, as well as public awareness of S&T (Park & Kim, 2020). Later, in the 2000s onwards, the STI policy measures and strategies focused on enhancing the local capacities and capabilities, international partnerships, and governance. The most recent policy on STI, namely the National Policy on Science, Technology and Innovation, 2013-2020 (NPSTI), has been built on the basis of five foundations and six strategic thrusts (STs), as illustrated in Table 1.1.

Table 1.1 Five Foundations and Six Strategic Thrusts of NPSTI

Five foundations	Six strategic thrusts
STI for policy Policy for STI Industry Commitment to STI STI governance STI for a stable, peaceful, prosperous, cohesive, and resilient society	ST 1: Advancing Scientific and Social Research Development and Commercialisation ST 2: Developing, harnessing, and intensifying talent ST 3: Energising Industries ST 4: Transforming STI governance ST 5: Promoting and sensitising STI ST 6: Enhancing strategic international alliances

(Source: Adapted from Ministry of Science, Technology and Innovation [MOSTI], 2013, pp. 5-6)

Led by the Ministry of Science, Technology and Innovation (MOSTI), the implementation of STI policy in Malaysia is characterised by multiple institutional and actors' involvements. The key actors are the central agencies (e.g. Treasury, EPU and Public Service Department), sectoral ministries (e.g. Ministry of Education [MOE], Ministry of Agriculture and Food Industries [MAFI], Ministry of Plantation Industries and Commodities [MPIC], Ministry of Human Resources [MOHR] and institutions of higher learning and research institutions under the ministries), councils (e.g. National Innovation Council [NIC], National Science and Resource Council [NSRC]), and other agencies and bodies (e.g. Malaysia Innovation Agency [*Agensi Inovasi Malaysia*

- AIM], Academy of Sciences Malaysia [ASM], and Malaysia-Industry High Technology Group [MIGHT]) and the industry (Thiruchelvam, Chandran, Boon-Kwee, & Chan-Yuan, 2013). Multiple investments, including funding schemes and incentives, reflect the government's commitment to embracing STI in cross-cutting areas, including research and development (R&D) activities and high-technology and strategic sectors to drive the country's competitiveness. The government is committed to positioning Malaysia in the same position as the developed countries.

In accordance with the Agenda of Sustainable 2030, STI has been embedded as one of the key pillars in meeting the Sustainable Development Goals (SDGs), established on the Millennium Development Goals (MDGs). The SDGs, adopted in 2015, aim to fulfil the Agenda of Sustainable Development 2030's central pledge of leaving no one behind. After it has successfully proven its record to become one of the fastest global economies to achieve the MDGs' first goal, i.e. reduced the number of people living in poverty by half, ahead of the deadline (EPU, 2015b), Malaysia also harmonises its Eleventh Malaysia Plan's (11MP) policy strategies with the SDGs to ascertain smooth implementation (EPU, 2017). The Department of Statistics Malaysia (DOSM) has been entrusted as the focal point to coordinate the SDGs indicators in Malaysia (DOSM, 2018). The policy on STI, namely the NPSTI, though it has no overt reference to MDGs (as it was developed two years before the SDGs), clearly portrays inclusiveness as part of the important policy outcomes, consistent with the spirit of SDGs.

Mounting literature has discussed the adverse effects of STI, especially on the marginalised, over the last years. Some studies have reported that modern STI has induced rising inequality in which the benefits are found to be unequally distributed (Chaminade & Pérez, 2014; Schwachula, Seoane, & Hornidge, 2014; Watkins & Ehst, 2008). Responding to this, several new innovation approaches have been introduced and implemented, which can be seen proliferating in many countries. The initiatives that are branded under the names of social innovation, grassroots innovation, frugal innovation, and inclusive innovation, inter alia, are geared towards resolving issues that arise in the current STI development. These initiatives are intended to ascertain that the STI benefits are fairly dispersed. Besides, such initiatives also promote the

participation of the people living in poverty, since, by benefiting but not participating in the growth process will widen the inequality gap (Vellala, Madala & Chhattachopadhyay, 2014). In keeping with Bianco (2012), STI policy needs to meet the disadvantaged groups' needs as they are incapable and have a limited opportunity to escape poverty. Malaysia has also designed several policy measures seek to ensure that the lowest part of the population continues to benefit equally from the STI development, not only as passive users or consumers, but also as active participants in the STI ecosystem. The LIHs, nonetheless, have increasingly become part of the significant beneficiaries of the STI policy and programmes.

Nevertheless, implementing policy measures is not without difficulties. Malaysia's STI path is less satisfactory as compared to the developed countries (ASM, 2018), where the STI implementation has been linked with various issues found in a number of published reports. The heterogeneity or fragmentation of policies, actors and initiatives due to the involvement of multiple actors in the ecosystem (ASM, 2018; EPU, 2015d; OECD, 2016a; Park & Kim, 2020), found to be among the commonly cited issues impeding the optimisation of the STI development. International Monetary Fund (IMF) (2015) also observes that the establishment of innovation and research agencies faces a severe risk of duplication that could lead to inefficiency. As of 2017, ASM (2018) reported that Malaysia's national STI landscape consists of 268 actors, which include multiple ministries, state governments, federal and state agencies, councils, policies, universities, intermediaries, and economic corridors, as shown in Table 1.2. These explain that there are still gaps in the implementation at the national level amid the articulation of various STI policy measures. In addition, as stated by Thiruchelvam (2017), the STI policy in Malaysia has primarily been designed and implemented at the national level but lacking at the local level.

Table 1.2 National STI Landscape

268 Actors	
23	Ministries
157	Agencies under respective ministries
27	STI-related councils - 1 international council - 10 councils chaired by Prime Minister's Department

Table 1.2 National STI Landscape (Continued)

268 Actors	
	- 16 national councils
16	Agencies under Prime Minister's Department
46	Active, STI-related National Policies
20	Public Universities
6	Intermediaries
14	State Government and Federal Territories
5	Economic Corridors

(Source: Adapted from Academy of Sciences Malaysia, 2018, p. 7)

Given that the global aim on STI is no longer focused on STI for economic purposes per se, and the social development agenda has become a part of the important agenda for a balanced development, Malaysia's position on this issue needs to be well deliberated. This study, thereby, aimed at understanding the government's stance on STI, aligning with the SDGs and how the existing programmes have been put into practice. It concentrates on the policy implementation cycle, and factors arising from phases prior to implementation are also considered. This is because issues may occur due to improper planning and engagement. Past research on the topic related to STI for social development has generally shown that numerous factors influencing the implementation of the initiatives, including the lack of policy support or commitment and various constraining factors occur in the implementation process at the local level.

Instead of delving into the implementation outcome or impact, it is imperative to investigate the process where inputs are presented and what happens during implementation, mainly, the challenges faced by the actors involved. As the implementation process is the key to policymaking activities, comprehending the challenges and their outcomes is crucial (Rahmat, 2015). Besides, information on how to better execute plans or policy is vital for replicating previously effective programmes and is necessary for policy actors to enhance current or develop future programmes (Chen, 2012). Otherwise, the information gap can lead to complexity in replicating successful programmes (Backer, Liberman, & Kuehnel, 1986) and further affecting programme sustainability. Recognising that there have been limited studies

undertaken in this area in Malaysia's setting since this topic is a relatively young research area, it serves as a potential area for further research.

1.3 Problem Statement

In cognisant of the paramount role of STI in enhancing social well-being and economic growth, the primary problem that the researcher seeks to address is relevant to the implementation of the STI policy for social development, particularly in addressing the well-being of the LIHs. STI is considered as one of the critical pillars in the SDG framework, where the important goals on STI are showcased in multiple goals such as 4 (education), 9 (innovation) and 17 (partnerships for the goals). In continuation of its success in the MDGs, Malaysia is committed to implementing the SGDs, with multiple efforts have been invested towards the development and implementation of policies. The adoption of the goals is showcased in the 11MP. The introduction of several policy measures and initiatives on STI aiming for social development outcomes signifies that the government strives to achieve the articulated policy goals for equal STI benefits to society.

Typically, implementing policies is considered a challenging phase as it entails various elements to ensure that policy statements can be translated into actions and produce outcomes intended. A closer look at the earlier works of the international scholars on this topic of study has concluded that significant issues linked to the ineffectual implementation of STI policy emerged from the central and local implementation levels. At the central level, STI aimed at social development was said to be inadequately and weakly supported (Dagnino, 2012; Daniels, 2015; Daniels, Ustuyuzhantsera, & Yao, 2017; Heeks et al., 2013). While at the local implementation level, several issues, such as inadequate funding, lack of grassroots innovators with technical skills, and insufficient information on customer needs for pro-inclusive innovators (Heeks et al., 2013; OECD, 2015b; Seyfang & Smith, 2007), to mention a few, have been identified.

Provided that Malaysia also recognises the STI's role as a tool in addressing the LIHs' needs, as outlined in policy measures and programmes, little is presently known about the implementation process of these government-funded programmes. As a matter of fact, the designed policy measures do not always automatically result in effective implementation (Egonmwan, 1991) as it does not work in a straightforward process, influenced by various factors. Several reports prepared and presented by ASM, MOSTI and the OECD suggested a myriad of gaps in translating the policy into the intended goals ascribed to various factors that emerged during the implementation. Furthermore, several studies have been undertaken on the topic relevant to the new innovation approaches. There have been limited efforts, nonetheless, to link the implementation of these approaches with the STI policy as an overarching policy on STI. These have inspired the researcher to investigate the STI policy for social development via the implementation lens, which remains unexplored to date.

Despite the significance of policy implementation topics under the policy analysis studies, most implementation studies focused on the Western hemisphere, with nearly 90 percent of all studies denoting ethnocentric bias (Saetren, 2005). According to Saetren (2005), the five most attended policy issues were in the fields of health, education, environmental, social and economic. In principle to the studies on the implementation of the STI policy in addressing the social issues, most of the previous studies performed in different countries, including Latin America, Africa, and several other countries, where the socio-economic conditions, issues and priorities might vary, and that the implementation of the policy is context dependent. Such countries, in particular the Latin American and African countries face multiple socio-economic with income inequality remain high (Alvaredo, Chancel, Piketty, Saez, & Zucman, 2018).

Since the studies are mostly carried out in different countries, STI policies are not equal. The policies may work in one country, but fail in another (Chaminade & Pérez, 2014). In the opinion of Tödting and Trippel (2005), it is too common that the inefficient policy on innovation is the result of "one-size-fits-all" solutions being implemented. According to the scholars, no ideal model exists for policy on innovation (Tödting & Trippel, 2005). When such demands vary, the solutions proposed might be

limited or inapplicable from one country to another. Consequently, the studies may not be able to be extrapolated directly into the context of Malaysia. Moreover, in Malaysia, where the numbers of people living in poverty are far less than decades before, recorded at 5.6 percent absolute poverty, and the inequality gap stood at 0.407 in 2019 (DOSM, 2020), suggest that the efforts to eradicate such issues is on the right track. However, some issues related to the capacity of LIHs to cope with economic shocks and emergencies can inevitably push many of them back into poverty (EPU, 2015d; KRI, 2018). Thus, including the LIHs in such initiatives may require different approaches and priorities in the STI policy design and implementation.

In this respect, this calls for a review of the STI policy and the implementation of its programmes. Hill and Hupe (2002) state that context should be specified at the very beginning to the end of a study to understand the relationship between practice and theory. Consequently, this research aims to explore the implementation of the STI policy and its programmes aimed at addressing the LIHs' well-being in Malaysia. It seeks to define the STI landscape and scenario and establish a connection between STI policy and social development at the macro-level. In the meantime, the micro-level implementation is evaluated based on selected programmes designed to address the LIHs' well-being on how they are implemented, and the challenges faced by the actors involved. A policy framework to address the lacunas found in this study serves as the output of the study.

1.4 Research Objectives

To achieve the above-mentioned research aim, the following research objectives are outlined:

- (a) To investigate the landscape and scenario of the STI policy implementation in Malaysia.
- (b) To delve into the implementation process of the STI programmes that aim to address the well-being of the LIHs.

- (c) To identify significant challenges in implementing the STI programmes aimed at addressing the well-being of the LIHs.
- (d) To propose an implementation framework to facilitate the improvement of the STI policy implementation to address social development.

1.5 Research Questions

In achieving the objectives as mentioned earlier, the research questions are outlined as follows:

- (a) What is the landscape and scenario of the STI policy implementation in Malaysia?
- (b) How do the STI programmes that are aimed at addressing the well-being of the LIHs are implemented?
- (c) What are the challenges faced by the actors involved in implementing the STI programmes that aim to address the well-being of the LIHs?

1.6 Scope of the Study

This study's interest lies in the area of STI policy for social development in Malaysia. The exploration of this topic relates to the STI landscape, policy focus and programmes via the implementation lens, particularly the programmes aimed at addressing the LIHs' well-being. This exploratory case study aims to gain an in-depth understanding of the policy focus, linking it with social development and the key challenges occurring during the policy and programmes implementation towards achieving the policy objectives. It is the first research attempt to uncover this area in Malaysia, where it would help yield valuable information about the country's stance regarding STI for social development. Different groups of participants were engaged

to obtain their valuable insights via in-depth interviews alongside the written documents.

This study focuses on the implementation phase of the policy cycle, where the policy intentions are turned into actions (Barrett, 2004). However, considering that factors affecting the implementation process may surface due to how policy is being developed and its content, the challenges that arise from the phases prior to the implementation phase are also considered. This is because each phase of the policy cycle is interdependent. Issues that arise during the implementation process might be the results of ineffective problem framing and identification during the agenda-setting and policy formulation process. Therefore, in-depth inquiries into the overall implementation at the macro-level and the two chosen programmes at the micro-level were performed. The interaction between these levels is necessary to ensure consistency and coherence (Velasco, 2015).

At the macro-level, interviews were conducted, and several policy documents on STI, namely the STI policies (NSTP, the Second National Science and Technology Policy [NSTP 2] and NPSTI) and specific chapters and section on STI in Malaysia Plans documents, were reviewed and supported by relevant documents. The purpose of the interviews and policy documents review is to understand the landscape and the STI policy development and implementation scenario. Eventually, it seeks to grasp the STI policy focus in connection with the social development outcomes. At the micro-level, both programmes are at the programme level with several projects under them, and they are government-funded. The two programmes are identified as Programme A and Programme B. Programme A is targeting the B40 as the key beneficiaries. This programme focuses on the technological innovation developed by the government agencies to help the local communities. Programme B, which also focuses on benefitting the B40, seeks to address the group via the innovation projects from individuals who benefit the B40 group. These two programmes target to benefit the significant numbers of beneficiaries from the low-income segments of the population.

In a nutshell, the programmes share the characteristics of, (i) using new innovation approaches concepts; (ii) both are innovation programmes that are aimed

at addressing the marginalised; (iii) projects chosen were projects that attended to help the LIHs; (iv) projects have been completed; and (v) government-funded. The programmes fit the definition of new innovation approaches that are aimed at addressing the marginalised. The micro-level implementation analysis could offer an understanding of the critical elements addressed and unaddressed at the local level.

1.7 Significance of the Study

Continuous efforts to enhance the implementation of policies pursuant to the national goals are in the right direction in positioning Malaysia into a developed economy that is both inclusive and sustainable. Nonetheless, the government needs to fulfil its mandate to invest its limited resources and simultaneously generate a significant impact on society. It also needs to contemplate the long-term cost associated with the growing population demands and the changing socio-economic climate. The world is now in the age of doing more to solve emerging socio-economic problems by maximising and leveraging the available resources innovatively. While the social sector remains a second major consumer of government spending with an increased allocation at Ringgit Malaysia (RM) 24.2 billion in 2020 (Ministry of Finance [MOF], 2020) for subsidies and social assistance, aimed at addressing the socio-economic issues, for sustainability, the government also contemplates new directions and priorities in tackling multiple socio-economic issues.

The focus of STI policy in the past has been more myopically on competitiveness and economic imperatives (Bryden & Gezelius, 2017; Schwachula et al., 2014) and inclined towards high technology (Cozzens et al., 2007). Likewise, a plethora of previous research showed that STI focused on the economic aspect of technology and innovation as well as R&D, but little importance went to its critical role for social development. In the past years, STI has been recognised as a tool to tackle rising social challenges, leading to the emergence of new approaches to innovation. There has been an increased awareness that greater concentration needs to be paid to this area, with many countries worldwide have incorporated such approaches into their policies and programmes, including Malaysia. Such strategies

have been incorporated into various policies, including the national STI policy, namely the NPSTI, supporting the national development agenda for socio-economic development. However, research in this field in Malaysia remains relatively new and evolving.

In this regard, this study would provide multi-fold contributions to knowledge and practical perspectives. It adds to the understanding of the challenges that hinder the smooth implementation of the STI policy and the programmes aimed at addressing the well-being of the LIHs. This empirical evidence would also add to the current body of literature on STI policy, particularly on STI for social development, as there are limited empirical works done on this subject in Malaysia in the face of its increasing importance. This research also offers a deeper comprehension of different actors' knowledge and experiences engaged directly and indirectly in policy development and implementation in real-life situations. It also uncovers the relationships between theory and reality via the implementation lens from a theoretical perspective. Complementing the existing studies, the present study bids a comparatively new research direction, in line with the country's socio-economic, cultural, and political differences.

In practice, in a wider context, this study focuses on Malaysia's policy implementation scenario. This may provide an understanding of the challenges facing the policy implementation in Malaysia, which may be applicable to other policies available in the country. On STI policy specifically, this study would provide a better picture of the country's stance and gaps regarding the STI for social development as it highlights the crucial elements required for better implementation of STI policy measures targeting the lower-income population. The NPSTI and 11MP end in the year 2020, and the newly launched STI policy is taking place for future directions, covering measures and strategies starting from 2021 onwards. The documented findings and framework developed as the results of this study would provide a new perspective on this subject and enable policymakers to gain deeper insight into the essential elements required to establish and strengthen policy measures or programmes. It would also facilitate policy implementers to implement the policy consistently and efficiently. Subsequently, it promotes better opportunities and equitable outcomes across the board.

1.8 Conceptual Framework

It is necessary to comprehend that policy implementation is complex and involves a dynamic process. Since the implementation performance is often affected by central and local factors (Goggin et al., 1990), this study concentrates on two main scopes: macro-level and micro-level implementation. According to Matland (1995, p. 149), policy implementation occurs at two levels: at the macro-level, where the actors at the central level formulate the government programmes, and at the micro-level, where the local organisations or individuals responded to the macro-level plans. Hence, the consistency and coherency between both levels are important for effective implementation. Therefore, this study's conceptual framework is constructed, dictated by the top-down and bottom-up models of implementation to guide the exploration and analysis of the present study, as depicted in Figure 1.1.

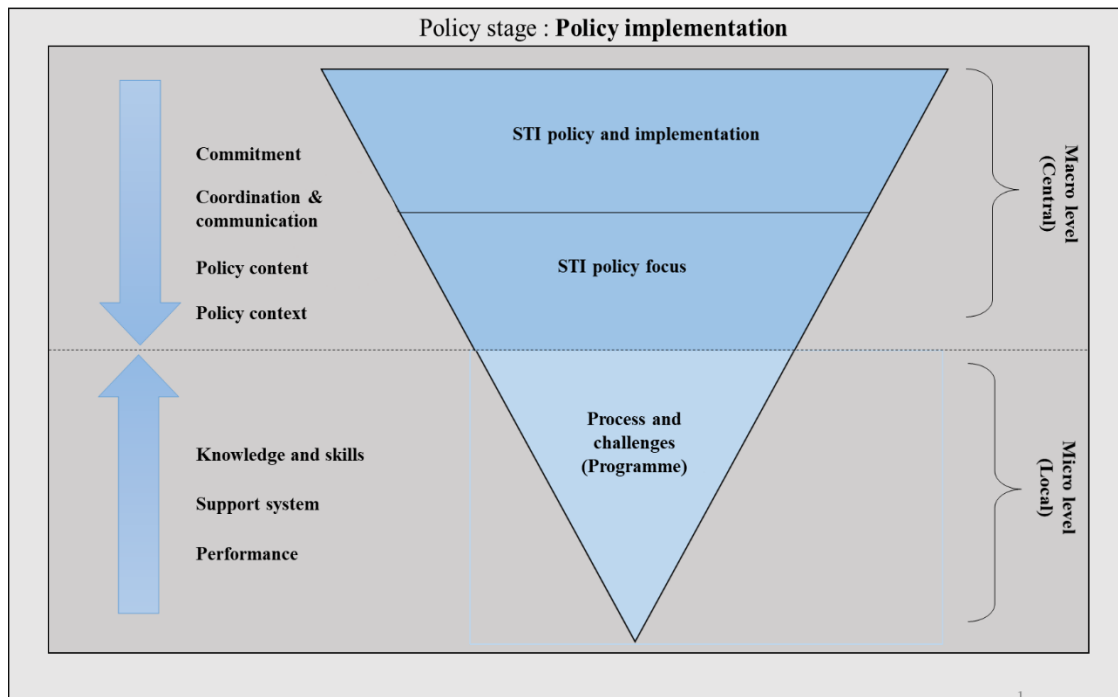


Figure 1.1 Conceptual Framework

The framework presented above illustrates the two levels of implementation, namely, the macro and micro-level. The upside-down triangle illuminates that the understanding at the broader context (macro-level) is crucial to see the general picture of STI policy before it zooms into a narrower perspective of implementation, namely

at the local (micro-level) implementation. At the macro-level, recent works support the notion that there is a lack of policy support for such innovation initiatives aiming at addressing the LIHs. The lack of policy support clarified the government's stance in recognising the LIHs as part of the significant direct beneficiaries of STI. The policy content or the statements, which explicitly focus on the economic trajectory of STI, would influence how the government invests its efforts and commitment to drive the policy, including the provisions of environment needed for programmes to thrive.

Note that the clarity of policy content is important for effective policy implementation (Sabatier & Mazmanian, 1980; Van Meter & Van Horn, 1975). The clarity of policy facilitates the understanding of diverse actors involved in the implementation. In addition to policy clarity, commitment is also imperative in ensuring a well-written policy could be translated into outcomes intended. Besides, despite its importance, commitment is hard to secure, mainly when the outcome is unknown, intangible and requires a longer-term to materialise, primarily related to STI for social development (Hernandez & Cormican, 2016; Tucker, 2014). Nevertheless, it must reach all the actors involved for implementation success (Brynard, 2009). Coordination and communication are also key in policy implementation as they facilitate alignment of efforts in implementing policy, in which Giacchino and Kakabadse (2003) argue that commitment is directly dependent upon the coordination of all actors involved. The policy context where a policy is undertaken or operates also serves as an important influencing factor to policy success (Schofield & Sausman, 2004; Van Meter & Van Horn, 1975).

Accordingly, the researcher analysed the selected programmes implementation at the micro-level, including the mechanisms and identified issues during the implementation process. In particular, the analysis under this level was undertaken based on the two selected programmes aimed to address the well-being of the LIHs in Malaysia. Past studies have shown that the STI initiatives faced several implementation problems at the local level. This reflects that the local implementers' experiences in implementing the initiatives under the condition where the implementation occurs, have implications towards implementation success (Stofile, 2008). As per Lipsky (1980), the conditions and constraints that occur during the

implementation process by the implementers at the local level, in principle, can give rise to the failure to achieve policy outcomes. Such challenges, hence, demand autonomy or discretion in making decisions. The common influencing factors at the local level linked to the implementation of policy and programmes are related to the skills and knowledge (Brynard, 2009; Elmore, 1979; Rahmat, 2015; Smit, 2003; Van Meter & Van Horn, 1975); support system (Elmore, 1979; Hill & Hupe, 2002; Lipsky, 1980; Van Meter & Van Horn, 1975); and performance (Lipsky, 1969, 1980; Van Meter & Van Horn, 1975). In sum, both levels are analysed to thoroughly understand the significant elements contributing to the implementation gaps, emerging from both the top-down and the bottom-up.

1.9 Theoretical Underpinnings

Given that this is a policy implementation study, it is imperative to contemplate the theory of implementation in theoretical knowledge as the key theory for this research. The theory of implementation focuses primarily on the success and failure of policy implementation. This theory underpins this study because it seeks to understand the crucial elements affecting STI policy via the implementation lens. It is a widely used theory that explains policy implementation and the factors influencing its effectiveness. In particular, this theory suggests appropriate implementation methods by finding ways of controlling the implementation (Hill & Hupe, 2009). Several models of top-down and bottom-up approaches to implementation theory are incorporated to provide a better comprehension of the factors affecting the implementation process.

Several essential elements characterised top-down approaches. The scholars remark policy implementation as entailing a hierarchical structure of authority where the process moves downward from the top. The top-down scholars believe that policymakers are the main actors and rely on the variables manipulable at the central level (Matland, 1995). This approach mainly concentrates on producing understandable policy objectives and controlling the implementation stage (Pülzl & Treib, 2007). Hence, the scholars place a priority on clear policies (Matland, 1995),

and with that assumption in mind, they simply delve into “what happens after a bill becomes a law” rather than looking into the entire policy process (Bardach, 1977). Accordingly, a policy is successful when the implementers comply with the policy standard and objectives. The top-down models served to understand this study are by Van Meter and Van Horn (1975), Sabatier and Mazmanian (1979, 1980), and Mazmanian and Sabatier’s (1983) models of implementation. In general, the models help the researcher analyses the role of policy content, commitment, coordination, and context at the macro-level implementation. These elements would have an influence on implementation success.

On the other hand, the bottom-uppers perceive policy implementers or the local bureaucrats as the key policy players (Pülzl & Treib, 2007) and argue that policy is to be made locally (Matland, 1995). Attention is also given to the target groups, where their participation in the policymaking process is beheld as necessary (Pülzl & Treib, 2007). The bottom-uppers examine policies with more significant uncertainty, which could cause problems in achieving policy goals (Matland, 1995). Instead of ensuring that formulated policies are transparent and can be implemented appropriately (Pülzl & Treib, 2007), the scholars focus on comprehending “and explanation on the basis that it is not possible to prescribe without understanding” (Barrett, 2004, p. 255) and the role of discretion at the policy implementation level affects the translation of policy priorities. The entire cycle of “how policies are defined, shaped, implemented, and redefined” (Pülzl & Treib, 2007, p. 94) with the unavoidable and required involvement of other stakeholders at the later stages of the policy cycle is also given more prominence (Hill & Hupe, 2002). The implementers’ role herein is regarded as the most important actor in ensuring policy success as they deal with dynamic issues occurring at the local level and, therefore, should not be ignored. One of the well-known traditional bottom-up models of implementation is street-level bureaucrats by Lipsky (1980) is also referred to reinforce the literature of this study.

1.10 Definition of Terms

The relevant terms used in this study are explained in the following:

Policy: A policy is defined as “a set of actions taken to control the system, to help solve problems within it or caused by it, or to help obtain benefits from it” (Walker & Marchau, 2017, p. 3). Firme, Letichevsky and Dannemann (2009) establish that a policy is “a deliberate plan of action that guides decisions and achieves rational outcomes” (p. 172). In general, the policy can be interpreted as plans or guidelines that guide the actors involved in executing the stipulated plans.

Policy implementation: Policy implementation can be understood as “carrying out, accomplishing, fulfilling, producing or completing a given task” (Paudel, 2009, p. 36). Van Meter and Van Horn (1975) unequivocally termed policy implementation as “those actions by public or private individuals (or groups) that are directed at the achievement of objectives outlined in the prior policy decisions” (p. 447). Succinctly, the principle of policy implementation is to carry out policy measures and initiatives to accomplish the policy objectives.

Implementation process: As per Rahmat (2015), the implementation process refers to policies that are put into effect and the key features of the process are “the timely and satisfactory performance of certain necessary tasks related to carrying out the intent of the law” (Paudel, 2009, p. 38). During the process, inputs, including resources, are placed into the programmes to ensure that activities could be carried out throughout the process to achieve the programmes’ objectives.

Programme: A programme is what the government does (Rose, 1984, Chapter 1), translated from the policy (May & Wildavsky, 1978). It involves a mixture of multiple ways of the government’s resources and tools, including laws, civil servant, government expenditure, and tax incentives, are utilised (Hood, 2009; Howlett, 2010). The government plays a role to chalk out programmes as part of the actions aligning with the policy decisions.

Implementation gap: The implementation gap refers to the differences between what is seen and what is anticipated (Hill & Hupe, 2009). It can be either non-implementation or inaction where policy intends are not put into effect as planned (Hill & Hupe, 2009; Hogwood & Gunn, 1984) or unsuccessful implementation where the

policy strategies are implemented but not favourable (Fox, Bayat & Ferreira, 2007). The implementation gaps can be attributed to multiple factors that emerge throughout the policy cycle.

Policy content: As per Brynard and De Coning (2006), the content of the policy refers to the intention or the policy objective, its relation to the problems and the methods to be applied to solve the problems. It serves as the core element for a policy because it is the government statements of intent in the form of policy documents. Thus, it should be explicit and not conflicting to be understood by those affected by the policy.

Policy focus: The term focus is defined by Oxford Advanced Learner's Dictionary (n.d.) as "the thing or person that people are most interested in; the act of paying special attention to something and making people interested in it." Hence, policy focus denotes the government's stance reflected in the policy statements in the policy documents. The focus of the policy can result in how inputs required for the policy implementation process are put in place.

Leadership: It refers to individuals' internal values that can lead to changes by their influence and commitment towards changes. On the word of Jacobs and Jaques, 1990, p. 281, "leadership is a process of giving purpose (meaningful direction) to collective effort, and causing willing effort to be expended to achieve purpose." For innovation, a leader's capacity to adapt the organisation to changing environments and create a favourable climate for changes is fundamental towards effective innovation (Ricard, Klijn, Lewis, & Ysa, 2017).

Commitment: It refers to the extent of an individual's conduct over the tasks and responsibilities assigned to them to support or implement a policy. Commitment, as per Brynard (2009), is the "ability to maintain the focus on an initiative from its inception through to its delivery" (p. 561). The commitment must be extended to as many stakeholders as possible for implementation success (Brynard, 2009).

Coordination: It involves a certain extent of working together to accomplish the same policy aims (Sabatier & Jenkins-Smith, 2007). The alignment of efforts and initiatives

between various actors is imperative in ensuring the optimisation of policy impact. Hence, coordination between actors is aimed at aligning efforts and mitigating the overlapping or redundancy of implementation. In achieving this, policies must generate collective knowledge that everyone will undertake the desired action (World Bank, 2017).

Communication: Briefly, Katz and Kahn (1978) describe communication as the process of swapping information and imparting meaning within an organisation. In implementing a policy, communication must be effectively enforced between implementers and target groups (Rahmat, 2015). This activity would reduce the risk of misinterpretation of policy that will cause a redundancy of efforts. Hence, for effective communication of policy, plain language should efficiently convey information to different policy audiences (Mackay & Shaxton, 2005).

Priority setting: It is one of the mechanisms where focus areas are set up based on existing capacities, capabilities, and future potentials. This mechanism prevents unnecessary expenses for the government as a result of a lack of planning and direction. In policy implementation, priority setting helps to define or make available tools and skills (knowledge, networks and money) to implement the prioritised policy objectives (OECD, 2012a).

Enabling environment: Cahill (2010) defines the term enabling environment as a context that permits a vast array of programmes, services, investments, and support that cultivate and encourage innovation. Such context also can result in smooth and effective implementation. In accordance with the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (2016), STI's success relies on an enabling environment that embraces the actors involved and supports the actors to participate in the STI activities continuously and effectively.

1.11 Structure of the Thesis

The thesis is structured into five chapters. Chapter 1 is the introductory chapter, where it provides the context or background of the study, including the identification of the problems statement, research questions, objectives, and the research scope. The orientation of the study and its significance are also explained in this chapter. Chapter 2 reviews the literature on concepts, theoretical perspectives and past studies that inform this study's investigation. The discussion of the research gap is also carried out in this chapter to justify this study's feasibility. Chapter 3 describes the methodology applied in the research. It discusses the design and strategies adopted in the study. A comprehensive explanation is also given on data collection and data analysis techniques in this chapter. Furthermore, it presented the ethical consideration as well as reliability and validity of the empirical research. Chapter 4 presents the analysis and findings based on the data obtained from the interviews carried out and written documents. The findings are arranged according to the research questions. At the end of this chapter, it interprets and explores the results and the connections with the theoretical perspectives and previous studies. The policy implementation framework to resolve gaps based on the study findings is addressed in Chapter 5 simultaneously. Summary, conclusion, and implications of the findings, as well as the study limitations and recommendations for future studies, are also presented in Chapter 5.

1.12 Chapter Summary

This chapter offered a summary of the overall content of this study. It offered a brief overview of the study's background, research questions, objectives, and study scopes. It also discussed why this study is of interest and sought to shed light on the topic that has not previously been offered, particularly in Malaysia's setting. Based on the premise, the researcher aims to explore the implementation of the STI policy and its programmes aimed at addressing the LIHs' well-being in Malaysia. It is envisaged that this study could fill the gaps in the implementation of STI policy and its programmes, which are frequently linked with various challenges identified by previous scholars. Within the following chapter, the literature review discusses the

concepts used in this analysis within the greater depth and elaborates on the study's theoretical foundations. Past research undertaken both locally and internationally offers a basis for an understanding and identifying gaps to be addressed.

REFERENCES

- Ab Rahman, Z. N., Ismail, N., & Rajiani, I. (2018). Challenges for managing non-technological innovation: A case from Malaysian public sector. *Polish Journal of Management Studies*, 17(1), 7–16. <https://doi.org/10.17512/pjms.2018.17.1.01>
- Abdul Gapar, A. B. (2011). *E-democracy and public administrators: The Malaysian Case* (Doctoral Dissertation, Monash University). Retrieved from <http://arrow.monash.edu.au/hdl/1959.1/475245>
- Abraham, A. V., Rashidah, M. I., Wan Abd Aziz, W. M. A. (2017). Innovation Performance Growth among Small and Medium-Sized Firms in Malaysia: A Pilot Study. *International Journal of Modern Management Sciences*, 6(61), 1–6.
- Academy of Sciences Malaysia. (2015). *Science Outlook: Action Towards Vision*. Kuala Lumpur: Academy of Sciences Malaysia.
- Academy of Sciences Malaysia. (2017). *Envisioning Malaysia 2050: A Foresight Narrative*. Kuala Lumpur: Academy of Sciences Malaysia.
- Academy of Sciences Malaysia. (2018). *Science Outlook: Converging towards Progressive Malaysia 2050*. Kuala Lumpur: Academy of Sciences Malaysia.
- Ackerman, J. (2004). Co-governance for accountability: Beyond “exit” and “voice.” *World Development*, 32(3), 447–463. <https://doi.org/10.1016/j.worlddev.2003.06.015>
- Agency Inovasi Malaysia. (2017). *Social Progress Assessment: Innovating Malaysia’s Social Sector*. Kuala Lumpur, Malaysia.
- Ahmad Zafarullah, A. J., Noor Al-Huda, A. K., & Sallahuddin, H. (2010). Assessing the socio-economic benefits of public R&D activities in Malaysia. *The Third International Conference on International Studies (ICIS 2010)*, pp. 1–15.
- Ahmad Naqiyuddin, B., Abdul Rahman, O., Abdul Rauf, A., Roseleena, J., Mohd Fadzil, M. I., Zilkifli, A. M.,... & Kamarol Baharen, M. R. (2016). Commercialisation Activities in Malaysian Universities : Issues and Challenges. *Journal of Administrative Science*, 13(2).
- Aini Suzana, A. (2017). Inculcating Innovation Culture and Developing Strategic Management of Technology and Innovation Plan in SME’s for Wealth Creation to support Malaysia National Entrepreneurship Policy 2030. *Journal of Science, Technology and Innovation Policy*, 5(1), 34–43.
- Akoum, I. (2016). Research, Development and Innovation in Malaysia: Elements of an Effective Growth Model. *Asian Economic and Financial Review*, 6(7), 390–403. <https://doi.org/10.18488/journal.aefr/2016.6.7/102.7.390.403>

- Alhojailan, M. I. (2012). Thematic analysis: A critical review of its process and evaluation. *West East Journal of Social Sciences*, 1(1), 39-47. <https://doi.org/10.1177/1525822X02239569>
- Ali, K. A. M., & Buang, M. (2016). Study on Factors that Influence Innovation in Malaysian Public Sector. *Journal of Advanced Research in Business and Management Studies ISSN*, 4(1), 60–73.
- Ali, S. (2006). Why Does Policy Fail? Understanding the Problems of Policy Implementation in Pakistan – a Neuro-cognitive Perspective. *International Studies in Educational Administration*, 34(1), 2–20. Retrieved from http://ecommons.aku.edu/cgi/viewcontent.cgi?article=1009&context=pakistan_ed_pdck
- Ali, S. S., & Aini Suzana, A. (2017). Grassroots Participation in Policy Formulation: Gaps and Challenges in the Developing Countries: Case of Malaysia and Zanzibar Grassroots. *Mediterranean Journal of Social Sciences*, 8(2), 237–244. <https://doi.org/10.5901/mjss.2017.v8n2p237>
- Alonso-Martínez, D., González-Álvarez, N., & Nieto, M. (2019). The influence of financial performance on corporate social innovation. *Corporate Social Responsibility and Environmental Management*, 26(4), 859–871. <https://doi.org/10.1002/csr.1726>
- Altenburg, T. (2009). Building inclusive innovation systems in developing countries: Challenges for IS research. *Handbook of Innovation Systems and Developing Countries: Building Domestic Capabilities in a Global Setting*, 33–56. <https://doi.org/10.4337/9781849803427.00008>
- Alvaredo, F., Chancel, L., Piketty, T., Saez, E. and Zucman, G. (2018). *World Inequality Report 2018*. Harvard University Press. Retrieved from <http://wid.world/>
- Anderson, J. E. (2003). *Public Policymaking: An Introduction*. Houghton Mifflin.
- Aremu, Y. S., Saloka, M. A., Adedina, L. O., Ogunbayo, T. O., Adebisi, O. K. (2017). Erratic Policy Making, Implementation and Adoption of Incremental Model: Nigeria Experience. *Global Journal of Arts, Humanities and Social Sciences*, 5(1), 1–11.
- Arocena, R., & Sutz, J. (2012). Research and innovation policies for social inclusion: an opportunity for developing countries. *Innovation and Development*, 2(1), 147–158. <https://doi.org/10.1080/2157930X.2012.663583>
- Aron, E., Rodríguez, I., Arza, V., Herrera, F., & Sánchez, M. (2011). *Innovation, Sustainability, Development and Social Inclusion: Lessons from Latin America. STEPS Working Paper 48*. Brighton: STEPS Centre, University of Sussex.
- Backer, T. E., Liberman, R. P., & Kuehnel, T. G. (1986). Dissemination and Adoption of Innovative Psychosocial Interventions. *Journal of Consulting and Clinical*

- Psychology*, 54(1), 111–118. <https://doi.org/10.1037/0022-006X.54.1.111>
- Bardach, E. (1977). *The implementation game: What happens after a bill becomes a law*. Cambridge: MIT Press.
- Barraket, J., Mason, C., & Friel, S. (2015). *Evidence Review: Social innovation for the promotion of health equity*. Australia: Victoria Health Promotion Foundation.
- Barrett, S. (2004). Implementation Studies: Time for a Revival? Personal Reflections on 20 Years of Implementation Studies. *Public Administration*, 82(2), 249–262. <https://doi.org/10.1111/j.0033-3298.2004.00393.x>
- Baškarada, S. (2014). Qualitative Case Study Guidelines. *Qualitative Report*, 19(40), 1–25. <https://doi.org/10.7748/nr2013.05.20.5.28.e327>
- Batteson, R., Hammond, A., Burke, F., & Sinha, S. (2008). The de Quervain's screening tool: validity and reliability of a measure to support clinical diagnosis and management. *Musculoskeletal Care*, 6(3), 168-180. <https://doi.org/10.1002/msc>
- Baum, L. (1976). Implementation of Judicial Decisions: An Organizational Analysis. *American Politics Quarterly*, 4(1), 86–114.
- Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology : Study Design and Implementation for Novice Researchers. *The qualitative report*, 13(4), 544–559.
- Berdegue, J. A. (2005). Pro-poor innovation systems. *Background Paper, IFAD*. Washington, DC: IFAD.
- Bergman, N., Markusson, N., Connor, P., Middlemiss, L., & Ricci, M. (2010). Bottom-up, social innovation for addressing climate change. *Energy Transitions in an Interdependent World: What and Where Are the Future Social Science Research Agendas*, Sussex 25-26. Retrieved from <http://www.eci.ox.ac.uk/research/energy/downloads/Bergman%20et%20al%20Social%20Innovation%20WP.pdf>
- Bhaduri, S., & Kumar, H. (2009). *Tracing the motivation to innovate: A study of grassroots innovators in India* (No. 912). Papers on Economics and Evolution.
- Bhattacharjee, A. (2012). *Social science research: Principles, methods, and practices*. <https://doi.org/10.1186/1478-4505-9-2>
- Bianco, M. (2012, November). Science, Technology and Innovation for Social Inclusion: experiences, struggles and policy opportunities. In *UNESCO International Symposium on Accelerating Innovation in Developing Countries* (p. 3e5).
- Birkland, T. A. (2007). Agenda setting in public policy. *Handbook of public policy analysis: Theory, politics, and methods*, 125, 63-78.

- Bovens, M., & Hart, P. T. (2012). Assessing policy outcomes: social and political biases. *Public policy*, 291e319.
- Bowen, G. A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9 (2), 27. <https://doi.org/10.3316/qrj0902027>
- Boyce, C., & Neale, P. (2006). *Conducting in-depth interviews: A Guide for designing and conducting in-depth interviews*. <https://doi.org/10.1080/14616730210154225>
- Bradbury, S., & Middlemiss, L. (2015). The role of learning in sustainable communities of practice. *Local Environment*, 20(7), 796–810. <https://doi.org/10.1080/13549839.2013.872091>
- Brady, M. P., Duffy, M. Lou, Hazelkorn, M., & Bucholz, J. L. (2014). Policy and Systems Change: Planning for Unintended Consequences. *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, 87(3), 102-109. <https://doi.org/10.1080/00098655.2014.891882>
- Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2). pp. 77-101. <http://dx.doi.org/10.1191/1478088706qp063oa>
- Brem, A., & Wolfram, P. (2014). Research and Development from the bottom up - Introduction of Terminologies for New Product Development in Emerging Markets. *Journal of Innovation and Entrepreneurship*, 3(1), 1–22. <https://doi.org/10.1186/2192-5372-3-9>
- Brest, P. (2010). The Power of Theories of Change. *Stanford Social Innovation Review* 8(2), 46–51. <https://doi.org/1542-7099>
- Bridgman, P., & Davis, G. (2003). What use is a policy cycle? Plenty, if the aim is clear. *Australian Journal of Public Administration*, 62(3), 98-102.
- Brink, H. I. (1993). Validity and reliability in qualitative research. *Curationis*, 16(2), 35-38.
- Brinkerhoff, D. W., & Crosby, B. (2002). *Managing Policy Reform: Concepts and Tools for Decision-makers in Developing and Transitioning Countries*. Kumarian Press.
- Brito, L. (2013, May). Innovation, Science & Technology : drivers for sustainable development ? In *International Conference on Entrepreneurship and Innovation: Making Things Work Better Dubrovnik, Croatia* (Vol. 23).
- Brito, L. (2014). The Role of Science, Technology and Innovation Policies and Instruments for a Paradigm Shift Towards Sustainable Development. In *Technologies for Sustainable Development* (pp. 13-19). Springer, Cham. <https://doi.org/10.1007/978-3-319-00639-0>

- Bryden, J., & Gezelius, S. S. (2017). Innovation as if people mattered: The ethics of innovation for sustainable development. *Innovation and Development*, 7(1), 101–118. <https://doi.org/10.1080/2157930X.2017.1281208>
- Bryman, A. (2004). *Social Research Methods*. Oxford: Oxford University Press.
- Bryman, A., & Bell, E. (2015). *Business research methods* (Vol. 4th). Glasgow: Bell & Bain Ltd.
- Brynard, P. A. (2009). Mapping the Factors that Influence Policy Implementation. *Journal of Public Administration*, 44(3.1), 557–577.
- Brynard, P. A. (2000). *Policy implementation. Improving Public Policy*. Pretoria: Van Schaik Publishers.
- Brynard, P. A., & De Coning, C. (2006). Policy implementation. In *improving public policy from theory to practise*. (2nd ed.). Edited by Cloete, F., Wissink, H., & De Coning, C. Pretoria: Van Schaik.
- Burns, A. C., & Bush, R. F. (2010). *Marketing Research* (6th Ed.). Pearson.
- Cahill, G. (2010). Primer on social innovation: a compendium of definitions developed by organisations around the world. *The Philanthropist*, 23 (3).
- Campbell, D. T. (1955). The Informant in Quantitative Research. *The American Journal of Sociology*, 60(4), 339–342.
- Capella, A. C. N. (2016). Agenda-setting policy: strategies and agenda denial mechanisms. *Organizações & Sociedade*, 23(79), 675–691. <https://doi.org/10.1590/1984-9230713>
- Carcary, M. (2009). The research audit trail-enhancing trustworthiness in qualitative inquiry. *The Electronic Journal of Business Research Methods*, 7(1), 11–24. Retrieved from <http://www.ejbrm.com/issue/download.html?idArticle=198>
- Cassiolato, J., Soares, M. C. C., & Lastres, H. M. (2008). Innovation in Unequal Societies: How can it contribute to improve equality? *Seminario Internacional Ciencia, Tecnología, Innovación e Inclusión Social*.
- Caulier-Grice, Kahn, L., Mulgan, G., Pulford, L., & Vasconcelos, D. (2010). Study on Social Innovation. *European Union/Young Foundation*, 1–124.
- Cerna, L. (2013). The Nature of Policy Change and Implementation : A Review of Different Theoretical Approaches. *Organisation for Economic Co-Operation and Development (OECD) Report*, 492-502. <https://doi.org/10.1186/s13012-015-0242-0>
- Chaminade, C., & Padilla-Pérez, R. (2017). The challenge of alignment and barriers for the design and implementation of science, technology, and innovation policies for innovation systems in developing countries. In *Research Handbook on*

Innovation Governance for Emerging Economies. Edward Elgar Publishing.

- Chataway, J., Daniels, C., Kanger, L., Ramirez, M., Schot, J., & Steinmueller, E. (2017). Developing and Enacting Innovation Policy. *Developing and Enacting Transformative Innovation Policy. A Comparative Study*, 1-28.
- Chataway, J., Hanlin, R., & Kaplinsky, R. (2014). Inclusive innovation: an architecture for policy development. *Innovation and Development*, 4(1), 33–54. <https://doi.org/10.1080/2157930X.2013.876800>
- Chen, H. T. (2012). Theory-driven evaluation: Conceptual framework, application and advancement. In *Evaluation von Programmen und Projekten für eine demokratische Kultur* (pp. 17–40). Springer VS, Wiesbaden. <https://doi.org/10.1007/978-3-531-19009-9>
- Chikweche, T., & Fletcher, R. (2012). Revisiting the marketing mix at the bottom of pyramid (BOP): from theoretical considerations to practical realities. *Journal of Consumer Marketing*.
- Coffey, A., & Atkinson, P. (1996). *Making Sense of Qualitative Data: Complementary Research Strategies*. SAGE Publications.
- Cooper, B. S., Cibulka, J. G., & Fusarelli, L. D. (Eds.) (2014). *Handbook of Education Politics and Policy*. Taylor & Francis.
- Cozzens, S. E., Kallerud, E., Ackers, L., Gill, B., Harper, J., Pereira, T. S., & Zarb-Adami, N. (2007). *Problems of inequality in science, technology, and innovation policy*. Atlanta: Resist.
- Creech, H. (2012, March). The green economy in Africa: Climate Change and Energy, Agriculture and Food Security, and the Role of Grassroots Entrepreneurs. Conference summary. *SEED Symposium and SEEDWinners Workshop*. Pretoria. Retrieved from www.iisd.org/publications/pub.aspx?pno=2794
- Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative* (pp. 146-166). Upper Saddle River, NJ: Prentice-Hall.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. (4th ed.). Sage Publications.
- Creswell, J. W., & Miller, D. L. (2000). Determining Validity in Qualitative Inquiry. *Theory into Practice*, 39(3), 124-130. https://doi.org/10.1207/s15430421tip3903_2
- Crosby, B. C., & Bryson, J. M. (2005). *Leadership for the common good: Tackling public problems in a shared-power world* (Vol. 264). John Wiley & Sons.

- Dabla-Norris, M. E., Kochhar, M. K., Suphaphiphat, M. N., Ricka, M. F., & Tsounta, M. E. (2015). *Causes and consequences of income inequality: A global perspective*. International Monetary Fund.
- Dagnino, R. (2012). Why science and technology capacity building for social development? *Science and Public Policy*, 39(5), 548–556. <https://doi.org/10.1093/scipol/scs068>
- Dahlman, C., Lasagabaster, E., & Larsen, K. (2016). Inclusive innovation: Harnessing creativity to enhance the economic opportunities and welfare of the poor. In *Innovation in Emerging Markets* (pp. 271-290). London: Palgrave Macmillan.
- Daily, A. (2014). *Social Innovation and Innovation Champions : An analysis of public and private processes*. Virginia Commonwealth University.
- Daniels, C. U. (2015). Policy Support for Innovation at Grassroots in Developing Countries: Perspectives from Nigeria. *Journal of Science, Technology and Society*, 1-17.
- Daniels, C. U., Ustyuzhantseva, O., & Yao, W. (2017). Innovation for inclusive development, public policy support and triple helix: perspectives from BRICS. *African Journal of Science, Technology, Innovation and Development*, 9(5), 513–527. <https://doi.org/10.1080/20421338.2017.1327923>
- De Leon, P., & De Leon, L. (2002). What Ever Happened to Policy Implementation? An Alternative Approach. *Journal of Public Administration Research and Theory*, 12(4), 467–492. <https://doi.org/10.1093/oxfordjournals.jpart.a003544>
- De Leon, P. (1999). The missing link revisited: contemporary implementation research. *Review of Policy Research*, 16(3-4), 311–338.
- Dearing, J. W., & Rogers, E. M. (1996). Agenda-setting. Communication concepts 6. Sage Publications, Thousand Oaks, Ca. De La Cuesta, Antonio (2005), “La Enchilada Completa” *En Reforma*, 31, 518–536.
- Degelsegger, A., Gruber, F., Remøe, S. O., & Trienes, R. (2014). *Spotlight on: Stimulating innovation in South East Asia*. Center for Social Innovation (ZSI).
- Denhardt, J. V, & Denhardt, R. B. (2011). *The New Public Service: Serving, Not Steering*. Taylor & Francis Group.
- Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods*. McGraw-Hill.
- Denzin, N. K. & Lincoln, Y. S. (1994). Introduction: Entering the field of qualitative research. In N. K. Denzin & Y. S. Lincoln. (eds.). *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- De Souza Lessa, B., Souza, A. C. A. A., & da Silva-Filho, J. C. L. (2016). Education in cooperative cells as a social innovation: a case study in the Brazilian

- semiarid. *RAI Revista de Administração e Inovação*, 13(3), 166-175.
- Derojeda, K., Verzijl, D., Nagtegaal, F., Rouwmaat, M. L. & E., Netherlands, P., Frideres, E. M. & L., & Luxembourg, P. (2014). Design for Innovation. *Business Innovation Observatory, Case study 16*.
- Dewangan, V., & Godse, M. (2014). Towards a holistic enterprise innovation performance measurement system. *Technovation*, 34 (9), 536-545. <https://doi.org/10.1016/j.technovation.2014.04.002>
- Diabré, Z. (2001). Globalisation And Poverty : Potentials And Challenges. *Ethical and Institutional Concerns*, 137.
- Diercks, G., Larsen, H., & Steward, F. (2018). Transformative innovation policy: Addressing variety in an emerging policy paradigm. *Research Policy*, 48 (4), 880-894). <https://doi.org/https://doi.org/10.1016/j.respol.2018.10.028>
- Dobele, L. (2015). Factors Which Influence the Development of Social Innovation in Latvia. In *Economic Science for Rural Development Conference Proceedings of the 16th International Scientific Conference* (pp. 226–238). Retrieved from https://llufb.llu.lv/conference/economic_science_rural/2015/Latvia_ESRD_40_2015-226-238.pdf
- Department of Statistic Malaysia. (2017, October 9). *Report of Household Income and Basic Amenities Survey 2016* [Press release]. Retrieved from <https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=RUZ5REwveU1ra1hGL21JWVIPRmU2Zz09>
- Department of Statistic Malaysia. (n.d.). Small & Medium Enterprises. Retrieved from https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=bW12aDJz M2ZieGJFTENHTWtxYUHMQT09
- Department of Statistic Malaysia. (2018). *The Initial Assessment of The Sustainable Development Goals Indicators for Malaysia 2018*. Retrieved from https://www.dosm.gov.my/v1/uploads/files/4_Portal Content/2_Statistics/SDG/HTML/The Initial Assessment of The SDG Indicators for Malaysia 2018.pdf
- Department of Statistic Malaysia. (2020). *Pocket Stats Q3 2020*. DOSM: Putrajaya, Malaysia.
- Dewan Rakyat Malaysia. (2011). Jawapan-Jawapan Lisan Bagi Pertanyaan-Pertanyaan. *Penyata Rasmi Parlimen Dewan Rakyat, No. 1700* (pp. 74-75). Parlimen Kedua Belas Penggal Keempat.
- Douthwaite, B., Beaulieu, N., Lundy, M., & Peters, D. (2009). Understanding how participatory approaches foster innovation. *International Journal of Agricultural Sustainability*, 7(1), 42–60. <https://doi.org/10.3763/ijas.2009.0339>
- Dunsire, A. (1978). *Implementation in a Bureaucracy*. New York: St. Martin's Press.

- Dutz, M. (2007). *Unleashing India's Innovation: Toward Sustainable and Inclusive Growth*. The World Bank. <https://doi.org/10.1596/978-0-8213-7197-8>
- Dye, T. R. (2001). *Top-down policy-making*. CQ Press.
- Economic Planning Unit. (1986). *Fifth Malaysia Plan, 1986–1990*. Kuala Lumpur: Government Printer.
- Economic Planning Unit. (1991). *Sixth Malaysia Plan, 1991–1995*. Kuala Lumpur: Government Printer.
- Economic Planning Unit. (1996). *Seventh Malaysia Plan, 1996–2000*. Kuala Lumpur: Government Printer.
- Economic Planning Unit. (2001). *Eighth Malaysia Plan, 2001–2005*. Kuala Lumpur: Government Printer.
- Economic Planning Unit. (2006). *Ninth Malaysia Plan, 2006–2010*. Kuala Lumpur: Government Printer.
- Economic Planning Unit. (2010). *Tenth Malaysia Plan, 2010–2015*. Kuala Lumpur: Government Printer.
- Economic Planning Unit. (2015a). Elevating B40 Households Towards a Society. *Strategy Paper 2, Eleventh Malaysia Plan 2016–2020*. Retrieved from <http://rmk11.epu.gov.my/pdf/strategy-paper/Strategy Paper 02.pdf>
- Economic Planning Unit. (2015b). *Malaysia Success Story in Poverty Eradication*. Retrieved from https://www.epu.gov.my/sites/default/files/2020-02/Malaysia_Success_Story_In_Poverty_Eradication.pdf
- Economic Planning Unit. (2015c). Translating Innovation to Wealth, 2016–2020. *Strategy Paper 21, Eleventh Malaysia Plan 2016–2020*. Retrieved from <http://rmk11.epu.gov.my/pdf/strategy-paper/Strategy Paper 21.pdf>
- Economic Planning Unit. (2015d). *Eleventh Malaysia Plan 2016–2020: Anchoring Growth on People*. Kuala Lumpur: Government Printer.
- Economic Planning Unit. (2016, February). Keynote Address: Malaysia's Commitment to the Sustainable Development Goals and a People-Centred Asean. *SDG Symposium: Operationalising the 2030 Agenda for Sustainable Development*. Putrajaya.
- Economic Planning Unit. (2017a). *Malaysia Sustainable Development Goals Voluntary National Review 2017. High Political Forum*. Retrieved from <https://sustainabledevelopment.un.org/content/documents/15881Malaysia.pdf>.
- Economic Planning Unit. (2017b). *Malaysia Productivity Blueprint: Driving productivity of the nation*. Putrajaya, Malaysia: Economic Planning Unit.

- Economic Planning Unit. (2019a). *Table 11: Gini coefficient by ethnic group, strata and state, Malaysia, 1970 - 2019* [Fact sheet]. Retrieved from https://www.epu.gov.my/sites/default/files/2020-08/Jadual%2011_Pekali%20gini%20mengikut%20kumpulan%20etnik%2C%20strata%20dan%20negeri%2C%20Malaysia%2C%201970-2019.pdf
- Economic Planning Unit. (2019b). *Table 8: Incidence of absolute poverty by ethnic group, strata and state, Malaysia, 1970 - 2019* [Fact sheet]. Retrieved from https://www.epu.gov.my/sites/default/files/2020-08/Jadual%208_Insiden%20kemiskinan%20mutlak%20mengikut%20kumpulan%20etnik%2C%20strata%20dan%20negeri%2C%20Malaysia%2C%201970-2019.pdf
- Eden, C. (1992). On the nature of cognitive maps. *Journal of Management Studies*, 29(3), 261–265.
- Egonmwan, J. A. (1991). *Public policy analysis: concepts and applications*. SMO Aka and Brothers Press.
- Eisenhardt, K. M., & Graebner, M. E. (1989). Theory Building from Case Study Research. *Academy of Management Review*, 14(4), 532–550. <https://doi.org/10.5465/amr.1989.4308385>
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25–32. <https://doi.org/10.5465/AMJ.2007.24160888>
- Elmore, R. F. (1979). Backward mapping: Implementation research and policy decisions. *Political science quarterly*, 94(4), 601-616.
- Elmore, R. F. (1979). Mapping : Backward and Implementation Policy Decisions. *Political Science Quarterly*, 94(4), 601–616. <https://doi.org/10.2307/2149628>
- Elmore, R. F. (1985). Forward and Backward Mapping: Reversible Logic in the Analysis of Public Policy. *Policy Implementation in Federal and Unitary Systems*, 33–70. https://doi.org/10.1007/978-94-009-5089-4_4
- Firme, T. P., Letichevsky, A. C., & Dannemann, Â. C., & Stone, V. (2009). Evaluation culture and evaluation policy as guides to practice : Reflections on the Brazilian experience. *Ensaio: Aval.Pol.Públ.Educ*, 17 (62), 169–180.
- Foster, C., & Heeks, R. (2013a). Analysing policy for inclusive innovation : The mobile sector and base - of - the - pyramid markets in Kenya Paper. *Innovation and Development*, 3 (1), 103-119.
- Foster, C., & Heeks, R. (2013b). Conceptualising inclusive innovation: Modifying systems of innovation frameworks to understand diffusion of new technology to low-income consumers. *European Journal of Development Research*, 25(3), 333–355. <https://doi.org/10.1057/ejdr.2013.7>

- Foster, C., & Heeks, R. (2015). Policies to Support Inclusive Innovation. *Development Informatics working paper*, (61).
- Fox, W., Bayat, S., & Ferreira, N. (Eds.) (2007). *A Guide to Managing Public Policy*. Juta and Company Ltd.
- Fu, X., Pietrobelli, C., & Soete, L. (2011). The role of foreign technology and indigenous innovation in the emerging economies: technological change and catching-up. *World Development*, 39(7), 1204–1212.
- Gehl Sampath, P., & Oyelaran-Oyeyinka, B. (2007). Innovation in African Development: Case Studies of Uganda, Tanzania and Kenya. *A World Bank Study*, (March), 1–67. Retrieved from http://info.worldbank.org/etools/library/view_p.asp?lprogram=8&objectid=239730
- George, G., McGahan, A. M., & Prabhu, J. (2012). Innovation for inclusive growth: Towards a theoretical framework and a research agenda. *Journal of management studies*, 49(4), 661-683. <https://doi.org/10.1111/j.1467-6486.2012.01048.x>
- Gerston, L. N. (1997). *Public policy making: Process and principles*. Routledge.
- Giacchino, S., & Kakabadse, A. (2003). Successful Policy Implementation: The Route to Building Self-Confident Government. *International Review of Administrative Sciences*, 69(2), 139–160. <https://doi.org/10.1177/0020852303692002>
- Gibbons, M. (1999). Science's new social contract with society. *Nature*, 402(6761), C81–C84.
- Gibbs, G. (2002). *Qualitative Data Analysis: Explorations with NVivo*. Open University.
- Gill, J., & Johnson, P. (2002). *Research Methods for Managers*. SAGE Publications.
- Goggin, M. L., Bowman, A. O. M., Lester, J. P., & O'Toole, L. (1990). *Implementation Theory and Practice: Toward a Third Generation*. Scott Foresman & Company.
- Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4), 597–607.
- Goodson, I. F., & Sikes, P. J. (2001). *Life history research in educational settings: Learning from lives*. Open University Press.
- Gray, C. (2015). Ambiguity and Cultural Policy. *Nordisk Kulturpolitisk Tidsskrift*, 18(01), 66-80. Retrieved from https://www.idunn.no/nkt/2015/01/ambiguity_and_cultural_policy
- Grobbe, M. (2009). *Implementing Climate Change Measures in the EU: Key Success Factors*. Springer Fachmedien.

- Grobbelaar, S. S. (Saartjie). (2018). Developing a local innovation ecosystem through a university coordinated innovation platform: The University of Fort Hare. *Development Southern Africa*, 35(5), 657–672. <https://doi.org/10.1080/0376835X.2017.1421902>
- Gustafsson, J. (2017). Single case studies vs. multiple case studies: A comparative study. *Academy of Business, Engineering and Science Halmstad University, Sweden*, 15. Retrieved from <http://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf>
- Hasliza, H., Noor Hazlina, A., & Ramayah, T. (2019). Sustaining the innovation culture in SMEs: The importance of organisational culture, organisational learning and market orientation. *Asian Journal of Business Research*, 9(2), 14–33. <https://doi.org/10.14707/ajbr.190059>
- Hanekom, S. X. (1987). *Public policy: Framework and instrument for action*. Halfway House. Southern Book Publishers.
- Hamdan, H., Othman, P., & Sabri Wan Hussin, W. (2012). Is Microfinance Program in Malaysia Really Effective in Helping the Poor? *World Review of Business Research*, 2(1), 79–97.
- Harper, M., & Cole, P. (2012). Member checking: Can benefits be gained similar to group therapy? *The Qualitative Report*, 17(2), 510–517. Retrieved from <http://www.nova.edu/ssss/QR/QR17-2/harper.pdf>
- Harris, P., & Meyer, R. M. (2011). *Science Policy: Beyond Budgets and Breakthroughs. Discussion Paper on Enhancing Australian Government Science Policy*. Canberra: HC Coombs Policy Forum, Australian National University. Retrieved from https://coombs-forum.crawford.anu.edu.au/sites/default/files/publication/coombs_forum_crawford_anu_edu_au/2013-08/science_policy_-_discussion_paper_-_final.pdf
- Hart, T. G. B., Booyens, I., Fakudze, B., & Sinyolo, S. (2019). Reflections on demonstrating development-oriented innovations in South Africa. *South African Journal of Science*, 115(1-2), 1-4. <https://doi.org/10.17159/sajs.2019/5495>
- Hausiku, R. N. (2017). *Evaluating the effectiveness of the implementation process of the inclusive education policy in two schools in the Kavango East Region in Namibia* (Master's thesis, Stellenbosch University). Retrieved from <https://core.ac.uk/download/pdf/188221748.pdf>
- Heeks, R., Amalia, M., Kintu, R., & Shah, N. (2013). Inclusive innovation: definition, conceptualisation and future research priorities. *Development informatics working paper*, (53).
- Hernandez, Y., & Cormican, K. (2016). Towards the Effective Management of Social Innovation Projects: Insights from Project Management. *Procedia Computer Science*, 100, 237–243. <https://doi.org/10.1016/j.procs.2016.09.148>

- Hill, M., & Hupe, P. (2002). *Implementing public policy: Governance in theory and in practice*. Sage.
- Hill, M., & Hupe, P. (2009). *Implementing Public Policy: An Introduction to the Study of Operational Governance*. (2nd Ed.). Thousand Oaks, CA: Sage Publications.
- Hjern, B., & Hull, C. (1982). Implementation research as empirical constitutionalism. *European Journal of Political Research*, 10(2), 105–115.
- Höchtel, J., Parycek, P., & Schöllhammer, R. (2016). Big data in the policy cycle: Policy decision making in the digital era. *Journal of Organizational Computing and Electronic Commerce*, 26(1-2), 147-169.
- Hogwood, B. W., & Gunn, L. A. (1984). *Policy Analysis for the Real World*. Oxford University Press, USA.
- Hongoro, C., Rutebemberwa, E., Twalo, T., Mwendera, C., Douglas, M., Mukuru, M., ... Ssenkooba, F. (2018). Analysis of selected policies towards universal health coverage in Uganda : the policy implementation barometer protocol. *Archives of Public Health*, 76(1), 12. <https://doi.org/10.1186/s13690-018-0258-4>
- Hood, C. (2009). The Tools of Government in the Information Age. In *The Oxford Handbook of Public Policy*.
- Hoppe, T., Graf, A., Warbroek, B., Lammers, I., & Lepping, I. (2015). Local governments supporting local energy initiatives: Lessons from the best practices of Saerbeck (Germany) and Lochem (The Netherlands). *Sustainability*, 7(2), 1900–1931. <https://doi.org/10.3390/su7021900>
- Hossain, M., Simula, H., & Halme, M. (2016). Can frugal go global? Diffusion patterns of frugal innovations. *Technology in Society*, 46, 132–139. <https://doi.org/10.1016/j.techsoc.2016.04.005>
- Howaldt, J., Schröder, A., Kaletka, C., Rehfeld, D., & Terstriep, J. (2016). *Social Innovation : Driving Force of Social Change Comparative Analysis (Mapping 1) Mapping the World of Social Innovation : A Global Comparative Analysis across Sectors and World Regions*. Dortmund: Sozialforschungsstelle.
- Howaldt, J., Domanski, D., & Kaletka, C. (2016). Social Innovation : Towards a New Innovation Paradigm. *Revista de Administração Mackenzie*, 17(6), 20-44. <https://doi.org/10.1590/1678-69712016/administracao.v17n6p20-44>
- Howlett, M. (2010). *Designing public policies: Principles and instruments*. *Designing Public Policies: Principles and Instruments*. Routledge. <https://doi.org/10.4324/9780203838631>
- Hua, L., Jiang, Y., & Lin, Y. (2010). Grassroots Innovation, Characteristics, Status Quo and Suggestions. In *7th International Conference on Innovation & Management* (pp. 2048–2053). Retrieved from https://www.pucsp.br/icim/ingles/downloads/papers_2010/part_9/44_Grassroots

%20Innovation,%20Characteristics,%20Status%20Quo%20and%20Suggestions.pdf

- Hubert, A. (2010). *Empowering people, driving change: SI in the European Union*. Retrieved from http://ec.europa.eu/bepa/pdf/publications_pdf/social_innovation.pdf
- Hudson, B., Hunter, D., & Peckham, S. (2019). Policy failure and the policy-implementation gap: can policy support programs help? *Policy Design and Practice*, 2(1), 1–14. <https://doi.org/10.1080/25741292.2018.1540378>
- Hupe, P., & Sætren, H. (2015). Comparative Implementation Research: Directions and Dualities. *Journal of Comparative Policy Analysis: Research and Practice*, 17(2), 93–102. <https://doi.org/10.1080/13876988.2015.1015360>
- Hussain Ali, B., & Nurul Wahidah, A. L. (2017). Highlighting Innovation Policies and Sustainable Growth in Malaysia. *International Journal of Innovation, Management and Technology*, 8(3), 228–239. <https://doi.org/10.18178/ijimt.2017.8.3.734>
- Hoeller, P., Joumard, I., & Koske, I. (2014). Reducing income inequality while boosting economic growth: Can it be done? Evidence from OECD countries. *The Singapore Economic Review*, 59(01), 1450001.
- Iizuka, M. (2013). *Innovation systems framework: still useful in the new global context?* *Innovation*. Retrieved from <http://www.merit.unu.edu/publications/wppdf/2013/wp2013-005.pdf>
- Iizuka, M., Mawoko, P., Gault, F. (2015). Innovation for Development in Southern & Eastern Africa: Challenges for Promoting ST&I Policy. *UNU-MERIT Policy Brief*, (1), 1–8. <https://doi.org/10.13140/RG.2.1.4442.7682>
- International Labor Organization. (2020). The socio-economic impacts of COVID-19 in Malaysia : Policy review and guidance for protecting the most vulnerable and supporting enterprises.
- International Monetary Fund. (2015). Malaysia: Technical Assistance Report- Strengthening Outcome Based Budgeting. *IMF Staff Country Reports*.
- Iqbal, J., & Hameed, W. U. (2020). Open Innovation Challenges and Coopetition-Based Open-Innovation Empirical Evidence from Malaysia. In *Innovative Management and Business Practices in Asia* (pp. 144-166). IGI Global.
- Jabatan Penerangan Malaysia. (2013). *Rukun Negara Malaysia*.
- Jacobs, T. O., & Jaques, E. (1990). Military executive leadership. In K. E. Clark & M. B. Clark (Eds.). *Measures of leadership* (pp. 281-295). West Orange, NJ: Leadership Library of America
- Jann, W., & Wegrich, K. (2007). Theories of the policy cycle. *Handbook of Public*

- Policy Analysis: Theory, Politics, and Methods*, 125, 43–62.
- Jennings, G. (2011). *Tourism Research* (2nd Ed). Australia: Wiley.
- Kaboyakgosi, G., & Marata, K. P. (2015). An analysis of Botswana's implementation challenges. *PULA: Botswana Journal of African Studies*, 27(2), 310-324.
- Kamarulzaman, A. A. (2016). Convergence and inclusive innovation in the communications sector. In *2016 18th International Conference on Advanced Communication Technology (ICACT)* (pp. 218–222). IEEE. <https://doi.org/10.1109/ICACT.2016.7423336>
- Kaplinsky, R. (2011). Schumacher meets Schumpeter: Appropriate technology below the radar. *Research Policy*, 40(2), 193-203.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (Vol. 2, p. 528). New York: Wiley.
- Khan, A. R. (2016). Policy implementation: Some Aspects and Issues. *Journal of Community Positive Practices*, (3), 3–12. Retrieved from <http://www.jppc.ro/reviste/JCPP Nr. 3 2016/articole/art01.pdf>
- Khan, A. R., & Khandaker, S. (2016). A critical insight into policy implementation and implementation performance. *Public Policy and Administration*, 15(4). <https://doi.org/10.13165/VPA-16-15-4-02>
- Khavul, S., & Bruton, G. D. (2013). Harnessing Innovation for Change: Sustainability and Poverty in Developing Countries. *Journal of Management Studies*, 50(2), 285–306. <https://doi.org/10.1111/j.1467-6486.2012.01067.x>
- Khazanah Research Institute. (2014). *The State of Households*. Khazanah Research Institute.
- Khazanah Research Institute. (2018). *The State of Households Different Realities*. Khazanah Research Institute.
- Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and reliability of measurement instruments used in research. *American Journal of Health-System Pharmacy*, 65(23), 2276–2284.
- Kingdon, J. W. (1995). *Agendas, alternatives, and public policies* (2nd ed.). New York: Harper Collins.
- Koen, V., Asada, H., Nixon, S., Rahuman, M. R. H., & Mohd Arif, A. Z. (2017). Malaysia's economic success story and challenges. *OECD Economic Department Working Paper*. Paris: OECD Publishing. <http://doi.org/10.1787/cf7fddf2-en>
- Kothari, C. R. (2004). *Research Methodology: Methods & Techniques*. New Age International (P) Ltd.

- Kraemer-Mbula, E., & Wamae, W. (2010). *Adapting the innovation systems framework to Sub-Saharan Africa*.
- Krutwaysho, O. (2006). *Tourism policy implementation in the developing world: The case of Phuket, Thailand* (Doctoral dissertation, Sheffield Hallam University). Retrieved from <http://shura.shu.ac.uk/19930/1/10697236.pdf>
- Kumar, R. (2011). *Research Methodology: A step-by-step guide for beginners*. SAGE Publication Ltd. <https://doi.org/http://196.29.172.66:8080/jspui/bitstream/123456789/2574/1/Research%20Methodology.pdf>
- Landabaso, M., Letter, L., Rouland, O., Angermueller, D. & Tóth, G. (2013). Guide to social innovation. *European Commission*.
- Lasswell, H. D. (1951). The policy orientation. In *D. Lerner & H. D. Lasswell (Eds.), The policy sciences: Recent developments in scope and method* (pp. 3–15). Stanford: Stanford University Press.
- Lee, C., & Chew-Ging, L. (2017). The evolution of development planning in Malaysia. *Journal of Southeast Asian Economies*, 34(3), 436–461. <https://doi.org/10.1355/ae34-3b>
- Leitner, K. H. (2013). Innovation futures: New forms of innovation and their implications for innovation policy. *International Journal of Foresight and Innovation Policy*, 9(2–4), 269–286. <https://doi.org/10.1504/IJFIP.2013.058615>
- Lindner, R., Daimer, S., Beckert, B., Heyen, N., Koehler, J., Teufel, B., ... & Wydra, S. (2016). *Addressing directionality: Orientation failure and the systems of innovation heuristic. Towards reflexive governance* (No. 52). Fraunhofer ISI Discussion Papers-Innovation Systems and Policy Analysis.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. SAGE Publications.
- Lipsky, M. (1969). *Toward a theory of street-level bureaucracy* (pp. 61-84). Wisconsin: Institute for Research on Poverty, University of Wisconsin.
- Lipsky, M. (1980). Dilemmas of the individual in public services. *New York: Russell Sage Foundation*, 71.
- Lipsky, M. (1980). Street-level bureaucracy: The critical role of street-level bureaucrats. *Classics of public administration*, 414-422.
- Lundvall, B. A., & Borrás, S. (2005). Science, Technology and Innovation Policy. *The Oxford Handbook of Innovation*, 599-631.
- Mackay, M. & Shaxton, L. (2005). *Understanding and Applying Basic Public Policy Concepts*. The University of Guelph.
- Makinde, T. (2005). Problems of Policy Implementation in Developing Nations: The

- Nigerian Experience. *Social Science*, 11(1), 63–69.
<https://doi.org/10.1080/09718923.2005.11892495>
- Malaysia Productivity Corporation. (2013). *National Policy on the Development and Implementation of Regulations*. Retrieved from <http://www.mpc.gov.my/wp-content/uploads/2017/04/Best-Practice-Handbook-2013.pdf>
- Mallett, A. (2013). Technology cooperation for sustainable energy: a review of pathways. *Wiley Interdisciplinary Reviews: Energy and Environment*, 2(2), 234–250.
- Manerikar, V., & Manerikar, S. (2014). A note on exploratory research. *A Peer Reviewed Research Journal*, 17(1), 95-96.
- Manyuchi, A. E., & Mugabe, J. O. (2017). The production and use of indicators in science, technology and innovation policy-making in Africa: Lessons from Malawi and South Africa. *Journal of Science and Technology Policy Management*. <https://doi.org/10.1108/JSTPM-06-2017-0026>
- Maree, K. (2007). *First steps in research*. Van Schaik Publishers.
- Matinga, M. N., Clancy, J. S., & Annegarn, H. J. (2014). Explaining the non-implementation of health-improving policies related to solid fuels use in South Africa. *Energy Policy*, 68, 53–59. <https://doi.org/10.1016/j.enpol.2013.10.040>
- Matland, R. E. (1995). Synthesising the Implementation Literature: The Ambiguity-Conflict Model of Policy Implementation. *Journal of Public Administration Research and Theory*, 5 (2), 145-174
<https://doi.org/10.1093/oxfordjournals.jpart.a037242>
- May, J. V., & Wildavsky, A. B. (1978). *The Policy Cycle*. Beverly Hills: Sage Publications.
- Mazmanian, D. A., & Sabatier, P. A. (1983). *Implementation and Public Policy*. Scott Foresman.
- Mazzucato, M. (2013). *The Entrepreneurial State: Debunking Public vs. Private Sector Myths*. (1st Ed.). London; New York: Anthem Press.
- Mccombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly*. <https://doi.org/10.1086/267990>
- McDavid, J. C., Huse, I., & Hawthorn, L. R. L. (2013). Key Concepts and Issues in Program Evaluation and Performance Measurement. In *Program Evaluation and Performance Measurement: An Introduction to Practice*. Thousand Oaks, CA: Sage Publications.
- McLaughlin, J. A., & Jordan, G. B. (1999). Logic models: a tool for telling your programs performance story. *Evaluation and Program Planning*, 22(1), 65–72.
[https://doi.org/10.1016/S0149-7189\(98\)00042-1](https://doi.org/10.1016/S0149-7189(98)00042-1)

- McLaughlin, M. W. (1987). Learning from experience: Lessons from policy implementation. *Educational evaluation and policy analysis*, 9(2), 171-178. <https://doi.org/10.3102/01623737009002171>
- Merriam, S. B. (1998). *Qualitative Research and Case Study Applications in Education. Revised and Expanded from Case Study Research in Education*. Wiley.
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.
- Merwe, E., & Grobbelaar, S. (2016). Evaluating Inclusive Innovative Performance: The case of the e-Health System of Western Cape Region, South Africa. *PICMET'16: Technology Management for Social Innovation*, 344–358.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. SAGE Publications.
- Millard, J., & Carpenter, G. (2014). Digital technology in social innovation: a synopsis. *A Deliverable of the Project: "The Theoretical, Empirical and Policy Foundations for Building Social Innovation in Europe" (TEPSIE), European Commission–7th Framework Programme*. Brussels: European Commission, DG Research.
- Millard, J., Weerakkody, V., Missi, F., Kapoor, K., & Fernando, G. (2016). Social Innovation for Poverty Reduction and Sustainable Development. *Proceedings of the 9th International Conference on Theory and Practice of Electronic Governance - ICEGOV '15-16*, (November 2015), 153–162. <https://doi.org/10.1145/2910019.2910079>
- Milotay, N. (2016). Briefing Understanding social innovation. *European Parliamentary Research Service*. <https://doi.org/10.1007/s13398-014-0173-7.2>
- Ministry of Economic Affairs. (2018). *Mid-Term Review of the Eleventh Malaysia Plan, 2016-2020*. Government Printer: Kuala Lumpur.
- Ministry of Economic Affairs. (2019). *Shared Prosperity Vision 2030*. Government Printer: Kuala Lumpur.
- Ministry of Energy, Science, Technology, Environment and Climate Change. (n.d.). *Inno Fund - Kementerian Tenaga, Sains, Teknologi, Alam Sekitar & Perubahan Iklim*.
- Ministry of Energy, Science, Technology, Environment and Climate Change. (2017). *National Survey of Research and Development in Malaysia 2017*. Malaysia. Putrajaya. Putrajaya: MASTIC.
- Ministry of Energy, Science, Technology, Environment and Climate Change. (2019). *Garis Panduan Program Malaysia Social Innovation (MySI)*.
- Ministry of Finance Malaysia. (2020). 2020 Budget Speech by Y.B. Minister of

- Finance on 11 October 2020. Dewan Rakyat.
- Ministry of Science, Technology and Environment. (2002). *Malaysia's S&T Policy for the 21st Century*. Putrajaya.
- Ministry of Science, Technology and Environment. (1986). *First National Science and Technology Policy (1986-1989)*. Malaysia.
- Ministry of Science, Technology and Innovation. (2013). *The National Policy on Science, Technology and Innovation (NPSTI), 2013-2020*. Putrajaya.
- Ministry of Science, Technology and Innovation. (2014). *Public Awareness Of Science, Technology and Innovation Malaysia 2014*. Putrajaya: MASTIC.
- Ministry of Science, Technology and Innovation. (2015). *National Survey of Research and Development in Malaysia 2015*. Malaysia. Putrajaya. Putrajaya: MASTIC.
- Ministry of Science, Technology and Innovation. (2016a). *Garis Panduan Permohonan Program MOSTI Social Innovation (MSI)*. Putrajaya.
- Ministry of Science, Technology and Innovation. (2016b). *Jimat Dan Mudah Dengan Inovasi / Kementerian Sains, Teknologi dan Inovasi.- Edisi Kedua*. Putrajaya: MASTIC.
- Ministry of Science, Technology and Innovation. (2016c). *Malaysian Science, Technology and Innovation Indicators Report 2016*. Putrajaya: MASTIC.
- Ministry of Science, Technology and Innovation. (2017). *National Innovation Survey 2015. Manufacturing and Services Sectors in Malaysia*. Putrajaya. Putrajaya: MASTIC.
- Ministry of Science, Technology and Innovation. (2020a). *Dasar Sains, Teknologi Dan Inovasi Negara 2021-2030: Pelan Tindakan*. Putrajaya, Malaysia.
- Ministry of Science, Technology and Innovation. (2020b). *Dasar Sains, Teknologi Dan Inovasi Negara 2021-2030*. Putrajaya, Malaysia.
- Mohmad Zahir, Z., & Mohd Fauzi, K. (2015). Impacts on the Implementation of Social Policy: Comparative Study in Malaysia and Indonesia. *Asian Social Science*, 11(17), 48. <https://doi.org/10.5539/ass.v11n17p48>
- Moulaert, F., Martinelli, F., González, S., & Swyngedouw, E. (2007). Introduction: Social Innovation and Governance in European Cities. *European Urban & Regional Studies*, 14(3), 195–209. Retrieved from <http://dx.doi.org/10.1177/0969776407077737>
- Mouton, J. (2011). *How to succeed in your master's and doctoral studies: A South African* (p. 280). Pretoria: Van Schaik Publishers.
- Mulgan, G., & Albury, D. (2003). Innovation in the public sector. *Strategy Unit*,

- Cabinet Office*, (October), 1–40. Retrieved from http://www.sba.oakland.edu/faculty/mathieson/mis524/resources/readings/innovation/innovation_in_the_public_sector.pdf
- Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). *Social Innovation: What it is, why it matters and how it can be accelerated*. *Stanford Social Innovation Review*. <https://doi.org/10.1016/j.biocontrol.2007.10.015>
- Murray, R., Caulier-grice, J., & Mulgan, G. (2010). *The open book of social innovations*. *Social Innovator Series: Ways to Design, Develop and Grow Social Innovation*. *The Young Foundation* (Vol. 30). London: The Young Foundation & NESTA. <https://doi.org/10.1371/journal.pcbi.0030166>
- Mortelmans, D. (2019). Analysing Qualitative Data Using NVivo. In *Van den Bulck H., Puppis M., Donders K., Van Audenhove L. (eds) The Palgrave Handbook of Methods for Media Policy Research*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-16065-4_25
- Muhamad Nizam, J., Zakaria, A., & Ahmad Shabudin, A. (2016). Addressing social innovation in the Malaysian knowledge transfer program: Gaining a preliminary insight. *IOSR Journal of Business and Management*, 18(10), 56–64. <https://doi.org/10.9790/487x-1810045664>
- Munshi Naser, I. A., Rini Suryati, S., Dutta, S., & Kasim, M. (2018). An investigation on Triple Helix model and national innovation systems: The case of Malaysia. *Journal of Entrepreneurship Education*, 21(2), 299-313.
- Mytelka, L. K. (2000). Local systems of innovation in a globalised world economy. *Industry and Innovation*, 7(1), 15–32.
- Nair, S., & Sagarin, S. (2015). Poverty in Malaysia: Need for a Paradigm Shift. *Institutions and Economies*, 7(3), 95–123.
- National Economic Advisory Council (NEAC) (2010). *New Economic Model for Malaysia*. Putrajaya, Malaysia: National Economic Advisory Council (NEAC).
- National SME Development Council. (2012). *Summary SME Masterplan 2012-2020 Catalysing Growth and Income*.
- Naudé, W., & Nagler, P. (2015). Industrialisation, innovation, inclusion. *Vienna: UNIDO Research, Statistics and Industrial Policy Branch Working Paper, 15*, 2015. Retrieved from <http://www.merit.unu.edu/publications/working-papers/abstract/?id=5876>
- Neal, H. A., Smith, T. L., & McCormick, J. B. (2008). *Beyond Sputnik: US science policy in the 21st Century*. Ann Arbor, MI: University of Michigan Press.
- Neuman, W. L. (2003). *Social Research Methods: Qualitative and Quantitative Approaches*. *Relevance of social research* (Vol. 8). <https://doi.org/10.2307/3211488>

- Neuman, W. L. (2014). *Social Research Methods: Qualitative and Quantitative Approaches*. UK, Essex: Pearson
- Nilsen, P., Ståhl, C., Roback, K., & Cairney, P. (2013). Never the twain shall meet?-a comparison of implementation science and policy implementation research. *Implementation Science*, 8(1), 63. <https://doi.org/10.1186/1748-5908-8-63>
- Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence-Based Nursing*, 18(2), 163-163. <https://doi.org/10.1136/eb-2015-102054>
- Nonaka, I. (2001). Developing unified, dynamic knowledge management systems. *Social sciences and innovation, OECD Proceedings, Paris*, 51-55.
- Noor Raihani, Z., Fakhru Anwar, Z., Yahya, I., & Asyraf, A. (2019). Scaling up social innovation for sustainability: The roles of social enterprise capabilities. *Management Science Letters*, 9(3), 457-466. <https://doi.org/10.5267/j.msl.2018.12.005>
- Norain, I., & Khadijah, M. (2016). Commercialising of innovative research product in the Malaysian public university: Challenges and ways for improvement. *Research Journal of Business Management*, 10(1), 1-14. <https://doi.org/10.3923/rjbm.2016.1.14>
- Nor Hafizah, S., Ratna Roshida, A. R., Salfarina, A. G., & Zainal Abidin, S. (2011). Survival through entrepreneurship: Determinants of successful micro-enterprises in Balik Pulau, Penang Island, Malaysia. *British Journal of Arts and Social Sciences*, 3(1), 23-37.
- Nur Azura, S., Suhal, K., & Mohd Fikri, M. (2017). The Conceptual Framework of Social Innovation in Social Enterprises. *Journal of Innovation in Business and Economics*, 1(01), 41. <https://doi.org/10.22219/jibe.vol1.no01.41-48>
- Nunan, D., David, N., & Swan, M. (1992). *Research methods in language learning*. Cambridge University Press. <https://doi.org/10.1017/S0272263100012924>
- Ochola, W. O., Sanginga, P. C., & Bekalo, I. (Eds.). (2010). *Managing natural resources for development in Africa: A resource book*. IDRC.
- Organisation for Economic Co-operation and Development. (2002). *Evaluation and Aid Effectiveness No. 6 - Glossary of Key Terms in Evaluation and Results-Based Management (in English, French and Spanish)*. <https://doi.org/10.1787/9789264034921-en-fr>
- Organisation for Economic Co-operation and Development & Statistical Office of the European Communities. (2005). *Oslo Manual Guidelines for Collecting and Interpreting innovation data*. Paris, Luxembourg.
- Organisation for Economic Co-operation and Development. (2012a). *Meeting Global*

Challenges through Better Governance. International Co-operation in Science, Technology and Innovation. OECD Publishing.
<https://doi.org/10.1787/9789264178700-en>

Organisation for Economic Co-operation and Development. (2015a). *Making Open Science a Reality. OECD Science, Technology and Industry Policy Papers.* OECD Publishing.

Organisation for Economic Co-operation and Development. (2015b). *The innovation imperative: Contributing to productivity, growth and well-being.* OECD Publishing. <https://doi.org/http://dx.doi.org/10.1787/9789264239814-en>

Organisation for Economic Co-operation and Development. (2015c). *Innovation policies for inclusive development: scaling up inclusive innovations, 39.* OECD Publishing. <https://doi.org/http://dx.doi.org/10.1787/9789264229488-en>

Organisation for Economic Co-operation and Development. (2016a). *OECD Reviews of Innovation Policy: Malaysia 2016.* Paris: OECD Publishing.

Organisation for Economic Co-operation and Development. (2016b). *OECD Science, Technology and Innovation Outlook 2016.* Paris: OECD Publishing. https://doi.org/10.1787/sti_in_outlook-2016-6-en

Organisation for Economic Co-operation and Development. (2016c). *OECD Economic Surveys: Malaysia: Economic Assessment.* Paris: OECD Publishing. https://doi.org/10.1787/eco_surveys-jpn-2009-en

Organisation for Economic Co-operation and Development. (2017a). *Making Innovation Benefit All: Policies for Inclusive Growth.* Paris: OECD Publishing.

Organisation for Economic Co-operation and Development. (2017b). *Opportunities and Policy Challenges of Digitalisation in Southeast Asia.* Paris: OECD Publishing.

Organisation for Economic Co-operation and Development. (2018). *Transformative Technologies and Jobs of the Future (March).* Retrieved from <http://www.oecd.org/science/inno/transformative-technologies-and-jobs-of-the-future.pdf>

Okoroma, N. (2016). *The Perspectives of Educational Management, Planning and Policy Analysis.* Port Harcourt: Minson Publishers.

Omar, A. R. (2013) *The Essentials of Science, Technology and Innovation Policy, Current Science.* Kuala Lumpur: Academy of Sciences Malaysia.

Onwuegbuzie, A. J., & Collins, K. M. (2007). A typology of mixed methods sampling designs in social science research. *Qualitative Report, 12*(2), 281-316. <https://doi.org/10.1016/j.bbi.2003.12.001>

Oxford Learner's Dictionaries. (n.d). *Polymaker.* Retrieved October 15, 2020 from

<https://www.oxfordlearnersdictionaries.com/definition/english/policymaker#:~:text=%E2%80%8Ba%20person%20who%20is,the%20law's%20potential%20economic%20impact>.

- Oxford Advanced Learner's Dictionary. (n.d.). *Focus*. Retrieved February 20, 2021, from <https://www.oxfordlearnersdictionaries.com/us/definition/english/joshua-fit-the-battle-of-jericho>
- Oyelaran-Oyeyinka, B., & Sampath, P. G. (2007). Innovation in African Development. Case Studies of Uganda, Tanzania and Kenya. *A World Bank Study*. <http://info.worldbank.org/etools/docs/library/239730/InnovationInAfricaFinalPaper.pdf>
- Padilla-Pérez, R., & Gaudin, Y. (2014). Science, technology and innovation policies in small and developing economies: The case of Central America. *Research Policy*, 43(4), 749–759. <https://doi.org/10.1016/j.respol.2013.10.011>
- Park, T., & Kim, J. (2020). Innovation Policy in Asia. *Background Paper*.
- Patnaik, J., & Bhowmick, B. (2019, October). Practices of Innovation Management Enabling Technology Adoption and Diffusion at the Grassroots. In *2019 IEEE International Symposium on Innovation and Entrepreneurship (TEMS-ISIE)* (pp. 1-6). IEEE. <https://doi.org/10.1109/TEMS-ISIE46312.2019.9074476>
- Patnaik, J., & Bhowmick, B. (2020). Promise of inclusive innovation: A Re-look into the opportunities at the grassroots. *Journal of Cleaner Production*, 259, 121124. <https://doi.org/10.1016/j.jclepro.2020.121124>
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications. <https://doi.org/10.1002/nur.4770140111>
- Patton, M. Q. (2002) *Qualitative Research and Evaluation Methods*. (3rd ed.). Thousand Oaks: Sage.
- Patton, M. Q., & Cochran, M. (2002). *A Guide to Using Qualitative Research Methodology*. <https://doi.org/10.1109/PROC.1978.11033>
- Paudel, N. R. (2009). A critical account of policy implementation theories: status and reconsideration. *Nepalese Journal of Public Policy and Governance*, 25(2), 36-54.
- Paunov, C. (2013). Innovation and inclusive development: A discussion of the main policy issues. *OECD Science, Technology and Industry Working Papers*, No. 2013/01. Paris: OECD Publishing. <https://doi.org/10.1787/5k4dd1rvsnjj-en>
- Petts, J., & Leach, B. (2000). *Evaluating methods for public participation: Literature review*. Bristol: Environment Agency.
- Phulkerd, S., Lawrence, M., Vandevijvere, S., Sacks, G., Worsley, A., & Tangcharoensathien, V. (2015). A review of methods and tools to assess the

- implementation of government policies to create healthy food environments for preventing obesity and diet-related non-communicable diseases. *Implementation Science*, 11(1), 1-13. <https://doi.org/10.1186/s13012-016-0379-5>
- Planes-Satorra, S., & Paunov, C. (2017). Inclusive Innovation Policies: Lessons from International Case Studies. *OECD Science, Technology and Industry Working Papers 2017/02*. Paris. <https://doi.org/10.1787/a09a3a5d-en>
- Pol, E., & Ville, S. (2009). Social innovation: Buzz word or enduring term? *Journal of Socio-Economics*, 38(6), 878–885. <https://doi.org/10.1016/j.socec.2009.02.011>
- Popoola, O. O. (2016). Actors in Decision Making and Policy Process. *Global Journal of Interdisciplinary Social Science*, 5(1), 47–51.
- Pradhan, N. S., Su, Y., Fu, Y., Zhang, L., & Yang, Y. (2017). Analysing the Effectiveness of Policy Implementation at the Local Level: A Case Study of Management of the 2009–2010 Drought in Yunnan Province, China. *International Journal of Disaster Risk Science*, 8(1), 64–77. <https://doi.org/10.1007/s13753-017-0118-9>
- Prahalad, C. K., & Hart, S. L. (2002). The Fortune at the Bottom of the Pyramid. *Strategy + Business*, 26. pp. 1-14.
- Pressman, J. L., & Wildavsky, A. B. (1973). How great expectations in Washington are dashed in Oakland. *University of California: Berkeley, LA, USA*.
- Pressman, J. L., and Wildavsky, A. (1984). *Implementation*. (3rd ed.). Berkeley: University of California Press.
- Pülzl, H., & Treib, O. (2007). Policy implementation. In *Frank Fischer, Miller, Gerald J., Sidney, Mara S.(eds.) Handbook of Public Policy Analysis: Theory, Politics and Methods* (pp. 89–107). CRC Press Taylor & Francis Group.
- Rahmat, A. A. (2015). Policy Implementation : Process and Problems. *International Journal of Social Science and Humanities Research ISSN*, 3(3), 306–311.
- Raja, S. H. (2016). *Formulación y Análisis de Políticas Públicas*. (José Pedro Galindo Macías, Trans.). Babelcube Inc.
- Raja Suzana, R. K., Zulazli, H., & Zainudin, A. (2017). Social Innovation and its Influence on Youth Start-ups: The Marginalised Communities in Malaysia. *Pertanika Journal of Social Sciences & Humanities*, 25. Retrieved from http://www.pertanika.upm.edu.my/code_of_ethics.php
- Razul Ikmal, R., Norihan, A-H., Aini Suzana, A., & Adibah Najihah, J. (2017). Implementation of Policy Initiatives To Foster Public Sector Innovation in Malaysia: the Need for Measurement. *Journal of Science, Technology and Innovation Policy*, 3(1). <https://doi.org/10.1136/bjsports-2015-095179>

- Recesso, A. M. (1999). First year implementation of the school to work opportunities act policy: An effort at backward mapping. *Education Policy Analysis Archives*, 7(11), 1–43. <https://doi.org/10.14507/epaa.v7n11.1999>
- Rego, L., & Gergen, C. (2017). Fostering Inclusive Innovation Ecosystems. In *Breaking the Zero-Sum Game*. Emerald Publishing Limited.
- Reilly, R. C. (2013). Found poems, member checking and crises of representation. *Qualitative Report*, 18, 30. Retrieved from www.nova.edu/ssss/qr
- Ricard, L. M., Klijn, E. H., Lewis, J. M., & Ysa, T. (2017a). Assessing public leadership styles for innovation: a comparison of Copenhagen, Rotterdam and Barcelona. *Public Management Review*, 19(2), 134–156. <https://doi.org/10.1080/14719037.2016.1148192>
- Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2013). The Foundation of Qualitative Research. *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. Sage.
- Rivera, D. (2018). *Pathways to Inclusive Innovation: Insights for Ontario Beyond*. Brookfield Institute for Innovation Entrepreneurship.
- Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers* (Vol. 2). Oxford: Blackwell. <https://doi.org/10.1016/j.jclinepi.2010.08.001>
- Rogers, E. M. (1995). Diffusion of Innovations: modifications of a model for telecommunications. In *Die diffusion von innovationen in der telekommunikation* (pp. 25-38). Springer, Berlin, Heidelberg. <https://doi.org/citeulike-article-id:126680>
- Rosca, E., Arnold, M., & Bendul, J. C. (2017). Business models for sustainable innovation—an empirical analysis of frugal products and services. *Journal of Cleaner Production*, 162, S133-S145. <https://doi.org/10.1016/j.jclepro.2016.02.050>
- Rose, R. (1984). *Comparative policy analysis: The programme approach*. Centre for the Study of Public Policy, University of Strathclyde.
- Roslan, A., & Kamaruzzaman, A. M. (2020). Beyond Agenda Setting: The Nature of Political Blogosphere In Malaysia. *e-Jurnal Penyelidikan dan Inovasi*, 7(1), 1-19.
- Rosli, A., & Rossi, F. (2014). Explaining the gap between policy aspirations and implementation : The case of university knowledge transfer policy in the United Kingdom.
- Ross, T., Mitchell, V. A., & May, A. J. (2012). Bottom-up grassroots innovation in transport: Motivations, barriers and enablers. *Transportation Planning and Technology*, 35(4), 469–489. <https://doi.org/10.1080/03081060.2012.680820>

- Roux, G., & Halstead, J. A. (2017). *Issues and Trends in Nursing*. Jones & Bartlett Learning.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Sabatier, P. A., & Jenkins-Smith, H. C. (2007). The advocacy coalition framework. *Theories of the Policy Process*, 189–220. <https://doi.org/10.1081/E-EPAP2-120041405>
- Sabatier, P., & Mazmanian, D. (1979). The Conditions of Effective Implementation: A Guide to Accomplishing Policy Objectives. *University of California Press*, 43(1), 481–504.
- Sabatier, P., & Mazmanian, D. (1980). The Implementation of Public Policy: A Framework of Analysis. *Policy Studies Journal*, 8 (4), 538-560. <https://doi.org/10.1111/j.1541-0072.1980.tb01266.x>
- Saetren, H. (2005). Facts and myths about research on public policy implementation: Out-of-fashion, allegedly dead, but still very much alive and relevant. *Policy Studies Journal*, 33(4), 559–582. <https://doi.org/10.1111/j.1541-0072.2005.00133.x>
- Saetren, H. (2014). Implementing the third generation research paradigm in policy implementation research: An empirical assessment. *Public Policy and Administration*, 29(2), 84–105. <https://doi.org/10.1177/0952076713513487>
- Saunders, M., Lewis, P., & Thornhill, A. (2008). *Research Methods for Business Students*. *Research methods for business students*.
- Schillo, R. S., & Robinson, R. M. (2017). Inclusive Innovation in Developed Countries: The Who, What, Why, and How. *Technology Innovation Management Review*, 7(7), 34–46. Retrieved from https://timreview.ca/sites/default/files/article_PDF/SchilloRobinson_TIMReview_July2017.pdf
- Schofield, J., & Sausman, C. (2004). Symposium on implementing public policy: Learning from theory and practice. *Public Administration*, 82(2), 235–248. <https://doi.org/10.1111/j.0033-3298.2004.00392.x>
- Schwachula, A., Vila Seoane, M., & Hornidge, A. K. (2014). Science, technology and innovation in the context of development. *An overview of concepts and corresponding policies recommended by international organisations*.
- Sengupta, P. (2016). How effective is inclusive innovation without participation? *Geoforum*, 75, 12–15. <https://doi.org/https://doi.org/10.1016/j.geoforum.2016.06.016>
- Seyfang, G., & Smith, A. (2007). Grassroots innovations for sustainable development: Towards a new research and policy agenda. *Environmental Politics*, 16(4), 584–

603. <https://doi.org/10.1080/09644010701419121>

- Shiratuddin, N., Hassan, S., Sani, M., Ahmad, M. K., Khalid, K. A., Abdull Rahman, N. L., ... Ahmad, N. S. Y. (2017). Media and Youth Participation in Social and Political Activities: Development of a Survey Instrument and Its Critical Findings. *Pertanika Journal of Social Sciences & Humanities*, 25.
- Silverman, D. (2013). *Doing qualitative research: A practical handbook*. SAGE Publications Limited.
- Siti Uzairiah, M. T. (2016) *Qualitative Research, Interview Analysis & Nvivo11 Exploration*. Kuala Lumpur: ARAS Publisher.
- Slimane, M. (2015). Relationship between innovation and leadership. *Procedia-Social and Behavioral Sciences*, 181, 218-227.
- Smit, B. (2003, September). Can qualitative research inform policy implementation? Evidence and arguments from a developing country context. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 4, No. 3).
- Smith, A., Fressoli, M., & Thomas, H. (2014). Grassroots innovation movements: Challenges and contributions. *Journal of Cleaner Production*, 63, 114–124. <https://doi.org/10.1016/j.jclepro.2012.12.025>
- Smith, A., & Stirling, A. (2018). Innovation, sustainability, and democracy: an analysis of grassroots contributions. *Journal of Self-Governance and Management Economics*, 6(1), 64-97.
- Smith, T. B. (1973). The policy implementation process. *Policy sciences*, 4(2), 197-209.
- Stofile, S. Y. (2008). *Factors affecting the implementation of inclusive education policy: A case study in one province in South Africa* (Doctoral dissertation, University of the Western Cape). Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.818.7246&rep=rep1&type=pdf>
- Sulaiman, M. Y., Abdullah, A., & Othman, N. A. (2014). Malaysian Innovation Ecosystem: A Review Of The Literature. *Journal of Advanced Manufacturing Technology*, 8(1), 67–78.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Taylor, I., & Kelly, J. (2006). Professionals, discretion and public sector reform in the UK: Re-visiting Lipsky. *International Journal of Public Sector Management*. <https://doi.org/10.1108/09513550610704662>
- TEPSIE. (2014). *Social Innovation Theory. A Guide for Researchers*. Social Innovation Europe.

- Terry, G. R. (1977). *Principles of Management*. (8th Ed). R. D. Irwin.
- Terstriep, J., & Totterdill, P. (2014). Economic foundation of social innovation: new modes of policy production. In *Proceedings of 9th Regional Innovation Policies Conference University of Stavanger* (No. 10, p. 1).
- The Star Online. (2018, October 17). 11MP mid-term review to recalibrate, realign economic goals. *The Star*. Retrieved from <https://www.thestar.com.my/business/business-news/2018/10/17/11mp-mid-term-review-to-recalibrate-economic-goals>
- The Young Foundation. (2012). Social innovation overview: A deliverable of the project:” The theoretical, empirical and policy foundations for building social innovation in Europe” (TEPSIE). (TEPSIE), *European Commission—7th Framework Programme*.
- Thiruchelvam, K. (2017). Mobilising Science, Technology and Innovation (STI) for Socio-Economic Development: The Experience of Malaysia. *STI Policy and Management Journal*, 2(2), 127-138.
- Thiruchelvam, K., Chandran, V., Boon-Kwee, N., & Chan-Yuan, W. (2013). *Malaysia’s Quest for Innovation: Progress and lessons learned*. Selangor, Malaysia: Vinlian Press Sdn. Bhd.
- Thomas, H., & Fressoli, M. (2011, September). Technologies for social inclusion in Latin America. Analysing opportunities and constraints; problems and solutions in Argentina and Brazil. In *2011 Atlanta Conference on Science and Innovation Policy* (pp. 1-17). IEEE. <https://doi.org/10.1109/ACSIP.2011.6064490>
- Thomas, P. G. (2006). From good intentions to successful implementation: The case of patient safety in Canada. *Canadian Public Administration*, 49(4), 415–440. <https://doi.org/10.1111/j.1754-7121.2006.tb01992.x>
- Tödting, F., & Trippel, M. (2005). One size fits all?: Towards a differentiated regional innovation policy approach. *Research Policy*, 34(8), 1203–1219. <https://doi.org/10.1016/j.respol.2005.01.018>
- Torjman, S. (2005). *What is Policy?*. The Caledon Institute of Social Policy. Retrieved from <https://maytree.com/wp-content/uploads/544ENG.pdf>
- Trimble, C., & Govindarajan, V. (2012). *Reverse innovation: create far from home, win everywhere*. Boston, Massachusetts: Harvard Business School Press Books.
- Tucker, S. (2014). *Social Innovation for Public Service Excellence*. Singapore: UNDP Global Centre for Public Excellence.
- Ugwuanyi, B. I., & Chukwuemeka, E. E. (2013). The obstacles to effective policy implementation by the public bureaucracy in developing nations: the case of Nigeria. *Kuwait Chapter of the Arabian Journal of Business and Management Review*, 2(7), 59.

- United Nations Development Programme. (2005). *Malaysia: Achieving the Millennium Development Goals: Successes and Challenges*. United Nations Country Team, Malaysia.
- United Nations Economic and Social Commission for Asia and the Pacific. (2016). *Harnessing Science, Technology and Innovation for Inclusive and Sustainable Development in Asia and the Pacific*. Bangkok, Thailand. Retrieved from <http://library1.nida.ac.th/termpaper6/sd/2554/19755.pdf>
- United Nations Educational, Scientific and Cultural Organization & Universiti Kebangsaan Malaysia. (2016). *Harnessing Talent towards an Inclusive: An Assessment of the National Policy on Science, Technology and Innovation (NPSTI) in Enhancing Social Inclusion in Research and Innovation*.
- Van Maanen, J. (1979). *Qualitative methodology*. Sage.
- Van Meter, D. S., & Van Horn, C. E. (1975). The Policy Implementation Process. *Administration & Society*, 6(4), 445–488. <https://doi.org/10.1177/009539977500600404>
- Vargas-Hernandez, J., Reza, M., & Haj Ali, I. F. N. (2013). What is Policy, Social Policy and Social Policy Changing? *International Journal of Business and Social Science*, 2(10), 287–291. Retrieved from <https://hal.archives-ouvertes.fr/hal-00817798>
- Vellala, P. S., Madala, M. K., & Chhattopadhyay, U. (2014). A theoretical model for inclusive economic growth in Indian context. *International Journal of Humanities and Social Science*, 4(13), 229-235.
- Velasco, D. C. (2015). *Innovation systems in developing countries: A top-down and bottom-up approach to studying the Colombian National System of Innovation and the coffee, flower and sugarcane production chains* (Doctoral dissertation, The University of Edinburgh). Retrieved from <https://era.ed.ac.uk/bitstream/handle/1842/15813/Velasco2015.pdf?sequence=1&isAllowed=y>
- Vernardakis, N. (2016). *Innovation and Technology: Business and Economics Approaches*. Routledge.
- Walker, W. E. (2000). Policy analysis: a systematic approach to supporting policy-making in the public sector. *Journal of Multi-Criteria Decision Analysis*, 9(1–3), 11–27. [https://doi.org/10.1002/1099-1360\(200001/05\)9:1/3<11::AID-MCDA264>3.0.CO;2-3](https://doi.org/10.1002/1099-1360(200001/05)9:1/3<11::AID-MCDA264>3.0.CO;2-3)
- Walker, W. E., & Marchau, V. A. W. J. (2017). Dynamic adaptive policy-making for the sustainable city: The case of automated taxis. *International Journal of Transportation Science and Technology*, 6(1), 1–12. <https://doi.org/https://doi.org/10.1016/j.ijtst.2017.03.004>
- Wang, D., & Ap, J. (2012). Factors affecting tourism policy implementation: A

- conceptual framework and a case study in China. *JTMA*, 36, 221–233. <https://doi.org/10.1016/j.tourman.2012.11.021>
- Watkins, A., & Ehst, M. (2008). *Science, Technology, and Innovation: Capacity Building for Sustainable Growth and Poverty Reduction. Europe*. The World Bank.
- Wei, L. O., & Yew, L. K. (2017). *Innovation management: A study of woman entrepreneurs in Klang Valley. Proceedings of the 5th International Conference on Innovation and Entrepreneurship, ICIE 2017* (p. 194).
- Weyrauch, T., & Herstatt, C. (2017). What is frugal innovation? Three defining criteria. *Journal of Frugal Innovation*, 2(1), 1–17. <https://doi.org/10.1186/s40669-016-0005-y>
- World Bank. (2010). *Innovation Policy: a guide for developing countries*. World Bank Publications. <https://doi.org/10.1596/978-0-8213-8269-1>
- World Bank. (2017). *World Development Report: Governance and Law. 2017*. The World Bank. <https://doi.org/10.1596/978-1-4648-0950-7>
- World Economic Forum. (2015). *The Inclusive Growth and Development Report 2015*. Geneva, Switzerland: World Economic Forum.
- World Economic Forum. (2018). Innovation with a Purpose: The role of technology innovation in accelerating food systems transformation. *System Initiative on Shaping the Future of Food Security and Agriculture*. Retrieved from http://www3.weforum.org/docs/WEF_Innovation_with_a_Purpose_VF-reduced.pdf
- Wu, D., Ely, A., Fressoli, M., Zwanenberg, P. Van, Bell, B., Bokor, K., & Contreras, C. (2017). New Innovation Approaches to support the implementation of the sustainable development goals. *The United Nations Conference on Trade and Development (UNCTAD)*. <https://doi.org/10.1017/S0020818300006640>
- Yayasan Inovasi Malaysia. (n.d.). High Impact Programme (HIP 6) - Yayasan Inovasi Malaysia. Retrieved February 27, 2021, from <https://www.yim.my/en/grant/hip6/>
- Yin, R. K. (2003). *Case Study Research. Design and Methods*. Beverley Hills: SAGE Publications.
- Yin, R. K. (2006). *Case Research Study Design and Methods. Applied Social Research Methods Series*. Thousand Oaks, London: Sage Publications.
- Yin, R. K. (2009). *Case study research : Design and methods / Robert K. Yin. Applied social research methods series: 5*. Thousand Oaks, CA: Sage.
- Yin, R. K. (2011). *Qualitative Research From Start To Finish*. The Guilford Press.
- Zaidah, Z. (2007). Case study as a research method. *Jurnal Kemanusiaan*, 5(1).

<https://doi.org/10.1177/15222302004003007>

Zehavi, A., & Breznitz, D. (2015). *Severing the Innovation-Inequality Link : Distribution Sensitive Science, Technology and Innovation Policies in Developed Nations.*

Zulkarnain, H., & Isahaque, A. (2013). Poverty reduction policies in Malaysia: Trends, strategies and challenges. *Asian Culture and History*, 5(2), 48. <https://doi.org/10.5539/ach.v5n2p48>

LIST OF PUBLICATIONS

Journal Publication

Noor Rizawati Nasir, Mustafa Din Subari. (2017). Review of Social Innovation Initiatives in Malaysia. *JOSTIP: Journal of Science, Technology, and Innovation Policy*, 3 (1).

Noor Rizawati Nasir, Mustafa Din Subari. (2019). Malaysia Multi-Dimensional Efforts to Implement New Innovation Approaches. *IJITEE: International Journal of Innovative Technology and Exploring Engineering*, 8 (12S2).

Noor Rizawati Nasir, Asnul Dahar Minghat. (2020). Factors Limiting Policy Recognition of the New Innovation Approaches. *International Journal of Advanced Science and Technology*, 29 (7s).