

# CONTENTS

PREFACE	i
LIST OF ABBREVIATIONS	iv
LIST OF FIGURES	vi
LIST OF TABLES	viii

## CHAPTER 1 INTRODUCTION

1.1 Prologue	1
1.2 SOA Overview	4
1.3 Semantic Web	7
1.4 Motivation	10
1.5 Statement of the problem	11
1.6 Thesis Organization	12

## CHAPTER 2 LITERATURE REVIEW

2.1 Introduction	15
2.2 Service Oriented Architecture	16
2.2.1 Web Services	20
2.2.2 SOA Governance	23
2.3 SOA Methodologies	25
2.3.1 SDLC (Service Oriented)	27
2.3.2 SOA Governance	39
2.4 Semantic Web	51
2.4.1 Resource Description Framework	53
2.4.2 RDF Schema	54
2.4.3 Web Ontology Language	55
2.5 Semantic Web Services	57
2.5.1 Web Services Modeling Ontology	63
2.5.2 Web Services Modeling Toolkit	67
2.5.3 Automatic Web Service Composition	69

2.6	Summary	71
<b>CHAPTER III DYNAMIC SOA RUNTIME GOVERNANCE</b>		
3.1	Introduction	75
3.2	Policies	76
3.3	Service Level Agreement	80
3.4	Web Service Intermediaries	82
3.5	SOA Runtime Governance – Existing System	83
	3.5.1 Limitations on existing system	85
3.6	Dynamic SOA Runtime Governance – Proposed System	86
	3.6.1 Ontology Modeling	86
	3.6.2 Policy Modeling	90
	3.6.3 System Architecture	91
<b>CHAPTER IV SERVICE CREATION FOR SOA BASED SOLUTIONS IN TELECOM DOMAIN</b>		
4.1	Introduction	93
4.2	Services in Telecom Domain	94
4.3	Service Delivery Platform	96
	4.3.1 SDP Reference Architecture	97
	4.3.2 SDP Vendors	100
	4.3.3 Service creation in SDP	100
	4.3.4 Service Creation Challenges	103
4.4	Semantic Web Services Reference Architecture	108
4.5	Proposed System	116
<b>CHAPTER V METHODOLOGY &amp; RESULTS</b>		
5.1	Methodology	119
	5.1.1 Dynamic SOA Runtime Governance	119
	5.1.2 Service creation for SOA based solutions	120
5.2	Experimental Setup	121
	5.2.1 Dynamic SOA Runtime Governance	123
	5.2.2 Service creation for SOA based solutions	149

5.3	Results & Interpretation	161
5.3.1	Dynamic SOA Runtime Governance	161
5.3.2	Service creation for SOA based solutions	165
<b>CHAPTER VI CONCLUSION AND FUTURE WORK</b>		
6.1	Concluding remarks	172
6.2	Future work	177
6.2.1	Scope in semantic web services	177
6.2.2	Scope in industry domains with semantics	178
<b>REFERENCES</b>		<b>179</b>
<b>LIST OF PUBLICATIONS</b>		<b>195</b>