

**Proceedings of
5th International
Conference on
e-Government**

**Suffolk University
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Edited by

Michael Lavin
Suffolk University, Boston, USA

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CONTENTS

Paper Title	Author(s)	Guide Page	Page No.
Preface		iv	iii
Biographies of Conference Chair, Keynote Speaker and Mini-track Chairs		v	iv
Conference Committee		vii	v
Biographies of contributing authors		viii	vi
E-Government Authentication Frameworks: a gap Analysis	<i>Haya Almagwashi and Alex Gray Cardiff University, UK</i>	1	1
E-Governance as Digital Ecosystem: a new way to Think About Citizen Engagement and the Internet?	<i>Mark Balnaves and Mathew Allen Curtin University of Technology, Perth, Western Australia</i>	2	9
Risk Characterization, Assessment, Management and Mitigation in United States Federal e-Government Initiatives	<i>Paul Battaglia Florida Institute of Technology, Alexandria, Virginia, USA</i>	3	15
The Role and Potentialities of Public e-Procurement: the Italian Experience in the European Context	<i>Francesco Bof¹ and Pietro Previtali² ¹SDA Bocconi School of Management, Milan, Italy ²University of Pavia, Italy</i>	4	24
Improving Government Internet Sites through Comprehensive Evaluations in Developing Countries: Case Mexico	<i>Luis Antonio Delgado, Miguel Ángel Chávez and Andrés Gómez Presidency's Internet System, Mexico City, Mexico</i>	5	33
A Citizen-Centric Framework for e-Government Services use	<i>Brian Detlor¹, Maureen Hupfer¹, Umar Ruhi² and Li Zhao¹ ¹McMaster University, Hamilton, Canada ²University of Ottawa, Canada</i>	6	41
State-Specific Governmental Factors Associated With Interagency Collaboration	<i>Jane Fedorowicz Bentley University, Waltham, USA</i>	7	49
E-Government Portals and Online Services: Status quo India	<i>Mangala Hirwade¹, D. Rajyalakshmi¹ and Anil Hirwade² ¹RTM Nagpur University, Nagpur, India ²Patent Information System, Nagpur, India</i>	8	58

Paper Title	Author(s)	Guide Page	Page No.
Towards New Approaches for Structured Information Management in Public Administrations: Experiences From two Applied Research Projects in Luxembourg	<i>Patrik Hitzelberger, Paulo Da Silva Carvalho, Heiko Polgart and Fernand Feltz Centre de Recherche Public – Gabriel Lippmann, Belvaux, Luxembourg</i>	9	71
An eGovernment Survey Among Austrian Municipalities	<i>Johann Höchtl, Peter Parycek, and Walter Seböck Danube University, Krems, Austria</i>	10	81
State of e-Government Development in the Developing World: Case of Tanzania – Security vie	<i>Geoffrey Karokola and Louise Yngström Stockholm University/Royal Institute of Technology, Sweden</i>	11	92
Use of Development Indicators in Evaluation of e-Governance Initiatives	<i>Anjali Kaushik¹ and Lekha Kumar² ¹Management Development Institute, Gurgaon, India ²Ministry of Personnel, PG & Pensions, Government of India, India</i>	12	101
Application of Macro-Micro Simulation to e-Government: the Quantification of Public Values	<i>Yumiko Kinoshita The University of Tokyo, Japan and Japan Society for the Promotion of Science, Tokyo, Japan</i>	13	111
A Comparison of Different Methodologies for the Construction of Aggregate Indices: the Example of Digital Divide Indices	<i>Kamila Kolpashnikova University of Tokyo, Tokyo, Japan</i>	14	121
Barriers to Electronic Government use as Perceived by Citizens at the Municipal Level in Mexico	<i>Carlos Lopez-Sisniega University of Phoenix, USA</i>	15	130
The Rhetoric and the Reality of the Internet as a Potential Public Sphere	<i>Taewoo Nam University at Albany, SUNY, USA</i>	16	139
Clarity of Roles and Responsibilities in Government Cross-Boundary Information Sharing Initiatives: Identifying the Determinants	<i>Theresa Pardo¹, Brian Burke¹, Ramon Gil-Garcia², and Ahmet Guler¹ ¹University at Albany, USA ²Centro de Investigación y Docencia Económicas (CIDE), México</i>	17	148

Paper Title	Author(s)	Guide Page	Page No.
E-Government as a Tool to Promote Transparency and Openness: the Case of Bangladesh	<i>Nahid Rashid Monash University, Australia</i>	18	156
Integrated Architecture Framework for e-Government: an Assessment of the e-Government Initiatives in Zimbabwe	<i>Ephias Ruhode and Vesper Owei Cape Peninsula University of Technology, Cape Town, South Africa</i>	19	165
The Theory of Planned Behavior and Technology Innovation Adoption	<i>Robert Wright Suffolk University, Boston, USA</i>	20	174
Research in Progress Papers		21	185
Brazilian Public Software and its Impact on Brazilian Society	<i>Angela Alves, Giancarlo Stefanuto, Paula Castro and Sueli Varani Eleutério Centro de Tecnologia da Informação Renato Archer – CTI, Campinas, Brasil</i>	23	187
Characterizing and Improving Collaboration and Information-Sharing Across Emergency Preparedness and Response Communities	<i>Deborah Bodeau¹, Jane Fedorowicz², Lynne Markus² and JoAnn Brooks¹ ¹The MITRE Corporation, Bedford USA ²Bentley University, Waltham, USA</i>	24	192
Online Accessibility Challenges in US Healthcare Reform	<i>Jonathan Frank Suffolk University, Boston, USA</i>	25	201
A new Approach of e-Gov Processes Development: the use of Complex Thinking Theory	<i>Giancarlo Stefanuto, Angela Alves, Rachel Cavalcanti, Paula Castro and Sueli Varani Eleutério Centro de Tecnologia da Informação Renato Archer – CTI, Campinas, Brasil</i>	26	209

Preface

Welcome to the 5th International Conference on e-Government (ICEG 2009) hosted this year at Suffolk University, Boston, USA. The Conference Chair is Michael Lavin from Suffolk University.

The opening keynote address is given by Gerald T. Leone Jr., Middlesex District Attorney, Massachusetts, USA. Gerald will address the topic *E-Government: Using New Technologies to Better Protect the Public*.

ICEG enables individuals concerned with current research findings and business experiences from the wider community which is now involved in the management and study of e-Government to come together to share knowledge with peers interested in the same issues.

A key aim of the conference is about sharing ideas and meeting the people who hold them. The range of papers will ensure an interesting two days. Alongside the main conference there are two Round Table discussions on the topics of Technology: A Missed Opportunity to Address The Challenges of Inter-organizational Partnerships to Address Youth Violence and From the Backoffice to the Web: e-Government Challenges for Municipal Governments.

With an initial submission of 87 abstracts, after the double blind, peer review process there are 24 papers published in these Conference Proceedings. These papers represent research from Australia, Austria, Brazil, Canada, India, Italy, Japan, Luxembourg, Mexico, South Africa, Spain, Tanzania, United Kingdom and the USA

I hope that you have an enjoyable conference.

Mike Lavin,
Conference Chair
October 2009

Biographies of Conference Chairs, Programme Chair and Keynote Speaker

Conference Chair



Dr Michael T. Lavin earned his BA at St. Anslems's college, his MA at the college of Williams & Mary and his PhD from Tufts University. Currently Michael is the chair of the Department of Public Management, Sawyer School of Management at Suffolk University. He is on numerous faculty committees, including the Ad Hoc Committee to Restructure UPC (Chair), Long-Range Planning, Faculty Life & Salaries (Chair), Curriculum Development, Technology, Financial Aid (Chair) and Accreditation (NASPAA, AACSB). Michael has been involved with the Cape Cod Breakfast Seminar Series as an originator and host from 2001 to present day. He is a Connectivity Council Member for the EntreCenter which is jointly sponsored by the Cape Cod Chamber of Commerce & Cape & Islands Community Development, Inc. from 2003 to present. He is an honorary member of Pi Alpha Alpha, National Public Administration Honor Society, a member of Pi Gamma Mu, and the National Social Science Honor Society. Professor Lavin's teaching, research and service interests are related to local government administration, human resource management, nonprofit management, entrepreneurship and grant writing. For the past decade, as an Assistant Dean, SSOM Cape Cod Programs, he manages Suffolk MPA, MBA and BSBA Programs offered at Cape Cod Community College.

Keynote Speaker

Middlesex District Attorney **Gerry Leone** has dedicated his career to seeking justice for the victims of crime and protecting the families of Massachusetts through innovative, community-based prevention programs. He has prosecuted significant state and federal cases involving terrorism, public corruption, and the abuse of women and children. Marked by a steadfast determination to represent the public and fight for victims, Leone has earned hundreds of convictions, some of the most notable being the first-admitted Al Qaeda terrorist in U.S. history, "Shoe Bomber" Richard Reid, who attempted to blow up a plane with 180 passengers; British au pair Louise Woodward, who was convicted of killing eight-month old Matthew Eappen; and members of the State Treasury who stole \$9.7 million in taxpayer monies in the largest public corruption case in the Commonwealth's history. Elected as District Attorney in November 2006, Leone oversees the prosecution and investigation of hundreds of serious violent crimes in Middlesex County every year, including cases of homicide, child abuse, domestic abuse, and sexual assault. While in office, Leone has also worked to address ever-evolving public safety concerns by implementing important prevention and intervention initiatives in our schools and communities.



Mini Track Chair



Christine B. Williams is a Professor of International Studies and Government at Bentley University. She studies political communication with an emphasis on new and emerging technologies. Recently her research has focused on Internet-hosted technologies including campaign websites and social networks. In 2000, Professor Christine Williams and her research team began analyzing the content of U.S. House and Senate campaign websites, a research project that has

continued through the campaign cycles of 2004 and 2006. She is now analyzing Election 2008. During the 2006 midterm elections, as blogs and social networks began to emerge as factors in online politics, Professor Williams investigated the impact of Facebook support on a candidate's final vote shares. Her team found that Facebook support did indeed have a significant effect on election results, particularly in the case of open-seat candidates. These results were reported during the 2007 Annual Meeting of the American Political Science Association. In the video below, Professor Williams discusses her Facebook study as well as her observations on the evolution of online campaigns.

Gabriella Spinelli is a senior lecturer at the Brunel Business School, London, UK, with interest and expertise in Information Systems design and evaluation. Her research has focused on public funded IS in the context of police intelligence and transformational initiatives for e-participation. Gabriella's research has attracted external funds from the Engineering and Physical Sciences Research Council (EPSRC), the National Police Improvements Agency (NPIA) and the Department of Trade and Industry (DTI). Prior to her academic career Gabriella has worked on the design and evaluation of interactive systems for Eastman Kodak Usability lab (NY), at Domus Academy (Milan, Italy) and acted as consultant for the Appliance Studio (UK).



Sanjeev K.Sharma is the Editor of The Indian Journal of Political Science, published by the Indian Political Science Association. Dr.Sharma has published around 50 research papers, 45 articles, 9 authored/edited/co-authored books, one monograph and 15 book reviews in different journals. He is on the Editorial Advisory Board of more than a dozen national and international journals of the discipline. A widely traveled and acknowledged researcher, Dr. Sharma has, besides supervising Ph.D. and M.Phil. scholars, delivered keynote/valedictory addresses, special lectures, invited talks in various universities of country and participated in more than 200 national and international academic events.

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Committee Members

The conference programme committee consists of key people in e-Government around the world. The following people have confirmed their participation:

Saleh Al-Turki, (King Faisal University, Hufuf, Saudi Arabia); Blessing Maumbe, (Cape Peninsula University of Technology, South Africa); Hans Arents, (Ministry of Flanders, Belgium); Harekrishna Misra (Institute of Rural Management, Anand, India); Saïd Assar (Institut TELECOM Sud Paris, France); Charles Mitchell, (Grambling State University, Louisiana, USA); Dan Batista, (Government of Canada, Govt On-Line, Ottawa, Canada); Laurence Monnoyer-Smith, (University of Technology of Compiègne, France); Francesco Bof, (Bocconi School of Management Milan, Italy); Jon Morell, (Altarum, Michigan, USA); Todd Boyle, (St. Francis Xavier University, Antigonish, Canada); Nazmun Nahar, University of Jyväskylä, Finland; Jonathan Calof, (School of Management, University of Ottawa, Canada); John Nash, (School of Management, University of Ottawa, Canada); Toni Carbo, (University of Pittsburgh, School of Information Sciences, USA); Norman O'Reilly, (School of Sports Administration, Ontario, Canada); Amanda Coe, (Harvard Business School USA); Andrew Ó'Baoill (Insitute of Communications Research, University of Illinois, USA); José Manuel Esteves de Sousa, (Instituto de Empresa, Madrid, Spain); Norm O'Reilly, (Laurentian University, Ontario, Canada); Patricia Fletcher, (UMBC, Baltimore, USA); Maria R Osuna Alarcón, (Salamanca University, Spain); Shauneen Furlong, (Territorial Communications Ltd, Canada); Eleonora Paganelli, (University of Camerino, Italy); Dave Garson, (North Carolina State University, Raleigh, USA); Siva Pal, (Sprott School of Business, Carlton University, Canada); Mila Gasco, (International Institute on Governance, Catalonia, Spain); Vassilios Peristeras, (National University of Ireland); Gerry Grant, (Sprott School of Business, Carlton University, Canada); Ajax Persaud, (School of Management, University of Ottawa, Canada); Dave Griffin, (Leeds Metropolitan University, UK); Alex Ramirez, (Sprott School of Business, Carlton University, Canada); Yonas Hagos, (Overtone Software, Rockville, USA); Jeffrey Roy, (Centre on Governance, University of Ottawa, Canada); Panos Hahamis, (Westminster Business School, London, UK); Umar Ruhi, (Wilfrid Laurier University, Canada); Matthew Hibberd, (University of Stirling, Scotland, UK); Peter Salhofer, (University of Applied Sciences FH JOANNEUM, Austria); Mike Hine, (Sprott School of Business, Carlton University, Canada); Carmine Scavo, (East Carolina University, USA); Patrik Hitzelberger, (Centre de Recherche Public – Gabriel Lippmann, Luxembourg); Satgin Seraj, (University of Louisville, USA); Shaobo Ji, (Sprott School of Business, Carlton University, Canada); Sanjeev K Sharma, (C.C.S. University, Meerut, India); Bettina Kaffai, (German Research Centre for Artificial Intelligence, Germany); Mack Shelley, (Iowa State University, USA); Aqueo Kamada, (Ministry of Technology, Brazil); Ken Sochats, (Visual Information Systems Center, University of Pittsburgh, USA); Peter Knight, (Carlton University, Ottawa, Canada); Bernt Solvang, (Agder University College, Norway); Ah-Lian Kor, (Leeds Metropolitan University, UK); Olga Soukhovtseva, (Carleton University, Ottawa, Canada); Bernt Krohn Solvang, (Agder University College, Norway); Jacqueline Spencer, (University of Aberdeen, UK); Uma Kumar (Sprott School of Business, Carlton University Canada); Genie Stowers, (San Francisco State University, USA); Vinod Kumar (Sprott School of Business, Carlton University Canada); Arthur Sweeny, (Griffith University, Queensland, Australia); Gabor Laszlo (Budapest Tech Keleti Karoly Faculty of Economics Hungary); Andrew Szende, (University of Toronto, Canada); Thomas Lauer (School of Business Administration, Oakland University, USA); Susan Thorne, (Public Works and Government Services Canada); Michael Lavine (Towson University, Maryland, USA); Ramayah Thurasamy, (Universiti Sains Malaysia, Malaysia); Jin Lee Spears School of Business, Oklahoma State University, USA); Burke Ward, (Villanova University, USA); Howie Macumber (IT Services Branch, Public Works and Government Services Canada);

Vishanth Weerakkody, (Brunel University, UK); Thevarkalathil Madanmohan, (Indian Institute of Management, Bangalore, India); Christine Williams, (Bentley College, Waltham, USA); Bharat Mahashwari, (Odette School of Business, University of Windsor, Canada).

Biographies of contributing authors (in alphabetical order)

Angela Alves is a doctoral Student at Universidade de São Paulo (USP \ POLI \ Production\USP) , member of the Division of Evaluation and Improvement of Software Processes (DPMS) working in two groups of Technological Research: Acquisition of Software and Related Services for free and proprietary products and Maturity Model for Complexes Systems. It is also a professor of post-graduate engineering Free Software in Universidade Federal de Lavras (UFLA).

Mark Balnaves is a Professorial Fellow in the Department of Internet Studies at Curtin University of Technology in Perth, Western Australia. His recent co-authored publication *Media Theories and Approaches: a global perspective* with Palgrave Macmillan provides an overview of contemporary issues in media studies. His current research is on E-governance.

Paul Battaglia, Associate Professor at Florida Institute of Technology, concentrates on analysis to improve decisions. His work includes the use of energy to produce corn; risk management for financial derivatives; and the impact of rainwater harvesting on drinking water quality and supply in developing countries. He was involved in implementing one of the e-Government initiatives.

Francesco Bof has been lecturer for Iacocca Institute, Lehigh University (PA, US), and Evening Mba Adjunct Faculty Member of Moravian College (PA, US). He published a book on Public Management, a book on Sport Management and several papers on public (e)-procurement.

Brenda J. Bond is an Assistant Professor in the Department of Public Management, Sawyer Business School, Suffolk University. Brenda received her Ph.D. from the Heller School for Social Policy and Management at Brandeis University after serving as a public safety practitioner and consultant for over a decade. Brenda's area of expertise is organizational change and development, strategic management in the policing and criminal justice field, and comprehensive approaches to community safety.

Luis A. Delgado Barraza is Director of Research, Strategy and Entailment of the Presidency of the Republic Internet System in México since the beginning of the President Calderon Administration. During 2005-2006 he managed the technical aspects of the campaign's website. From 2001 to 2005 he was involved in Global Architecture and Core Technologies as a Consultant at Accenture and previously as an Associate Consultant JDEdwards. He holds a BS in Computer Science from the Universidad Iberoamericana in México City.

Brian Detlor is an Associate Professor of Information Systems at the DeGroote School of Business at McMaster University in Hamilton, Ontario, Canada. He specializes and conducts research on the adoption and use of government, community and enterprise websites, as well as in the web information seeking and business information literacy instruction areas.

Jane Fedorowicz is Rae D. Anderson Professor of Accounting and Information Systems at Bentley University. She is principal investigator of a National Science Foundation project team studying design issues for police and government agency collaboration using public safety networks. She participates on a MITRE research team on Social Communications across Emergency Preparedness and Response Communities.

Jonathan Frank completed his PhD in 1977 at Strathclyde University in Scotland. He has at universities in UK, Hawaii and Western Canada. Since 1983 he has taught in the Department of Information Systems and Operations Management at Suffolk University, Boston. His current research focuses on educational technology for distance learning, web accessibility for the blind, and online social shopping among young consumers.

Stefanuto Giancarlo holds a Doctorate in Science and Technology Policy from the University of Campinas- Brazil. Currently he is a consultant on ICTs to various entities, which highlight the Ministry of Science and Technology, Ministry of Planning and Ministry of Culture. His main areas of expertise are the software market, policy and foresight in ICTs, digital inclusion and free software.

Mangala Hirwade has been a Senior Lecturer in Department of Library and Information Science, RTM Nagpur University, Nagpur (M.S.) India. She has 17 years professional experience. She has served Shivaji Science College as a Librarian for six years and Patent Information System for 11 years. She has two UNESCO projects and one Minor Research Project of UGC to her credit. She has published 4 books, 5 papers in International journals and 12 papers in National journals.

Johann Höchtl graduated from Vienna University and Vienna University of Technology in business informatics. He is member of academic staff at Danube University Krems, Austria and member of OASIS TC standardisation group. His current research focus is in the topic of e-Participation and Web 2.0. His ongoing doctoral thesis is in the field of interoperability issues of public electronic service delivery.

Anjali Kaushik is a PhD in area of Information Systems, an MBA and an Engineer. She has been with Management Development Institute (MDI) over the last three years and is associated with teaching, research and consulting in the ICT domain. MDI is amongst the top five B-schools in India. She has almost 14 years consolidated experience in the area of ICT Business consulting and Research across corporate and academics. Prior to joining academics, she was heading the vertical research group in IDC (India) Limited. Her areas of research and consulting are E-Governance, Enterprise Resource Planning and Business Process Re-engineering.

Yumiko Kinoshita gained his Doctorate from the Graduate School of Interdisciplinary Informatics, University of Tokyo. He is a Research Fellow of the Japan Society for the Promotion of Science. He holds an M.A. in Informatics from the Graduate School of Interdisciplinary Informatics, University of Tokyo. Publications include Kinoshita, Y. and Sudoh, O. (2008) "Network-driven Context in User-driven Innovation," in Oya et al. (eds.), Towards Sustainable Society on Ubiquitous Networks, Springer, pp 245-252.

Kamila Kolpashnikova was born in 1980 in the Sakha Republic, Russia. She holds Masters' degrees in Economics and Law from Yakutsk State University, Russia, and an MA in Socio-Information and Communication Studies from the University of Tokyo, Japan. Her research interests are in the sphere of digital inequality, information and

communication technologies (ICT) productivity and economic growth. She enjoys playing chess and currently resides in Tokyo, Japan.

Carlos López-Sisniega earned his BS, MIS, MBA, MF, and MEC at the Monterrey Institute of Technology in Mexico, and his Doctorate of Management of Information Systems and Technology from the University of Phoenix. Carlos has an extensive background in application development both as a government executive and as COO and founder of several software development companies focused on government applications. He has been a professor of Information Technology at the Monterrey Tech in Mexico for 15 years. His research interests are e-government and citizen issues, e-business and trust issues.

Taewoo Nam is a doctoral student in the University at Albany – SUNY. He is researching the impact of ICT on government operation, civic sector and global society. His ongoing papers involve cross-national comparison of e-governments in a global context and potentiality of an online public sphere.

Theresa A. Pardo is Deputy Director of the Center for Technology in Government (www.ctg.albany.edu), University at Albany. At the Center, Theresa works with a variety of government, corporate and university partners to lead applied research projects on the policy, management, and technology issues surrounding information and information technology use in the public sector.

Nahid Rashid is doing Ph.D in the Department of Management at Monash University, Australia. Her supervisors are Dr. Ken Coghill, Associate Professor and Dr. Professor Ian Mcloughlin, Head of the Department, Department of Management, Monash University, Australia. She is a civil servant worked in different ministries in Bangladesh.

Ephias Ruhode is a lecturer and doctoral research candidate in the Information Technology Department at the Cape Peninsula University of Technology (CPUT) in South Africa. His research interest is information systems in general and e-government applications in particular.

Sueili Varani gained a Masters Degree at Universidade Estadual de Campinas (UNICAMP). Sueili is a member of the Division of Process Improvement and Software Quality (DMPQS) working in a Technological Research Group with Software and Services Processes Improvement Models. He is also participating in a Project about Brazilian Public Software (BPS).

Robert Wright received his Doctorate in Public Administration from the University of LaVerne, LaVerne, CA., his MPA from Suffolk University, Boston, MA, and his BA in Political Science from the University of Chicago. He currently teaches at Suffolk University, Boston, MA as an Adjunct Professor in the MPA Program within the Sawyer Business School as well as at Capella University where he teaches public administration courses in the areas of implementation, collaboration, and emergency management.

E-Government Authentication Frameworks: a gap Analysis

Haya Almagwashi and Alex Gray
Cardiff University, UK

Abstract: Electronic government security is one of the major obstacles facing the deployment of e-government projects around the world. A fundamental aspect of e-government security is authentication, where users' identities are verified before they are granted access to the requested services. Electronic government authentication frameworks provide guidelines and descriptions for the processes of authentication needed and the technologies involved to achieve various trust levels required for delivering e-government services. However, current e-government authentication frameworks vary in the level of details they provide and have been subject to various updates to cover new authentication requirements that arise from the deployment of advance services. This has led to limited or non-adoption of these frameworks by government agencies. In this paper we review and analyse current published e-government authentication frameworks to identify possible gaps that have led to the limited adoption of these authentication frameworks by government agencies, using a holistic approach to capture different aspects and perspectives that influence the authentication processes in an e-government context. Our holistic approach uses Soft Systems Methodology (SSM) to develop a conceptual model relevant to the authentication concept in the context of e-government. The conceptual model aids in studying the activities involved in the authentication processes and in capturing the interdependencies between these activities. Using the model as a comprehensive tool for analysing current authentication frameworks, we have identified some common gaps and limitations in these frameworks and have illustrated how the model can be used as a guide for enhancing current authentication frameworks.

Keywords: e-Government, e-authentication, authentication frameworks, users' privacy, soft systems methodology

E-Governance as Digital Ecosystem: a new way to Think About Citizen Engagement and the Internet?

Mark Balnaves and Mathew Allen

Curtin University of Technology, Perth, Western Australia

Abstract: There has been a long history of attempting to deploy networked information and communications – mostly in the form of the Internet – to support the broad goals of effective, efficient and responsible democratic government. While there has been considerable talk about the way such technologies might promote better governance – through increased citizen participation in debates and discussions about future outcomes – there has been, in contrast, much action that actually uses the Internet for more efficient government, by creating online and networked interfaces by which citizens can transact business with government. There has been only limited success in using the Internet and similar communications channels to allow citizens to participate in their own governance. Undoubtedly, the Internet does facilitate public consultation. For example, the European Commission used an Interactive Policy Making web tool for public consultation on legislation for regulation of chemicals. Over 6,500 contributions were received over a period of 2 months and the consultation process led to the identification of key flaws in proposals, saving billions of Euros (Timmers,2008). However, consultation of this kind tends to be a mechanism for gathering opinion and gaining citizen approval for change that is not different except in transmission form than previous approaches based on meetings and written submissions. While the European Commission example can be seen as successful, Internet-based consultation can too easily become promotional or marketing oriented, as in recent efforts in Australian by the Federal Communications Minister to use a blog to discuss proposed changes to Internet censorship regulations: in this case, discussion and debate from participants appears largely to have been ignored in favour of a pre-existing position. This paper aims to provide a solution to some of these problems by drawing on the idea of how the Internet can host and support a digital ecosystem.

Keywords: e-Participation, digital ecosystems, governance, citizen engagement

Risk Characterization, Assessment, Management, and Mitigation in United States Federal e-Government Initiatives

Paul Battaglia

Florida Institute of Technology, Alexandria, Virginia, USA

Abstract: Electronic government has the potential to use technology, particularly Web-based Internet applications, to enhance access to government information and services. In 2001 the United States federal government began a program to implement 26 e-Government initiatives. This research used the information from multiple federal government agencies, and a meta-analysis to answer five basic research questions. First, given that fewer than 50 percent of the e-Government initiatives were implemented in the planned two-year window, the program had fair results. Second, 81 percent of the initiatives reported a risk management plan indicating that most used some risk management techniques. None of the risk analyses included the probability of the risk event. Even when required, none of the risk assessments included a basic categorization of the risk as low-medium-high. Third, a risk management plan, and presumed risk mitigation actions were developed for 20 of the 26 initiatives. Fourth, there was a weak, perhaps even inverse, association between project success and risk management. Fifth, basic risk management made considerable progress as the e-Government activities matured from 2002 to 2008. Because the information was not random, the results may not necessarily represent the population. We should exercise some care in any attempt to over generalize these results. Additional research on citizen participation, project manager's view of risk management as a mandatory element; and inter-country comparisons would be extremely useful.

Keywords: Electronic government, e-government, management, risk characteristics, risk mitigation, risk, e-government act of 2002

The Role and Potentialities of Public e-Procurement: the Italian Experience in the European Context

Francesco Bof¹ and Pietro Previtali²

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²University of Pavia, Italy

Abstract: Public Procurement of goods and services is a strategic activity for Governments for at least three reasons: a) it has a relevant economic impact (15-20% of European Countries GDP) b) it is relevant for Governments' public services potential improvement and c) it affects both Nations' competitiveness and citizens' welfare. After a short description of the European central procurement models for the public sectors, the paper will, at first, identify the specificities of the Italian situation, discussing in particular the role of e-procurement platforms inside the whole system, both under an organizational and economic point of view. The paper will, then, analyze and review it, focusing on the Italian Central Procurement Department aiming to purchase goods and services for every typology of Italian public bodies. The aim is to understand the evolution process in the last five years of the National P.A. Electronic Market in order to understand if, and why the recent changes inside the system led to an effect on the public e-markets in the nation. We have conducted a survey on the last four years e-transactions. The results testify, in practice, which kind of goods and service is more compliant with e-procurement tools, the transactions volumes and economic amounts trends, the relevance of different geographical areas, the relevance of procurement in different public organization typologies. Finally, it seems that a major change in e-procurement transactions is due to the compulsoriness enforced by the legislative framework.

Keywords: Public procurement, e-procurement, central procurement departments, e-government

Improving Government Internet Sites through Comprehensive Evaluations in Developing Countries Case: Mexico

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Abstract: Government Internet Sites, little by little, are becoming one of the most important communications and service tools for citizens, particularly in developing countries where the Internet penetration rate is much lower than in developed countries. This level of Internet penetration also has a negative influence on the conception of what a government Internet site should be like, particularly in public administration departments. In view of this, after analyzing government Internet sites in key countries in the sphere of e-government, the Presidency's Internet System (SIP) of Mexico decided to reorganize Federal Government Internet Sites through the publication of two guides: Image Manual for Government Websites and Development Guide for Government Websites to establish the basis for developing them. In addition, and as the main tool for improvement, a series of periodic evaluations were carried out of each of Federal Government's Agencies, a total of 225 Internet sites. The first evaluation, carried out in 2007, was a self-diagnosis, as a result of which all the Institutions were highly rated, although this result did not reflect reality. As a result, in 2008, the first integral evaluation of all the Internet sites was carried out by SIP personnel. This consisted of a series of items grouped into 5 main sections: Information Architecture, Institutional Image, Accessibility, Quality and User Experience. In order to accredit the evaluation, a score of over 7.8/10 had to be obtained. The results were surprising. There was an overall improvement in the quality of Internet sites, as regards both image, contents, technology and information management since, as a result of support from the Civil Service Secretariat, there were repercussions within the institutions, such as administrative sanctions in the event they failed to pass the evaluation. Proof of this is the annual study conducted by Dr. Darrell M. West, Vice President and Director, Governance Studies of The Brookings Institution, who placed Mexico in 20th place in 2008 (rather than 50th, as it was rated in 2007, an improvement of 30 places in one year). Another achievement was creating awareness among the Internet Site administrators of the things that are essential to consider when developing and maintaining a government website. The evaluation also made it possible to offer quality, first world-standard Internet sites for visitors that have to interact with Federal Government. The aim is to continue with this effort, by raising standards, particularly in the areas of accessibility and quality and striving to ensure that these efforts gradually permeate other government levels such as state and municipal ones.

Keywords: Website evaluation, ranking, sanctions, score, improvement

A Citizen-Centric Framework for e-Government Services use

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Abstract: This paper presents a citizen-centric framework for e-Government services use. The framework is based on an in-depth research investigation of the factors affecting successful community municipal portal use at five community municipal portal sites in the Province of Ontario, Canada. In total, 1,753 end-users completed a web survey that polled end-user uptake and perceptions of these portals. The survey was based on Carter and Bélanger's (2005) model of the factors that influence citizen adoption of electronic government services, integrating end-user constructs from the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI) theory and the web trust literatures. The current study extends Carter and Bélanger's model by incorporating the information quality construct into the survey's design. A structural equation analysis of the survey investigates the extent to which information quality plays a critical and central role in influencing a person's use of a community municipal portal site. Further, descriptive analysis of the end-user survey data identifies end-user demographics, perceptions, and behaviors associated with users of these e-Government sites. For instance, portal usage is low and end-users tend to comprise a narrow demographic (i.e., middle-aged, well-educated, predominantly female, financially comfortable, and Internet savvy users). Overall, this paper evaluates the use of e-Government services from a citizen perspective. Recommendations for practitioners and contributions to existing theoretical models on e-Government service use also are made.

Keywords: Government portals, e-Government services, IS adoption and use, information quality, individual perceptions

State-Specific Governmental Factors Associated With Interagency Collaboration

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Abstract: Public safety continues to be a critical concern for all governments. Government agencies long have recognized the potential value of sharing information and communicating across agency borders to improve their ability to support this important government obligation. Recent advances in information and communication technology, coupled with a willingness to collaborate, have led to innovations in Public Safety Networks (PSNs). This study seeks to explain where PSNs form, and what leads to their formation based upon factors derived from rational choice and institutional theories. For each state, we have collected contextual data representing 135 different characteristics and descriptors of potentially relevant state-level attributes. We produce a parsimonious set of factors that predict public safety collaboration, identify which factors cluster together, and confirm that they evidence an underlying structure consistent with what rational choice and institutional theory would predict.

Keywords: Intergovernmental collaboration, public safety, rational choice theory, institutional theory

Online Accessibility Challenges in US Healthcare Reform

E-Government Portals and Online Services: Status quo India

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Abstract: India is one of the oldest civilisations in the world with a kaleidoscopic variety and rich cultural heritage. It is the seventh largest country by geographical area in the world. India comprises 28 States and 7 Union Territories (Uts). The present study aims to evaluate National Portal of India which provides single window access to 581 e-government portals and websites in India. Ranking of the States and UTs has been done based on the number of online services they provide. The two major components of e-government portals in India i.e. National Service Delivery Gateway (NSDG) and National Payment Gateway are also discussed in brief. The authors have also listed the online services successfully implemented e-transaction and the popular mode of online payments in India. The challenge before the developing country like India is to bridge the digital divide and create awareness about using the online services and attract the citizens and other stakeholders towards e-governance.

Keywords: e-Governance, India, government portals, online services

Towards New Approaches for Structured Information Management in Public Administrations: Experiences From two Applied Research Projects in Luxembourg

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Abstract: This article discusses the preliminary results of two research projects that examine new technologies and methodologies for record and document management in e-Government. After a short introduction, the basic concepts and notions are presented and related standards like MoReq2 and ISO 15489 are discussed. Based on this, we consider the conceptual differences between information management that is based on structured data, and the document oriented approach that is still characteristic for many public administrations. The focus on document oriented information management approaches in this sector is illustrated by the paramount importance of the PDF format and related technologies. For the realization of the document as well as the structured data paradigm, different technologies are marketed and deployed, as for example ERP systems on the one hand, and Document Management Systems on the other. In many public administrations, despite the prevailing document oriented workflows, we see that technological platforms that are based on both paradigms must exist in parallel, and we discuss the issues resulting from this plurality. We then argue that the public sector, facing tremendous challenges regarding the creation, processing and long-time archiving of records of any type, should try to vanquish this distinction by focusing on a general, structured information oriented approach. Such an approach would resolve some of the discussed issues. We finally illustrate this challenge using the concrete example of two e-Government research projects in Luxembourg.

Keywords: Electronic Record Management Systems, Document Management Systems, Enterprise Content Management, Information Management

An eGovernment Survey Among Austrian Municipalities

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Abstract: In 2002 the Austrian Association of Municipalities (Österreichische Gemeindebund) authorized the Danube University Krems, Austria with the execution of a survey among all Austrian municipalities. The questionnaire was designed in paper and pencil form and distributed by mail. A key result was the fragmentation of information and digital services among different portals, a situation which does not lead to efficiency gains in municipal daily work. As a result, a methodology was created which ultimately led to the establishment of kommunalnet.at. In 2008 the Austrian Association of Municipalities decided to repeat the survey. An analysis of survey methodology, municipal environment and target audience led to the decision to carry out the survey of 2008 as an online survey. In light of this different survey method the questionnaire underwent a substantial overhaul. Highest priority lay on comparability of results between 2008 and 2002 though, which did not permit fundamental redesigning to reflect the capabilities of the currently used electronic dissemination of the survey. eGovernment surveys tend to measure the degree of implementation of the predefined strategy, whereas the readiness for eGovernment often remains silently ignored. This readiness is defined in ex-ante factors such as leadership awareness, legal readiness, organizational readiness, technology readiness, as well as customer readiness. Since it was not possible to obtain this kind of information from the target audience, we focused on organizational readiness and technological readiness. Especially in comparison to the results of 2002 the IT infrastructure was modernized and is now broadly available to all municipal employees. Furthermore internet access as well as connection technology and speed is sufficient for non-local governmental services. This is true for both large and small municipalities. In other respects remarkable differences between municipalities of different size as well as provincial membership were observed which warrants a distinct implementation of the eGovernment strategy. The paper presents the most remarkable results, analyses, postulated hypotheses, and gives recommendations for actions to be undertaken in order to further achieve the defined eGovernment strategy.

Keywords: Survey, statistical analysis, hypotheses, recommendations, e-government strategy

State of e-Government Development in the Developing World: Case of Tanzania – Security vie

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Abstract: Given the fact that more governments are heavily investing in implementing and use of e-government applications – the major concern has always been on how to ensure secure prevention, detection and recovery of critical information being stored, processed, and transmitted between domains (government, business, and citizens). Traditionally, interactions between government, business communities and citizens require a physical visit to the government offices – hence little threats to paper based information assets; while with the advent of e-government application – it is possible to virtually locate the service closer to citizens – hence create needs for security. As part of an ongoing research on e-government security maturing for developing world – the current state of e-government development along with specific security issues and challenges is presented; where Tanzania is taken as a case study. The study involved six institutions located in the area, namely: President’s Office, Public Service Management (PO-PSM) – responsible for administration of Tanzanian public sector; Prime Minister’s Office, Regional Administration and Local Government (PMO-RALG) – responsible for instilling good governance to all level of local governments; Ministry of Lands, Housing and Human Settlements Development (MLHHSD) – responsible for land management; and Ministry of Finance and Economic Affairs (MoFEA) – responsible for manages the overall revenue, expenditure and financing of the Government. Others are Tanzania Revenue Authority (TRA) – agency responsible for government revenue collection; and the Tanzania Ports Authority (TPA) – responsible for all ports and cargo management. In the process, we used Systemic–Holistic–Approach (SHA) to explicitly investigate, evaluate, and analyze the specific security (technical and non-technical) related issues and challenges. The findings were: the level of security awareness among IT and non-IT staff; level of e-government application protection; and level of Security technical threats and non-technical threats - 63%, 30%, 54%, 45%, 55%; 65%, 20%, 51%, 50%, 60%; and 60%, 23%, 53%, 48%, 54%; for PO-PSM; PMO-RALG; and MLHHSD respectively. Similarly the findings for MoFEA; TRA; and TPA were - 67%, 33%, 55%, 58%, 60%; 73%, 40%, 74%, 68%, 76%; and 70%, 20%, 70%, 65%, 73% respectively. Also the findings shows that to enhance security for e-government application - e-government development models need to have built in stage-wise security layers. Therefore, as most of developing countries are at their infant stages of e-government development – developers of e-government maturity models should explicitly consider integrating security as part of the model’s critical requirements at all stages. This will not only ensure security for e-government critical information but also strengthen the level of trust between government and citizen.

Keywords: e-Government, security, technical, non-technical, developed-world, developing-world

Use of Development Indicators in Evaluation of e-Governance Initiatives

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Abstract: Much contribution has been made in the last few years in the area of e-governance. Yet co-ordination and knowledge sharing among these various initiatives remains weak. It is important to monitor and measure the impact of these e-governance initiatives and align them more effectively with the project development outcomes. The aim of this paper is to develop a conceptual approach for measurement and evaluation of e-governance initiatives. The paper discusses key issues in e-governance evaluation and differentiates between different approaches to evaluation of e-governance projects. However, the existing evaluation frameworks are mostly based on narrow aspects of project performance and the outcome-based development aspects of e-governance projects are not entirely clear. The paper explores the possibility of identifying certain key development indicators as part of the project objectives and assessing the e-governance initiatives against them. These development indicators are critical indicators of the e-governance initiative and are long-term. It illustrates this concept by taking two case studies from India. In both these cases, the development indicators have been identified early and the e-governance projects have been assessed against. A longitudinal study of these development indicators shows sustainability of results. The paper also explores the possibility of building a matrix of likely development indicators for different category of e-governance initiatives. Such a matrix can be used for comparison, review and benchmarking of e-governance initiatives. It is hoped that the paper will be of value to public administrators and public organizations in successfully designing and enforcing the evaluation of e-governance projects.

Keywords: Governance, evaluation, developing countries

Application of Macro-Micro Simulation to e-Gov – the Quantification of Public Values

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Abstract: In today's economy, service sectors consist 65-70% of the market in advanced countries. Domestic growth of service industry and trade in services are a primary focus of economic policy in both developed and developing countries. Moreover, various kinds of services have become increasingly knowledge-intensive as Information Technology (IT) has developed. It has been found empirically that the share of small to medium-sized enterprises (SMEs) in service sectors is larger than that of manufacturing sectors across countries according to OECD data. In response to these recent trends, this paper proposes a methodology to evaluate the impact that e-Gov infrastructure would bring to our society using macro-micro models. As a case study, e-Gov service platform for SMEs is being analyzed in this paper from macroeconomic and microeconomic perspectives. The paper first defines micro dynamic panel data models, which will derive the behaviors of firm-level productivity, demand for labor, marginal cost, and the total demand for products in the industry. Marginal differences in these variables are fed into macro models as a bottom-up loop to estimate such variables as the distribution of firm size, entry and exit choices, and price elasticity of demand. The estimated values are then scaled down to be used in micro models as a top-down loop so that the impact in the next period will be clarified. Therefore, one can observe how the e-Gov infrastructure will improve the productivity of firms by lowering fixed costs and marginal costs, and influence the decision on entry and exit in both domestic and foreign market. These models are also helpful to find how the knowledge-intensive service intermediaries can contribute to output growth. Lastly, this paper incorporates linkage aggregate variables (LAV) to connect the macro and micro models, and the LAVs are going to be used to calculate public values. As a result and in conclusion, the proposed methodology enables us to clarify public values quantitatively.

Keywords: Macro-micro models, linkage aggregate variables (LAVs), e-government, public values

A Comparison of Different Methodologies in Construction of Aggregate Indices on the Example of Digital Divide Indices

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Abstract: Aggregate indices in the sphere of e-government are constructed for the purposes of making it easier for policy-makers and other interested sides to comprehend the situation at hand with the complicated phenomena such are the different aspects of information and communication technologies (ICTs) usage. Digital divide indices are the one distinct type of this aggregation. However, their construction brings in more questions than it solves problems connected with the approximation and simplification of complex matters. One of those problems is the differences in usage of arithmetic or geometric means in the calculation of averages. Another issue is the existence of multicollinearity among the components of aggregated indices, if they are taken as the indicators of digital inequality (in fact, this problem arise almost in any aggregate index). The third problem is setting weights for the components of indices. In the previous indices, mentioned hereafter, all of these questions were answered based on the arbitrary decisions of the researchers, dealing with them. Taking several constructed indices based on the definition of the digital divide and also four indices already existing in the practice, such as Digital Opportunity Index and ICT Opportunity Index by International Telecommunication Union, DIDIX (Digital Divide Index) by Empirica and DDI (Digital Divide Index) by Orbicom, the comparison of the differences originating in the methodology of comprising indices was conducted. This comparison was made based on the ranking shifts of the respective indicators for the countries in survey. The results show that despite the existence of multicollinearity among the indicators, the choice of the components of an index is crucial and the change of components brings in more differences than the shift from geometric to arithmetic mean or application of weights to the index components. This may imply that the different definitions of (in this case) the digital divide, could bring bigger alterations into rankings of countries if compared to the choice of technical methodologies of an index, and hence, it is more important to decide what is under question for the aggregation purposes rather than the technicalities such as the selection of a mean or weighting. However, we need a better guidance for aggregation of any phenomena, including digital divide and e-government. The construction of aggregate indices is a problematic question which needs further research. Without the understanding of methodologies and their differences it is difficult to comprehend the meaning behind the numbers those indices provide.

Keywords: Digital divide, digital inequality, aggregate indices, index construction

Barriers to Electronic Government use as Perceived by Citizens at the Municipal Level in Mexico

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Abstract: The benefits of e-government services depend on the number of citizens who take advantage of them. The purpose of this quantitative, correlational research study was to determine barriers to e-government use as perceived by citizens at the municipal level in Mexico. The technology acceptance model (TAM), the diffusion of innovations (DOI) theory, and models of web trust formed the theoretical framework of the study. In this study, 15 hypotheses tested the relation of demographic variables, TAM, DOI, and web trust constructs to the intention to use e-government services of 149 taxpayers of the city of Chihuahua, Mexico, who did not to use the e-government services for payment provided by the government of their municipality. The findings of this study show that trust in the Internet, trust in government, perceptions of convenience, perceptions of compatibility, access to the Internet, perceptions of ease of use, and perceptions of relative advantage are related to the intention to use e-government services. Conversely, awareness of the existence of e-government services, income level, family structure, age, literacy level, computer literacy level, gender, and possession of bankcards are not individually related to the intention to use e-government services of those persons who made face-to-face payments at the treasury office. In this study, the only demographic variable found to be related to the intention to use e-government services was citizens' access to the Internet. The high levels in the constructs used to measure perceived usefulness, relative advantage, and compatibility suggest that citizens are willing to use e-government services. Therefore, government leaders should work on increasing Internet access, usability of their e-government applications, trust in the Internet, and trust in the perceived capability of their agencies to conduct online transactions securely. Government leaders must focus on expanding the reach of e-government services towards vulnerable groups; otherwise, the advantages of e-government will benefit only the more affluent groups of society, increasing social inequality, and will become another factor that widens the digital divide.

Keywords: e-Government, adoption, TAM, DOI, citizen-centered e-government

The Rhetoric and the Reality of the Internet as a Potential Public Sphere

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Abstract: This paper empirically examines potentials of the Internet as a singular macro-level space of the public sphere, statistically analyzing the *Citizenship Involvement Democracy* survey. With the focus on “who” participate in the public sphere, “what” they do there, “why” they do so there, and “where” their main sphere is, this study investigates whether a virtual space on the Internet has potentials as the public sphere by contrasting online political activities and offline political activities. Results from ordinal logistic regressions and analysis of variance indicate that the Internet fails not merely in contributing to the substantial improvement of absolute equality but also in enhancing the level of political participation greatly. The reciprocal causality between online and offline political activities implies that the Internet facilitates online political activities by the existing participants in the offline public sphere rather than encourages new participants. The demographic pattern of participation in political communication on the Internet is not much different from face-to-face political activities. Education and income level sharply divides the level of political participation in both online and offline sphere. The Internet has not narrowed the gap in offline political activities by education and income. While the online public sphere shows the age gap in the participation level, the racial gap is significant in the offline sphere. Political efficacy for the Internet and political interests are commonly strong predictors for the level of activeness in both spheres, but age, race and civic attitude make a conspicuous distinction in the models estimating offline and online political activities. The finding is not necessarily skeptic because the Internet extends a physical scope of political activities by the existing active participants to a cyber space. The Internet is, despite its technological maturity, still a new architecture for the public sphere, and thus its potential is not fully accomplished.

Keywords: Public sphere, e-democracy, internet, digital divide

Clarity of Roles and Responsibilities in Government Cross-Boundary Information Sharing Initiatives: Identifying the Determinants

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Abstract: Research has shown that clarity of roles and responsibilities (CRR) influences the effectiveness and performance of individual organizations as well as cross-boundary or interorganizational group efforts. Role clarity increases job satisfaction, commitment, and involvement and reduces tension and anxiety among organizational members, which results in lower staff turnover rates in organizations. In addition, CRR has been found to enable other important determinants of success in cross-boundary information sharing (CBI), such as building trust among members of CBI initiatives. However, few studies attempt to understand the determinants of CRR in a CBI initiative. Using data from semi-structured interviews from eight U.S. state and local government public health and criminal justice information sharing cases, this paper seeks to fill this gap by examining these determinants. The analysis of the public health and criminal justice information sharing efforts supported the identification of a set of determinants of CRR. In general, these determinants involved different types of knowledge participants had or gained about each other through the course of the initiative; others involved participants' views on how their needs and concerns were being addressed by initiative participants and sponsors. Overall, this study contributes to the existing literature by identifying several of these determinants and explaining how they affect CRR in government CBI initiatives.

Keywords: Cross-boundary, information sharing, public sector, collaboration

E-Government as a Tool to Promote Transparency and Openness: the Case of Bangladesh

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Abstract: Purpose – The potential of e-Government practices to promote transparency and control corruption has attracted worldwide academic attention and interest. Despite their potential, the introduction and application of e-government practices in developing countries which have very different infrastructure settings and regulatory context remains an under-researched area. Using Bangladesh as an exemplar, this paper focuses on the implementation of e-Government practices intended to transform the existing governance system in a developing country, which is generally perceived to be overly bureaucratic, unaccountable and unresponsive. The paper draws upon recent research which aims to develop a conceptual model explaining how the application of Internet-based technologies/e-government can help not only to increase efficiency, but can, under certain circumstances, encourage transparency, openness and better governance. The model also discusses the impediments that affect the introduction and implementation of e-government practices in Bangladesh. Design/Methodology – Interview data were collected from 22 government agencies in Bangladesh. Three sets of respondents were identified and interviewed: the implementing government agencies, foreign aid donors and selected professional personnel. This paper describes the implementation status of e-Government in 4 (Four) public sector agencies. Findings - Research results indicate that the adoption of e-Government in the public sector in Bangladesh is still in a nascent stage. The study has revealed some impact of e-Government on increasing transparency in the public sector agencies. This transparency in operation and decision making may reduce scope for corruption though the significance in reducing corruption is only perceived not surveyed or quantified as yet. However, the achievement of its potential is hindered due to several impediments, the most crucial being political and bureaucratic reasons. It implies that a combination of political leadership along with bureaucrats could facilitate progress in the ICT sector and expedite the adoption of e-Government in the public sector organisations in Bangladesh. Implication - As Bangladesh stands as an exemplar of developing countries, the proposed model has potential to identify the practicalities and impediments to the introduction and application of e-Government practices in developing countries.

Keywords: Governance, transparency, corruption, e-government, Bangladesh

Integrated Architecture Framework for e-Government: an Assessment of the e-Government Initiatives in Zimbabwe

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Abstract: The Government of Zimbabwe, like many other governments around the globe, is acutely aware of the critical role that Information and Communication Technologies (ICTs) play in socio-economic development. This paper discusses Zimbabwe's e-government developments and maps them against the e-government architecture framework by Ebrahim and Irani (2005). The e-government architecture framework defines the standards, infrastructure components, applications, technologies, business model and guidelines for electronic commerce among and between organisations that facilitate the interaction of the government and promote group productivity. This paper considers the e-government architecture framework as a bed-rock to a successful e-government implementation. The aim of this paper therefore is to identify gaps between the ICT initiatives by the Zimbabwe Government and the e-government architecture framework and then provide recommendations on how a connected government could be designed, developed and implemented in Zimbabwe. The need to adopt and develop low cost but effective and robust systems from the open source community for cash strapped Government of Zimbabwe is one of the recommended solutions presented in this paper.

Keywords: ICT, Zimbabwe, e-government, architecture framework, whole-of-government

The Theory of Planned Behavior and Technology Innovation Adoption

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Abstract: The central aim of this paper is to arrive at a deeper understanding in terms of those variables which have an impact upon the manner in which a technology innovation is adopted throughout a public setting. This paper seeks to form the theoretical grounding for further research concerning innovation adoption, and in turn, utilization of technology innovation. One of the challenges, then, of attaining this deeper understanding is to develop a model that can be utilized to predict behavior in terms of the adoption of an IT innovation. Ajzen's Theory of Planned Behavior (TPB) (1980, 1987, 1988, 1991), provides insight in terms of characterizing those variables that impact upon innovation adoption for the benefit of those public organization and their public managers.

Keywords: Theory of planned behavior, implementation, innovation, program evaluation, impact analysis

Research inProgress Papers

The Brazilian Public Software and Impacts on Brazilian Society

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Abstract: This work presents an innovative Brazilian experience of use of free software in public administration and its preliminary impacts on the Brazilian society. It describes a new concept: the Brazilian Public Software (BPS) developed by policy makers of the Ministry of Planning, Budget and Management. The policy makers were concerned with the limitations of Free Software Model of Production (FSMP) to public administration. Efforts have been made to create an ambience where public entities could download and install software. Issues like installation and operational support, quality of software (user interfaces, manuals, etc), bugs, etc., were not effectively solved by the FSMP alone. On the other hand, the Government was also interested in creating a virtual ambience in which private entities could also open and share their software. It meant having additional intellectual property issues, brand issues, etc. Then, the policy makers of the Ministry of Planning, Budget and Management shaped the new concept, the Brazilian Public Software that is based on code opening (FSMP), but includes some additional duties to the entity that makes the software available. To support and to make the concept operational an institutional, an environment was formed and so a virtual ambience named Brazilian Public Software Portal (BPSP) began to exist. Since their beginning in 2006, BPSP (www.softwarepublico.gov.br) increased their number of associates to 40,000 users and today it has 22 software solutions available, in many technological areas: geo-processing, health, public town management (sanitation, hospitals management, data management, etc) even software solutions originated from private entities that had public interest like textual database and web application server ambience. Others related portals were created like: 4CMBr, driven to municipalities; Virtual Market focused on services; 5CQualiBr centered on the quality of the software in a large sense and in the ecosystem sustainability. The 5CQualiBr is under construction and it is an outcome of the partnership with the Information Technology Center Renato Archer – CTI, from which the present article is part of. The preliminary impacts of BPS are concerned with: government software development cost reduction; reuse of software and increase of software longevity; improvement of technological apprenticeship inside the technical communities of the Government; support to small municipalities on introducing the Information and Communication Technology (ICTs) in the management process, and even introducing a digital culture where there was not anyone; creation of an ambience of collaborative software development.

Keywords: Brazilian Public Software, ecosystem, grounded theory

Characterizing and Improving Collaboration and Information-Sharing Across Emergency Preparedness and Response Communities

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Abstract: Events such as 9/11 and Hurricane Katrina have made abundantly clear the need for greater collaboration and information sharing among government agencies during emergencies. The effectiveness of emergency preparedness and response (EP&R) depends fundamentally on the ability of a wide variety of organizational and professional communities to work together. E-government initiatives can promote the necessary information sharing, coordination, and collaboration (ISC2) or can be rendered less effective due to social, organizational, and/or technological obstacles. This paper reports on research-in-progress that aims to characterize and make recommendations for ISC2 improvements of across EP&R communities. We present a conceptual model of the EP&R domain designed to highlight the most critical impediments to effective communication, coordination, and collaboration and the most powerful points of leverage for e-government initiatives to support EP&R.

Keywords: Collaboration, emergency response, EP&R, conceptual model

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Abstract: President Obama’s managed healthcare reform plan promises affordable, accessible healthcare built on existing healthcare systems, using existing providers, doctors, and plans. An important component of a county’s healthcare system is the quality of online medical reference information available to patients. Such information helps patients understand better the nature of their health issues, while at the same time reducing the need for visits to doctors for informational purposes. At issue is the extent to which the government can control the accessibility of information provided by private sector healthcare providers to patients with disabilities. There are laws governing the accessibility of public sector website information under Section 508¹ of the Americans with Disabilities Act, however there are only guidelines available to web developers in private healthcare providers. This paper investigates the accessibility of online medical reference information to one such disability group, blind² consumers in the US.

Keywords Website design, accessibility, blind, healthcare reform, Corporate Social Responsibility, litigation avoidance

¹ Section 508: was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals

² **Blind:** a legally blind individual would have to stand 20 feet from an object to see it—with vision correction—with the same degree of clarity as a normally sighted person could from 200 feet

A new Approach of e-Gov Processes Development: the use of Complex Thinking Theory

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Abstract: This article presents the theoretical approach used to describe the phenomenon of a cooperative network to produce public software in Brazilian Government. Brazilian Public Software (BPS) is a project of Planning, Budget and Management Ministry of Brazil that introduces a new concept and operational structure to produce software. BPS project is based on code opening model (free software production model), but it also includes additional duties to the entity that make software available. It is supported by a new juridical and institutional framework that drives software to be a public good. To support and to make the concept operational, it was created a virtual ambience named Brazilian Public Software Portal (www.softwarepublico.gov.br). This project began in 2006 e today there is more than 40,000 people using the portal and 28 solutions available. The network formed has an intense dynamic of social interaction, but also reflecting in other variables domains n, like intellectual property, technological infrastructure, public appropriation of technology, quality patterns, juridical issues of software use in the government, etc. Therefore, it is a system that has a large amount of non linear cause-effect relationships, its frontiers are tenuous and a quick entrance of new variables that produces non trivial implications. After data surveys and several reflections, the Complex Thinking Theory (CTT) seems to be the better pathway to understand the dynamic of BPS project growth.

Keywords: Free software, Brazilian Public Software, software, digital ecosystems, e-government innovation