

**SELECT STUDY OF INTEROPERABILITY ADOPTION
FOR ONE-STOP GOVERNMENT PORTAL IN INDIA**

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By

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ABSTRACT

Understanding the challenges of interoperability adoption is the main aim of this thesis. As is known, a key objective of most e-Governance initiative is to provide citizen-centric one-stop Government services to the public. In order to attain this objective, the Government needs to be perceived as a single entity, having seamless flow of information across individual ministries and departments as necessary. Realization of one-stop Government would require end to end integration across all government departments and agencies which, their in will facilitate interoperability. The number of services available through the portals largely depends on the form of Government and the constitution of the respective country. Most often, these portals are seen to find use limited information posting (often not updated) while few portal offers interactions and transactions. Main hurdle remains lack of integration and interoperability. Based on these premises it can be clearly seen that the adoption of interoperability by the government organizations is a complex process, due to the number of departments involved in the process. Therefore, it needs to be analyzed and understood, since the understanding of this process will allow the creation of better conditions for dissemination. The objective of this research, therefore, is to identify factors that can be conditioning in the adoption of interoperability in electronic government's environment in order to achieve one-stop Government portal.

The dissertation starts with introduction followed by a review of literature that helped developing the detailed agenda for this research. Literature has been reviewed in the following areas: e-government and one-stop Government portal along with their evolution and definitions as given by different authors, various e-government stage models developed in past one decade, e-government and Government portals in India and the concept of integration and interoperability for achieving one-stop Government portal. The review of literature has helped to identify the following limitations: Inadequate literature on assessment of technology adoption (e.g. interoperability) for e-government; Negligible research on interoperability in Indian context; the level of integration has not been measured for e-government. In view of these research gaps in the body of knowledge, this study seeks to highlight the key factors affecting interoperability adoption in Indian context. This specific study is undertaken for select portals of Government and Public Sector Undertakings in India, through a survey.

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First, stage models were analyzed and government portals in India were mapped with the help of survey data. Results show most of these portals hovering at early stage, some are moving towards transactions and integrations. These results open up scope to ascertain the level of interoperability and degree of integration in Indian portals. This study moves further to identify the organizational and technical factors required of integration for an interoperable government portal in Indian context. A three dimensional adoption space model has been used to measure the level of integration across three dimensions i.e. Data, Process and Communication. All the dimensions and organizational factors are found inter-related, a causal loop analysis of which provides useful insights over their interplays.

The position of interoperability in technological adoption space has been evaluated. The results show that more than half of the Indian Government portals have initiated integration. Considering the position of each organization's portal in the 3 dimensional space, T-test has been applied for significance of the result. This test has been conducted at 95% confidence interval i.e. p value <0.05. The weak factors of each dimension have been highlighted. Also, the impact of organizational factors on the adoption of interoperability technology for Indian portals has been assessed. The study establishes the fact that adoption of Interoperability for Indian portals is highly associated with certain organizational factors. This is supported by multiple regression analysis that reveals the functionalities of government portals significantly related to four organizational factors. These insights are useful for government officials to initiate necessary actions and improve the level of interoperability in government portals. The study further proposes a 2 X 2 guiding framework that helps the government officials to focus on the relevant organizational factors.

It becomes clear that the portals with the lowest level of integration will determine the timeline to actually attain full horizontal integration and hence achieve an interoperable portal. Action plan would be to focus on the weakest factors of each dimension: Data integration (Ontology, Adoption of open standards, Message Formatting Language implementation and Resource Description Framework), Process integration (Adoption of open standards, Reuse) and Communication integration (Web and internet technologies, Intelligent design of supporting applications by users) will help in increase the level of Integration and thus help in achieving interoperability. Organizational factors are found generally have significant impact on interoperability.

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One of the important contributions of this research is a three dimensional adoption space model that helps organizations to examine their current status in the e-government environment from the perspective of three technical dimensions of integration. Also, this study provides empirical data about interoperability adoption in Government portals of India

Future scope for research lies in extending the study to other Government portals in India at all levels: local, state and national. Influence of socio economic factors can be examined. The dimensions and their factors are not constrained and can be further developed according to the requirements for portals.

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Contents

Abstract	
Contents	
List of Figures	
List of Tables	

Chapter 1 Introduction to the Study

1.1	Background	1
1.2	Need of Research	8
1.3	Outline of study	10
1.4	Structure of Thesis	12
1.5	Concluding remarks	14

Chapter 2 Literature Review

2.1	Introduction	15
2.2	Understanding evolution of Portal	15
2.3	Portal Architecture	28
2.4	Tracking Portal Maturity	32
2.5	Issues of Integration and Interoperability	39
	a. Integration	39
	b. Interoperability	41
	c. Semantic Interoperability	47
	d. Technologies in Interoperability	48
	i. Enterprise Architecture	48
	ii. Service oriented architecture	51
	iii. Ontology	52
	iv. Knowledge Management	53

[Type text]

v.	Web services	54
2.6	Agenda of E-government in India	56
2.7	Challenges faced by Government Portals in India	60
2.8	Synthesis of Literature Review	65
2.9	Research Gaps	68
2.10	Concluding remarks	70

Chapter 3

Research Design

3.1	Introduction	71
3.2	Problem Statement	71
3.3	Research Questions	71
3.4	Research Objectives	72
3.5	Issues	72
3.6	Scope	75
3.7	Research Methodology	75
3.8.1	Adoption Space Model for Portal Maturity	77
3.8.2	Causal Loops	79
3.8.3	Analysis on Stage Models	79
3.8.4	Questionnaire Survey	79
i.	Questionnaire validation	81
ii.	Questionnaire Testing	82
iii.	Questionnaire Format	82
iv.	Administering the Questionnaire	83
v.	Quantitative Analysis Techniques and Tools Used	84
3.8	Universe of the study	86
3.9	Concluding Remarks	86

[Type text]

Chapter 4

E-government Evolution in India: A Test of Stage Models

4.1	Introduction	87
4.2	A perspective of E-government Stage Models	87
4.3	Methodological Framework	99
4.4	Results	100
4.5	A comparison of Portals of Government Organizations vs. PSUs	106
4.6	Concluding Remarks	109

Chapter 5

Identifying Dimensions of Integration for an Interoperable Government Portal

5.1	Introduction	110
5.2	One-stop Government Portal and Interoperability	110
5.3	Approach	111
5.4	Organizational Factors	113
5.5	Dimensions of Integration	116
	<i>Data Integration</i>	117
	<i>Process Integration</i>	124
	<i>Communication Integration</i>	127
5.6	Synthesis and Discussion	131
5.7	Concluding Remarks	133

Chapter 6
**Interoperability Adoption for Government Portals in India: A
Comparative Analysis with Indian Public Sector Undertakings and Indian
Companies**

6.1	Introduction	135
6.2	Adoption Space	135
6.3	Research Methodology	138
6.4	Results and Analysis	140
6.5	Discussion	147
6.6	Research Implications	153
6.7	Concluding Remarks	154

Chapter 7
**Effect of Organizational Factors on Interoperability Adoption for
Indian Portals**

7.1	Introduction	155
7.2	Interoperability	155
7.3	Research Methodology	157
7.4	Organizational Factors	159
7.5	Results and Analysis	162
7.6	Current Position of Organizational Factors in Government Portals in India	166
7.7	Framework	168
7.8	Research Implications	173
7.9	Concluding Remarks	174

[Type text]

Chapter 8

Conclusion

8.1	Introduction	176
8.2	Summary of Research	176
8.3	Revisiting Research Questions and Objectives	177
8.2.1	Research questions revisited	177
8.2.2	Research objectives revisited	179
8.4	Learning	180
8.5	Implications for Research and Recommendations	181
8.6	Research Contributions	184
8.7	Limitations of the Study	185
8.8	Implications for Practice and Future Work	186
8.9	Concluding Remarks	187
	References	188
	Appendix	