

CONTENTS

APPROVAL PAGE

SELF DECLARATION AGAINST PLAGIARISM

ABSTRACT iv

ACKNOWLEDGEMENTS v

PREFACE vi

CONTENTS vii

LIST OF FIGURES xi

LIST OF TABLES xiii

1 INTRODUCTION 1

- 1.1 Background1
- 1.2 Problem Identification4
- 1.3 Objectives5
- 1.4 Research Boundaries6
- 1.5 Hypothesis6
- 1.6 Research Methodology6

2 LITERATURE REVIEW 8

- 2.1 Satellite Infrastructure Overview8
- 2.2 The Global Satellite Industry8
 - 2.2.1 Key Space and Satellite Industry Trends8
 - 2.2.2 Commercial Earth Observation Market10
 - 2.2.3 Global Space Launch Dynamics11
 - 2.2.4 LEO Constellations and Emerging Satellite Connectivity Trends11
 - 2.2.5 Global Industry Trends and Challenges17
 - 2.2.6 Opportunities and Barriers to Leveraging LEO Satellites in Developing Countries20

CONTENTS	
2.3	Indonesian Satellite Ecosystem.....21
2.3.1	Development of Satellite Operations in Indonesia.....21
2.3.2	Challenges and Dependencies.....23
2.3.3	Profiles of Major Domestic Operators24
2.3.3.1	PT.Telkom Satelit Indonesia (TELKOMSAT)25
2.3.3.2	PT Pasifik Satelit Nusantara (PSN)26
2.3.3.3	PT MNC Sky Vision Tbk27
2.3.3.4	BRIsat.....28
2.3.4	Rise of NGSO Satellite Services in Indonesia28
2.3.4.1	Strategies of Domestic Operators in the NGSO Era 30
2.3.5	Domestic Space Initiatives and Strategic Directions.....32
2.4	Orbital Mechanics: GSO vs. NGSO.....32
2.5	Technical Aspects of Satellite Deployment in Indonesia.....34
2.5.1	Satellite Capacity and Utilization34
2.5.2	Coverage Area and Service Analysis.....36
2.5.2.1	National Geographic and Service Footprint36
2.5.3	Interference Scenarios37
2.5.3.1	Analysis of Spectrum Interference Potential between GSO FSS and NGSO Satellite Systems37
2.6	Market Dynamics in the Satellite Industry40
2.6.1	Demand Forecast and Sectoral Growth40
2.7	Satellite Frequency Allocation in Indonesia41
2.7.1	Characteristics of the Satellite Industry and Frequency Allocation42
2.7.2	The Need for More Detailed and Fair Regulations43
2.8	SWOT Analysis & TOWS Strategy Matrix Structure.....44
2.8.1	SWOT Analysis44
2.8.2	TOWS Matrix Structure.....45
3	RESEARCH METHODOLOGY 47
3.1	Research Framework.....47
3.2	Technical Analysis Framework48
3.3	Regulatory Analysis Framework51
3.4	SWOT-TOWS Strategic Framework.....52
4	ANALYSIS 55

4.1	Current Market Overview	55
4.2	The Rise of NGSO Satellites and Its Implications for Indonesia	57
4.2.1	Developments in Satellite Technology and Their Implications for Spectrum Filing	60
4.3	Orchestration of the National Satellite Capacity Concept and the BAKTI Project in Increasing the Economic Value of Indonesian Satellite Filing	62
4.4	Satellite Capacity Supply vs. Demand	65
4.4.1	Projected Satellite Demand and Capacity	65
4.4.2	Satellite Supply Analysis	67
4.4.2.1	Satellite Operator Landscape	67
4.4.2.2	Available Domestic Satellite Capacity	68
4.4.2.3	Satellite Coverage	69
4.5	Foreign Satellite Dependency	72
4.6	Market Overview and Challenges	76
4.6.1	Shifting Market Dynamics and Service Demands	76
4.6.2	Co-opetition as a Partnership Strategy in the Global HTS Satellite Industry	78
4.7	Gaps in Indonesia's Satellite Market and Digital Connectivity	79
4.8	Future Infrastructure Needs and Opportunities	81
4.8.1	Infrastructure Needs as the Foundation of Indonesia's Vision 2045	82
4.9	Indonesia 2045 Vision and Strategic Role of Satellite Infrastructure	82
4.9.1	Opportunities from Satellite Technology Disruption	83
4.9.2	National Initiative and Roadmap for Satellite Capacity Provision	84
4.10	Regulatory Analysis	85
4.10.1	Current Regulatory Challenges	85
4.10.2	Regulatory Barriers to National Satellite Capacity Development	86
4.10.3	Challenges of Landing Rights Mechanisms and the Complexity of Satellite Filing Coordination	87
4.10.4	Mitigating Investment Risk Through Filing Strategies	92
4.11	SWOT Analysis	94

4.12	TOWS Analysis	CONTENTS	96
4.13	Recommendation		98
5	CONCLUSION AND RECOMMENDATION		100
5.1	Conclusion		100
5.1.1	Policy and Strategy Recommendations		101

APPENDICES	102
APPENDICES	102
REFERENCES	103