Assessing Effectiveness of State Government Portals in India

Debjani Bhattacharya[1], Umesh Gulla[2] and M. P. Gupta[3]*

ABSTRACT

This paper makes an attempt to assess the effectiveness of the government portals in Indian states. Portals are very important today for rendering web based services. They form the primary window which can provide guidance to users to utilise service offered by any institution which can be e-business or e-government. Substantial investments have been made and are being made on this technology to improve the government activities in all countries throughout the world. Hence it is time now to examine the capacity of the government departments to effectively harness this technology. Reports show lack of good portals and dearth of significant uses of the same. So in this paper we have made an attempt to discuss the various issues of government portal usefulness in Indian context.

Keywords: Effectiveness, portals, e-government, technology, Indian States

1. Introduction

Portals are very powerful window available to government to route all services from different disciplines of science and management today to various users and stakeholders. This is a part of broader e-government agenda in most countries. It is neither a homogeneous nor static phenomena. Research are being done on the dynamics involved, the perspectives, methods and practices to integrate the dynamics into governmental system (Gil-Garcia and Martinez-Moyano, 2006; Heeks and Bailur, 2006). Today e-governance has evolved from its mere presence in Internet to a transactional and integrated application like web portals. Different government levels as a general trend has adapted to technological sophistication thus shifting the focus from the paper work to a more organized approach and technically enhanced efficiency. Several theoretical and conceptual models have been proposed by researchers to conceptualize and characterize e-government (e.g. Cresswell & Pardo, 2001; Dawes, Pardo & Cresswell, 2004; Fountain, 2001; Gil-Garcia & Pardo, 2005; Gupta and Jana, 2003; Moon, 2002). Government portals are designed to encapsulate the size and complexity of government which for decades have acted as traditional barriers to easy access of citizens to government services. Government portals serve more than a simple gateway or single point entry to government services for citizens. They also offer an opportunity to reorient services around the needs of citizens while consolidating back office responsibilities (Gupta, Kumar and Bhattacharya, 2004).

Government portals allows for self service, from searching for information to paying tax. Thus it has become essential today to understand the effectiveness of government portals to properly evaluate better

---

[1] Amity International Business School, Amity University, Noida, India

[2] School of Management Studies, Indra Prastha Uinversity, Delhi, India

[3] Department of Management Studies, Indian Institute of Technology Delhi, India

* *Corresponding Author:* (Email: mpgupta@dms.iitd.ac.in)

service to citizens. To conduct this study we have referred to e-government-specific research journals and conference series and various government reports. Our analytical focus was on five main aspects: basic features of a web portal, Global trend of government portal deployment, Indian scenario of portal implementation, examining the state government and central government portals in India against the basic features identified.

In India, the Tenth Five Year Plan 2002-07 of Government of India, giving adequate importance to e-governance, suggested for an India Portal – a portal of all government websites for providing one-stop non-stop delivery of public services and disseminates of services. However the real challenge is that nearly 70% percent of Indian population is rural and providing the benefits of the e-government is an uphill task because of want of the telecommunication infrastructure. Realising these deficits, Prime Minister Vajpayee took some major policy initiatives in 1998 that led to spurt of programs for e-enablement of government department and also related projects on e-governance. All began with setting up of high powered National IT task force that made 108 recommendations. This subsequently led to creation of a separate Ministry of Information Technology in the year 1999 and approval of IT Act 2000 to promote growth of IT industry in the country. It has also approved a policy of allocating 2 to 3% of Budget for IT in each government ministry. A national level e-governance plan (NEGP) was announced on 16 May 2006 by the Minister with an outlay 25000 crores rupees with aim to create the right governance and institutional mechanisms, set up the core infrastructure and policies and implement a number of Mission Mode Projects at the center, state and integrated service levels to create a citizen-centric and business-centric environment for governance. Apart from mission mode projects, other three major components of NEGP include creation of State Wide Area Network; State Data Centre (SDC) and 100,000 Community Service Centers (CSC) to serve among a cluster of 6 villages in the country and provide a range of services (more than eighty). Now every state of India has an IT Policy in place and is involved in the development and implementation of new projects across the various departments of the government viz. Land record, agriculture, finance, insurance, banking, education etc. Recently, in September 2007, the Indian Government has approved city-specific an ambitious programme covering 323 cities in the country to provide e-Governance services. These e-Governance services will enable citizens to get birth and death certificates, pay property tax, water and power-bills and submit building plans online, anywhere anytime. The cabinet committee on economic affairs (CCEA) has approved the programme for Rs 787 crore project in the 11th five-year plan. (2007-2012). Notwithstanding all these developments, the extent of usage of online portal is not very encouraging. Lack of awareness, lack of marketing by the government organizations, traditional mindset etc are some of the factors attributed to low use of portals (Gupta et al. 2004).

This paper has tried to examine the factors which influence the effectiveness of the government web portals thus suggesting the ways to strengthen e-government research thus and deeper factors like role of technology and right implementation of information to make a transparent government.

2. Effectiveness of Government Portals

The process for developing a Web site consists generally of three stages (Giudice and Goodman, 1999; Davis & Merritt, 1998):

- Defining the mission, goals, potential users and general strategies of the site
- Designing and choosing the appropriate unified style, information architecture, technologies, and navigation paths; and
- Producing, integrating, testing, and refining the programming, typography, editorial style, graphic design, and multimedia objects of a Web site.

The demand for direct access to government information, from both inside and outside government, is influencing the design and management of these information services. They are becoming increasingly

focused on electronic data and records as the format desired by users.

They are also shifting from staff-mediated modes of access to user-directed computer-mediated access, now made possible over the Web. Service delivery is where the service mode is ultimately implemented. According to Hallowell (2002), the link between operations' strategy and service delivery is the base for creating a "virtuous cycle." A virtuous cycle is a customer loyalty cycle the starts with navigation, continues through information, customer support, and logistics phases, and, if successful, results in customer loyalty. In the e-government environment, ease of navigation represents the ability of citizens, businesses, and other government agencies to navigate through a website. Information dissemination involves providing relevant, accurate, and up-to-date information to navigators.

How can effectiveness of web portals help e-government?

When ease of navigation, information dissemination, online support, and service delivery are well designed and executed, service quality is high and a favourable EGEC develops, which results in increasing citizens' loyalty. Improved navigation leads to a decrease in citizens' support costs and service improvement. Citizens and businesses expect to be able to navigate around a website quickly and easily to find the information they need. That translates to lower support costs and increased quality of service. On the other hand, if navigation is poor or difficult, and the required information is not readily available, online users will require customer support. If extensive reliance on customer support is required to conclude e-government transactions, two negative consequences will result. First, customer support costs including training, direct labor, and managerial costs will significantly increase. Second, customers will thwart at using e-government services and return to bricks-and-mortar installations to conduct their business. Clearly, design and effective operation of these elements in the service delivery system are crucial to success of any e-government operation.

Three key elements of user-centered evaluations of e-government web portals are primarily: functionality, usability and accessibility.

Functionality testing is used to assess the performance of Web site in a desired way that the site is meant to fulfil. These functions can include basic search functions, filling forms, document delivery, multiple languages, and any other operational elements of the site that users need to employ. It has been noticed that even if a wide range of information and services are available on a site, there might be no search function, flawed instructions, poor design and layout, missing navigation and orientation elements, no contact information, inaccurate or incomplete search results thus preventing users from accessing and using the available information and services.

Specific issues explored by usability testing can include whether:
- navigation and orientation are intuitive;
- elements of the site perform as users anticipate;
- elements of the site are clearly labelled;
- instructions are meaningful and easy to follow; and
- content is presented in a manner that is logical, clear, and understandable.

Another research on improving effectiveness of web portals was done based on technology acceptance model (Zhilin Yang, Shaohan Cai, Zheng Zhou and Nan Zhou, 2004). The result yielded information quality and service quality. Information quality has been described by usefulness of information and adequacy of information. System quality has been described by usability, accessibility and ease of interaction of users with the portal (Table-1).

Table 1: Properties and purpose of the factors influencing web portals

Property	Purpose
a. Usefulness of information	Refers to value information, its reliability and accuracy along with relevance of the information to the user. Reliability necessarily means the consistency and dependability. Information provided in the web should be timely and has to be updated regularly. The information is expected to be free of error.
b. Adequacy of information	Explains the completeness of information. Government webportals should provide information for the users so that they understand the working of government agencies thus helping to promote e-governance. Research reports and hyperlinks to relevant webportals should be provided.
c. Usability	Refers to user friendliness. From the literature survey we know that content layout, website structure, user interface web site appearance and visual design, clarity, search facilities greatly influence user visiting the site.
d. Accessibility	It essentially refers to availability and responsiveness. All time availability of information along with speedy log-on, search, downloads
e. Ease of interaction	Interaction can be between service providers and users, users and website or between peer users. Personalized services may be expected by users can add value to the web site service.

A comparative study with the world status shows network readiness of India is still ranked 44 in the world review (eiu),which reveals that the effort put by Indian government to achieve e-government is not up to the level. It is high time has to study the flaws prevailing in the existing system of e-government of India .The beginning could be to evaluate the window of the service that is a government website or web portal based on certain criteria which have been analyzed in subsequent sections.

A close study (Ray, Sirajee & Dash, 2006) of the status of Indian state was made and the details given below.

Graphical plot of web readiness Vs e-government readiness is given in Figure 1.
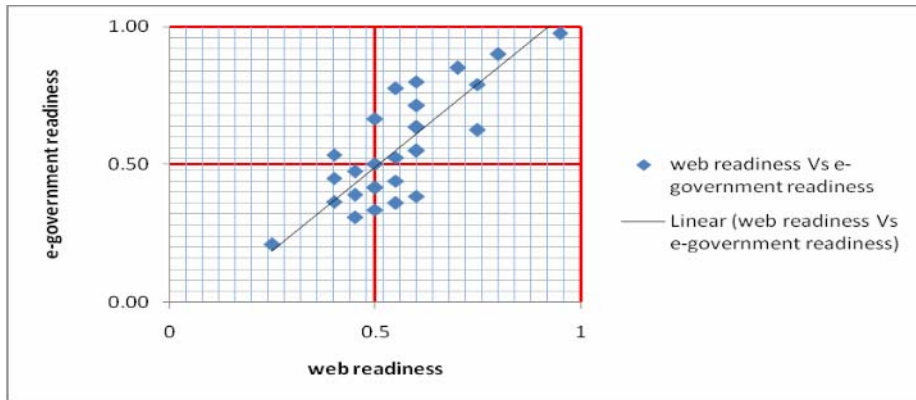
Figure 1: Web readiness Vs e-government readiness

Analysis of the plot shows that a good number of states are stuck at a 40% growth while web readiness indicates a better scope of development. Overall a rising trend can be observed but still lot of effort have to be made to implement e-government. Graphical plot of e-readiness and e-government readiness is given in Figure 2.
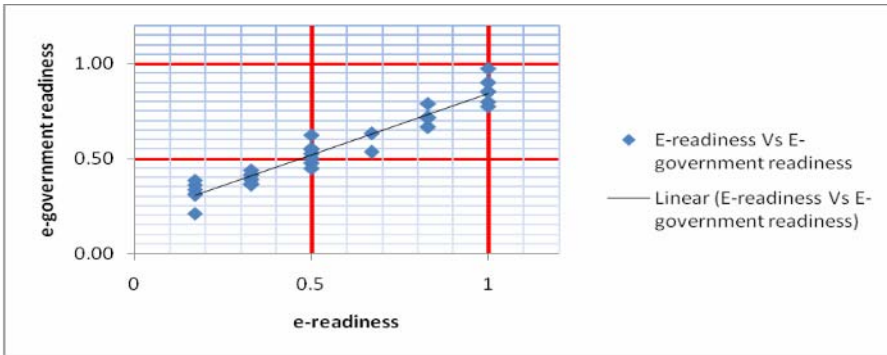
Figure 2: E-readiness and e-government readiness

E-readiness speaks about the infrastructure in a country. The value of the e-Readiness Index at the State level is a measure of the capacity of a State to take part in the networked economy relative to the country at large. Studying the plot we can conclude e-government has a steady progress in our country. Most of the states lie above a value of 50%. The states which lie below 50% needs to take initiative to enhance their infrastructure and quality of information delivered to the citizens.

3. Assessing Indian State Government Portal
Survey has been done based on the above criteria for the existing state government portals in India. A scale of 1-5 was taken to describe a ascending ranking quality. It was seen that most portals miss the interactivity and accessibility option for the users. Information provided is not enough to know about the e-government status of the concerned place. The existing projects which have gained popularity should have proper link in the state government portals so that usefulness of such projects can be enhanced.
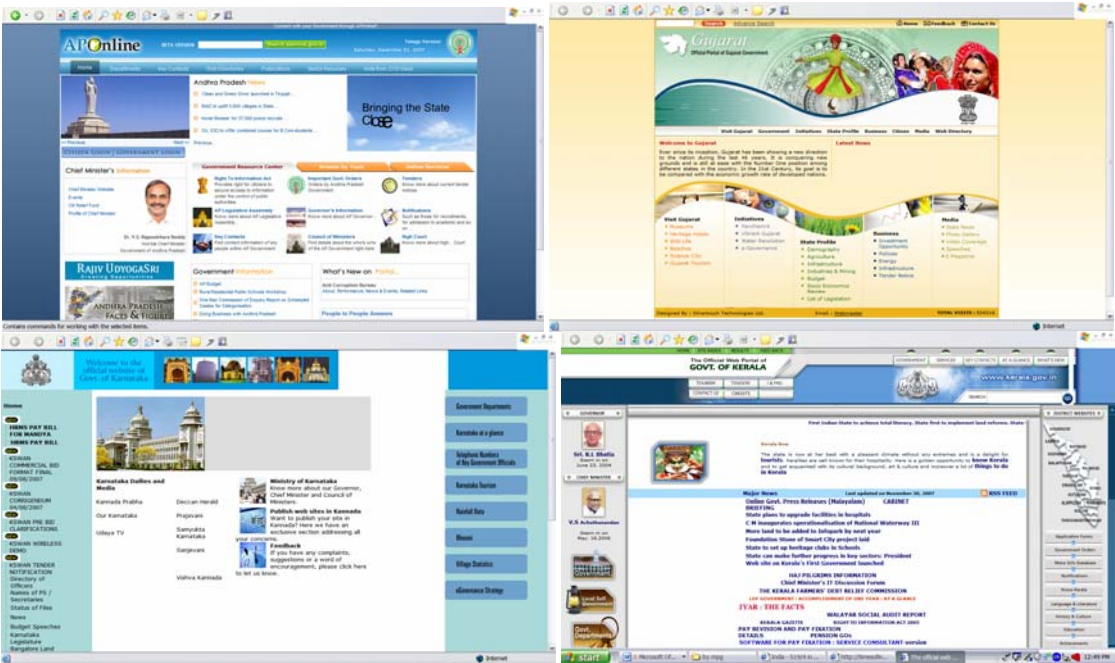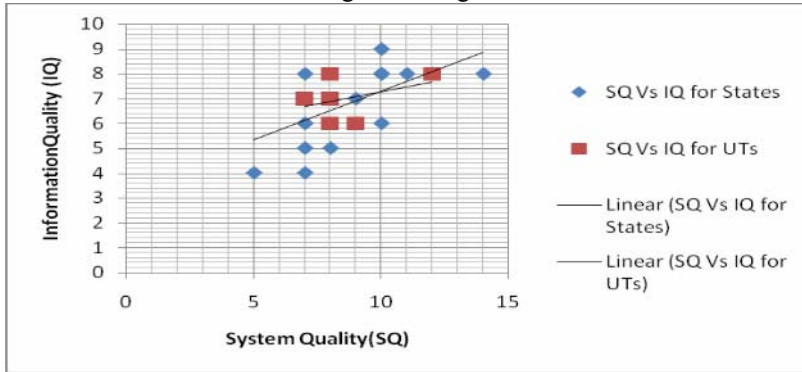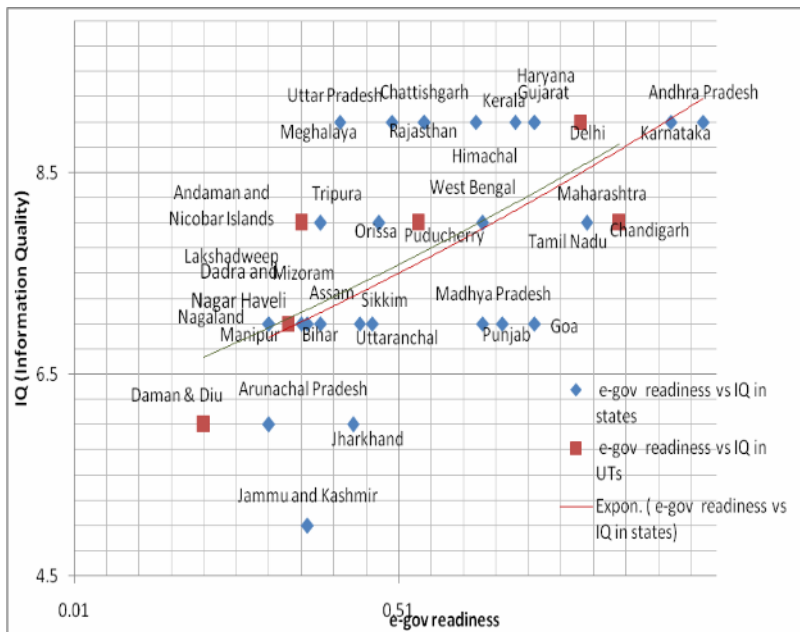

Figure 3: Indian State Government Portal

Graphical representations of the above data are given in Figure-4.

Figure 4: System quality vs. information quality of state government portals

A trend of rise is shown distinctly in the graph though but still the level of satisfaction is less among the users as the portals fail to meet the basic criteria of a portal.

Figure 5: E-government readiness vs. information Quality of state government portals

The above figure-4 analyzes the variation of e-governance readiness with Information quality. It is observed that in some states like Assam, Bihar, Manipur Meghalaya though the e-government readiness is less than 0.5 still the information quality is appreciative. While states like Tamil Nadu and Punjab have a better e-government readiness but still the information quality needs improvement. A general trend is observed that both in case of states and union territories information quality is better in portals where e-government readiness is high (more than 0.5). We have further studied the relationship variation between e-government readiness and system quality of portals.
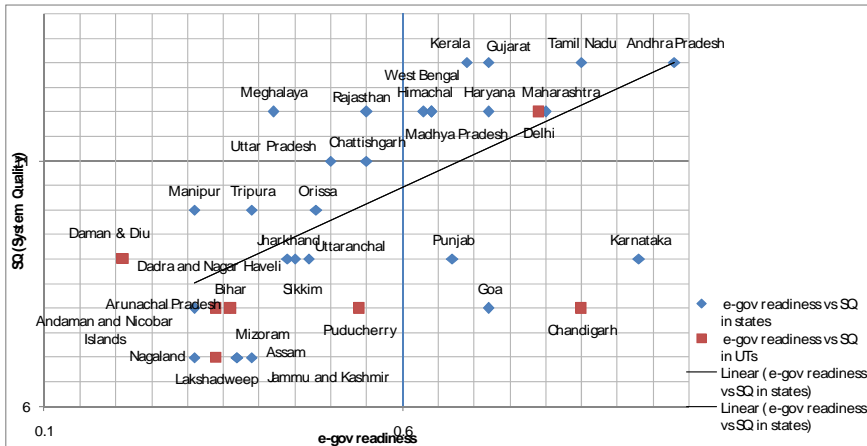
Figure 5: E-government readiness vs. System Quality of state government portals

In the above figure-5, it is observed that states and union territories like Arunachal Pradesh, Assam, Bihar, Mizoram, Nagaland, Daman & Diu, Andaman and Nicobar islands, Dadra and Nagar Haveli despite of having less (<0.5) e-government readiness has a mark able system quality in the portals which adds to their effectiveness. Besides, the general observation of high system quality with high value of e-government readiness is observed here too.

4. Concluding Remarks

Analysis of state portalshas been done on a theoretical framework in this paper. The criteria of analysis have been explained above through five parameters (Usefulness of information, adequacy of information, usability, accessibility and ease of interaction). In the process we have cognized some added features, like contextual factors which are beyond technology, and various referent domains and ideas with much diversity. It has been observed that the delivery of service is dependent on the system quality of a particular state in India considerably. E-readiness report by Department of Information Technology shows that states and union territory like Andhra Pradesh, Tamil Nadu, Karnataka, Kerala, Chandigarh and Maharashtra are in leading positions. The plot of Information quality and egovernment readiness shown in the study also shows similar trend for the States and Union territory. Kerala shows a variance as the information quality does not fulfil the criteria of the model taken in the study. States and Union territories like Uttar Pradesh, Pondicherry, Rajasthan, West Bengal, Chattisgarh, Himachal Pradesh, Uttaranchal, Sikkim, Orissa, Madhya Pradesh, Jharkhand show a good achievement from both information quality and e-government readiness point of view followed by Assam, Mizoram, Meghalaya, Lakshadweep, Jammu & Kashmir and Bihar. The latter have shown advancements in e-readiness but still lag behind in information service quality. Manipur, Arunachal Pradesh, Andaman & Nicobar , Nagaland, Tripura, Dadra & Nagar Haveli and Daman& Diu distinctly are in the initial phase of development of e-government and thus do not show an appreciable quality of service. This research is mainly a theoretical work that can impart practical guidance for better delivery of e-governance. It has been observed during the study that there is a lack of clarity and lack of rigor about methods for improvement and is taken as a general approach.

References

1. Baum, C., and De Maio, A. (2000). *Gartner's four phases of e-Government model.*
2. Davis, J. and Merritt, S. (1998) *The Web Design Wow! Book: Showcasing the Best of On-Screen Communication*. Berkeley, CA: Peachpit Press,1998.
3. Denhardt, R. (1999). The future of public administration. *Public Administration and Management*, 4(2), 279–292.

4. DIT, NCAER (2007), India: E-Readiness Assessment Report 2005 For States / Union Territories", Delhi, DIT. [online], http://www.mit.gov.in/download/e-ready/Chap2.PDF [Last accessed on November 24, 2007]

5. De R. (2006) The Impact of Indian E-Government Initiatives: Issues of Poverty and Vulnerability Reduction, and Conflict.Editorial: User-centered e-government: Challenges and benefits for government Web portals. *Government Information Quarterly* ,23 (2006) 163– 168

6. Gil-García, J. R., & Pardo, T. A. (2005) E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly*, 22(2005), 187−216.

7. Gupta, M. P., & Jana, D. (2003) E-government evaluation: A framework and case study. *Government Information Quarterly,* 20(2003), 365−387.

8. Gupta, M.P., Kumar P. and Bhattacharya J. (2004) *Government Online*, New Delhi: Tata McGraw-Hill, 2004.

9. Giudice , M. & Goodman, S. (1999). Where the Front and Backend Meet: Collaboration between Designers and Engineers, presentation at the CNET Builder.com *Live Conference*, December 7-11.

10. Hallowell, R. (2002), Virtuous cycles: improving service and lowering costs in e-commerce, Harvard Business School, Cambridge, MA, Module Teaching Note 5-802-169.Heeks R & Savita Bailur (2006) Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Government Information Quarterly* ,24 (2007) 243–265

11. Jane E. Fountain (2001) *Building the Virtual State:Information Technology and Institutional Change*. Brookings Institution Press.

12. John F. Affisco & Khalid S. Soliman (2006). E-government: a strategic operations management framework for service delivery, *Business Process Management Journal*, Vol 12 Number 1 2006 pp.13-21

13. J. Ramon Gil-Garcia, Ignacio J. Martinez-Moyano (2007). Understanding the evolution of e-government: The influence of systems of rules on public sector dynamics. *Government Information Quarterly* 24 (2007) 266–290

14. Ray D, Sirajee S. & Dash S (2006) A Study on E-Government Readiness of Indian States. In Mitra, R.K. (ed) *E-government: Macro Issues* .New Delhi: GIFT Publishing, 107-122

15. Shah. M (2007). E-Governance in India: Dream or reality? *International Journal of Education and Development using ICT* Vol. 3, No. 2 (2007)

16. Sharon S. Dawes, Theresa A. Pardo, and Anthony M.Cresswell. (2004) Designing electronic government information access programs: a holistic approach. *Government Information Quarterly* 21 (2004) 3–23

17. Swartz, Nikki (2004). E-Government around the World. *Information Management Journal,* Jan/Feb 2004

18. USDA's Government Information Quarterly 21 (2004) 383–395. Book reviews Agency Web Pages—*An Information Resource and a Public Relations Tool:The USDA*

19. Zhilin Yang, Shaohan Cai, Zheng Zhou and Nan Zhou (2004). Development and validation of an instrument to measure user perceived service quality of information presenting Web portals. *Information & Management* 42 (2005) 575–589

20. Zhiyuan Chen, Arrya Gangopadhyay, Stephen H. Holden, George Karabatis and Michael P. McGuire (2007). Semantic integration of government data for water quality management, *Government Information Quarterly*, In Press, Corrected Proof, Available online 16 July 2007,

21. http://www.cbc.ca/news/story/2006/12/05/access-web-un.html (last accessed on 3rd September 2007)

22. http://www.cbc.ca/technology/story/2006/12/05/access-web-un.html (last accessed on 3rd September 2007)

23. http://www.eiu.com/site_info.asp?info_name=eiu_2007_e_readiness_rankings&rf=0 (last accessed in Sep 2007)

24. http://www.apdip.net/projects/egovernment/capblg/casestudies/India-De.pdf (last accessed on 3rd September 2007)

25. http://www.boutell.com/newfaq/history/firstsite.html (last accessed 2nd September 2007)

26. http://www.mit.gov.in/default.aspx?id=842 (last accessed in Sep 2007)

27. http://cyberjournalist.org.in/links.html (last accessed in Sep 2007)

28. http://it.delhigovt.nic.in/itproject (last accessed in Sep 2007)

29. http://www.friendscentre.net (last accessed in Sep 2007)

30. http://itforchange.net/ict4d/e-gov.html (last accessed in Sep 2007)

31. http://www.traffick.com/article.asp (last accessed in Sep 2007)

Appendix I: Measurement of Information quality and System quality of state government portals

SN	Name of States and Union Territories	Name of State Portal	Information Quality		System Quality		
-			Usefulness of Information (1-5)	Adequacy of Information (1-5)	Usability (1-5)	Accesibility (1-5)	Ease of Interaction (1-5)
1	Andhra Pradesh	www.aponline.gov.in	5	4	4	4	5
2	Arunachal Pradesh	www.arunachalpradesh.nic.in less usability	3	3	2	3	3
3	Assam	www.assamgovt.nic.in	4	3	3	2	2
4	Bihar	http://gov.bih.nic.in no email	4	3	3	3	2
5	Chattishgarh	www.chhattisgarh.nic.in	5	4	4	3	4
6	Goa	http://goagovt.nic.in no search, important email	4	3	3	2	3
7	Gujarat	www.gujaratindia.com	5	4	4	4	5
8	Haryana	http://haryana.gov.in	5	4	4	4	4
9	Himachal	www.himachal.nic.in	5	4	4	4	4
10	Jammu and Kashmir	http://jammukashmir.nic.in	3	2	2	2	3
11	Jharkhand	www.jharkhand.nic.in	3	3	3	3	3
12	Karnataka	www.karnataka.gov.in no email no search	5	4	3	3	3
13	Kerala	www.kerala.gov.in	5	4	4	4	5
14	Madhya Pradesh	www.mp.gov.in	4	3	4	4	4
15	Maharashtra	www.maharashtra.gov.in	4	4	4	4	4
16	Manipur	http://manipur.nic.in no search	4	3	3	3	4
17	Meghalaya	http://meghalaya.nic.in	5	4	4	4	4
18	Mizoram	http://mizoram.nic.in limited search and no email to webmaster	4	3	3	2	2
19	Nagaland	http://nagaland.nic.in	4	3	3	2	2
20	Orissa	http://orissagov.nic.in no search	4	4	3	3	4
21	Punjab	http://punjabgovt.nic.in no search not very userfriendly	4	3	3	3	3
22	Rajasthan	http://www.rajasthan.gov.in	5	4	4	4	4
23	Sikkim	http://sikkim.gov.in no search	4	3	3	3	3
24	Tamil Nadu	http://www.tn.gov.in	4	4	4	4	5
25	Tripura	http://tripura.nic.in no search option	4	4	3	3	4
26	Uttaranchal	http://www.ua.nic.in no search , no email	4	3	3	3	3
27	Uttar Pradesh	http://upgov.nic.in no search,	5	4	4	3	4
28	West Bengal	http://www.wbgov.com	4	4	4	4	4
		Portals of UNION TERRITORIES					

1	Andaman and Nicobar Islands	http://www.and.nic.in	4	4	3	3	4
2	Chandigarh	http://chandigarh.gov.in	4	4	4	3	4
3	Dadra and Nagar Haveli	http://dnh.nic.in no search	4	3	3	3	3
4	Daman & Diu	http://daman.nic.in	3	3	3	4	3
5	Delhi	http://delhigovt.nic.in	5	4	4	4	4
6	Lakshadweep	http://lakshadweep.nic.in	4	3	3	3	3
7	Puducherry	http://pondicherry.nic.in	4	4	3	4	3

About the Authors

Debjani Bhattacharya,Amity International Business School, Amity University, Noida has research background of two years and has an academic exposure of 8 years in different institutes and Corporates. She has an experience in consulting and presently is associated with Amity International Business School as a Senior Lecturer.

Umesh Gulla, University School of Managememt Studies, IndraPrasth Uinversity, Delhi. He has executed more than thirty consultancy projects in industry, he also possesses about two years of teaching experience and is presently working as a lecturer in USMS, Guru Gobind Singh Indraprastha University

M. P. Gupta is Chair-Information Systems Group & Coordinator-Center for Excellence in E-gov at the Department of Management Studies, Indian Institute of Technology (IIT Delhi). His research interests lies in the areas of IS/ IT planning and E-government. Prof.. Gupta has authored acclaimed book "Government Online" and edited two others entitled "Towards E-Government" and "Promise of E-Government", published by McGraw Hill, 2005. His research papers have appeared in National and International Journals/Conference Proceedings. He was the recipient of the prestigious Humanities & Social Sciences (HSS) fellowship of Shastri Indo Canadian Institute, Calgary (Canada) and a Visiting Fellow at the University of Manitoba. He supervised e-government portal "Gram Prabhat" which won the IBM Great Mind Challenge Award for the year 2003. He has steered several seminars and also founded the International Conference on E-governance (ICEG) in 2003 which running into sixth year. He is on the jury of Computer Society of India (CSI) E-gov Awards and also a member of Program Committee of several International Conferences. He is life member of Global Institute of Flexible Systems Management (GIFT), Systems Society of India (SSI) and Computer Society of India (CSI).