

Contents

Chapter 1. Introduction.....	1
1.1 Introduction.....	1
1.2 Problem.....	2
1.3 Need for the Study.....	3
1.3.1 Global Scenario.....	3
1.3.2 Indian Scenario.....	3
1.3.3 Need for this Study.....	5
1.4 Literature Review.....	5
1.4.1 Information Resources used for Literature Review.....	6
1.4.2 Review of the Literature Related to the Present Work.....	7
1.5 Scope of the Work.....	10
1.5.1 What is Metadata?.....	10
1.5.2 Why Metadata?.....	11
1.5.3 Role of Metadata in e-Governance.....	11
1.6 Importance of Interoperability in e-Governance.....	12
1.7 Objectives.....	12
1.8 Hypotheses.....	13
1.9 Methodology.....	13
1.10 Conclusion.....	14
1.11 References.....	14
Chapter 2. e-Governance and e-Governance Standards.....	18
2.1 Introduction.....	18
2.1.1 Reformation in Governance.....	18
2.2 Electronic Governance.....	22
2.2.1 Definitions of e-Governance.....	24
2.3 Benefits of e-Governance.....	26
2.4 Transition in e-Governance.....	27
2.5 Types of e-Governance.....	28
2.6 e-Governance Scenario in India.....	30
2.6.1 National e-Governance Plan.....	31
2.6.2 e-Governance Initiatives in India.....	34
2.6.3 Legal and Policy Framework of e-Governance in India.....	95

2.7	Problems in e-Governance	118
2.8	Global Scenario in e-Governance	120
2.9	Standardisation in e-Governance	125
2.9.1	Definitions of Standards	125
2.9.2	e-Governance Standards	125
2.9.3	Different Dimensions of Standardization in e-Governance	127
2.10	Government of India Initiatives in Standardization and Interoperability 128	
2.10.1	Published e-Governance Standards.....	129
2.10.2	Standards Under Development	131
2.11	Conclusion	132
2.12	References	132
Chapter 3. Metadata and e-Governance Metadata.....		152
3.1	Introduction.....	152
3.2	Definitions of Metadata	152
3.3	Types of Metadata.....	154
3.3.1	Descriptive Metadata	154
3.3.2	Structural Metadata.....	154
3.3.3	Administrative Metadata.....	154
3.4	Functions of Metadata.....	157
3.4.1	Organization and Description of Electronic Resources	159
3.4.2	Information Searching and Retrieval	159
3.4.3	Archival and Preservation.....	160
3.4.4	Validation of Resources	160
3.4.5	Interoperability.....	160
3.4.6	Digital Identification.....	161
3.4.7	Bridging the Semantic Gap.....	161
3.5	Structure of Metadata.....	161
3.6	Different Metadata Schemas.....	163
3.6.1	Dublin Core.....	163
3.6.2	Text Encoding Initiative (TEI).....	164
3.6.3	Metadata Encoding and Transmission Standard (METS).....	165
3.6.4	IEEE Learning Object Metadata	165
3.6.5	Metadata Object Description Schema (MODS).....	166
3.6.6	Encoded Archival Description (EAD)	167
3.6.7	<Indecs> and ONIX	168

3.6.8 CDWA and VRA	168
3.6.9 Data Documentation Initiative (DDI)	168
3.6.10 Darwin Core.....	169
3.6.11 Common Warehouse Metamodel (CWM).....	169
3.6.12 Content Standard for Digital Geo-spatial Metadata (CSDGM).....	169
3.6.13 NISO Metadata for Images in XML (NISO MIX).....	170
3.6.14 MARC.....	170
3.6.15 XML Organic Bibliographic Information Schema (XOBIS).....	170
3.6.16 PBCore.....	171
3.6.17 Multimedia Related Metadata Standards	171
3.6.18 Web Metadata Standards	171
3.7 Metadata in e-Governance	172
3.7.1 e-Governance Metadata Standards.....	174
3.7.2 Major e-Governance Metadata Standards.....	176
3.7.3 Metadata Encoding Schemes	179
3.7.4 Comparative Study of Data Encoding Mechanisms in Major E-Governance Metadata Standards.....	179
3.8 Conclusion	192
3.9 References.....	192
Chapter 4. Semantic Web Technology	197
4.1 Introduction.....	197
4.2 Elements of Semantic Web	198
4.2.1 Uniform Resource Identifier (URI).....	198
4.2.2 XML.....	198
4.2.3 Resource Description Framework (RDF)	199
4.2.4 RDF Schema (RDFS)	200
4.2.5 Ontology	200
4.3 Examples of Semantic Web Projects and Tools	201
4.3.1 DBpedia	202
4.3.2 GoodRelations.....	202
4.3.3 NextBio	202
4.3.4 SIOC	202
4.3.5 SIMILE	202
4.3.6 OpenPSI.....	203
4.4 Semantic Interoperability	203
4.4.1 Elements of Semantic Interoperability.....	204

4.5	Semantic Web and e-Governance	205
4.5.1	Advantages of Semantic Web in e-Governance.....	207
4.5.2	Government Semantic Interoperability Frameworks	207
4.6	Conclusion	208
4.7	References	208
Chapter 5. Comparison of e-Governance Metadata Standards.....		211
5.1	Introduction.....	211
5.2	Comparison Methodology.....	212
5.3	Candidate Standards for Comparison	214
5.4	Comparison Parameters	215
5.4.1	General Features	215
5.4.2	Data Element Features	215
5.5	Comparison of General Features.....	217
5.6	Comparison of Data Element Features	219
5.6.1	Comparison of Data Element: Creator.....	219
5.6.2	Comparison of Data Element: Date	220
5.6.3	Comparison of Data Element: Title	221
5.6.4	Comparison of Data Element: Availability.....	222
5.6.5	Comparison of Data Element: Function.....	223
5.6.6	Comparison of Data Element: Publisher.....	224
5.6.7	Comparison of Data Element: Subject.....	225
5.6.8	Comparison of Data Element: Identifier	227
5.6.9	Comparison of Data Element: Contributor	228
5.6.10	Comparison of Data Element: Coverage.....	229
5.6.11	Comparison of Data Element: Audience.....	231
5.6.12	Comparison of Data Element: Format	232
5.6.13	Comparison of Data Element: Language	232
5.6.14	Comparison of Data Element: Mandate.....	233
5.6.15	Comparison of Data Element: Relation	234
5.6.16	Comparison of Data Element: Rights	235
5.6.17	Comparison of Data Element: Source.....	237
5.6.18	Comparison of Data Element: Type.....	238
5.6.19	Comparison of Data Element: Addressee	239
5.6.20	Comparison of Data Element: Status	239
5.6.21	Comparison of Data Element: Location.....	240
5.6.22	Comparison of Data Element: Preservation.....	240

5.6.23 Comparison of Data Element: Disposal.....	241
5.6.24 Comparison of Data Element: Accessibility.....	242
5.6.25 Comparison of Data Element: Description.....	243
5.6.26 Comparison of Data Element: Digital Signature.....	243
5.6.27 Comparison of Data Element: Aggregation.....	244
5.7 Conclusion.....	254
5.8 References.....	254
Chapter 6. Model for Indian e-Governance Metadata Set.....	258
6.1 Introduction.....	258
6.2 Identification of Metadata Element Set for Indian Context.....	258
6.3 Proposed Model for Indian E-Governance Metadata Set.....	259
6.3.1 General Features of the Indian e-Governance Metadata Set Model ...	259
6.3.2 Element Set Features of Indian e-Governance Metadata Set Model	260
6.4 Vocabulary for e-Governance.....	274
6.4.1 Identification of Vocabulary for I-GMS.....	274
6.5 Examples of Data in I-GMS Format.....	280
6.5.1 Examples for Description of Resources using I-GMS.....	280
6.5.2 Example for Description of Service using I-GMS.....	283
6.5.3 Example for Description of Website using I-GMS.....	284
6.6 Data Representation in e-Governance.....	285
6.6.1 Data Representation of E-Government Metadata Standard.....	285
6.6.2 Data Representation of New Zealand Government Locator Service	287
6.6.3 Data Representation of Australian Government Locator Service (AGLS).....	287
6.6.4 Data Representation of Irish Public Service Metadata Element Set	289
6.6.5 Data Representation of Indian e-Governance Metadata Set Metadata	290
6.7 Semantic Web Technology and I-GMS Model.....	291
6.8 Interoperability Issues.....	293
6.9 Conclusion.....	296
6.10 References.....	296
Chapter 7. Conclusion.....	299
7.1 Introduction.....	299
7.2 Findings and Conclusions.....	300
7.2.1. e-Governance Initiatives by State and Central Governments	300
7.2.2 Metadata in e-Governance	305
7.2.3 Metadata Standardization Efforts in India	306

7.2.4 Model for Indian e-Governance Metadata Set.....	306
7.2.5 Interoperability Frameworks.....	307
7.2.6 Semantic Interoperability.....	308
7.3 Limitations	310
7.4 Scope for Further Work	310
7.5 Conclusion	311
7.6 References	311
Chapter 8. Bibliography.....	316