Preface

OVERVIEW

With the emergence of Web 2.0, mobile technologies, and social media (Facebook, Twitter, YouTube, etc.), societies are becoming more online and better connected. Similarly, electronic government (e-government) that previously relied on older Information and Communications Technologies (ICT) is now making use of the newer technologies and evolving into what is beginning to be referred to as the connected government (c-government) or Government 2.0. Various departments of the government (federal and local) that simply develop and advertise e-services but are otherwise not digitally integrated and not fully connected with other vital sectors of the society (such as education, health, finance, etc.) are no longer acceptable anymore. Citizens, who have access to inexpensive mobile devices, often free of cost cloud storage, and free use of social media, expect governments and their ministries and departments to utilize emerging technologies. They would like their governments to be more visibly online at all times, better connected with the governed, and more responsive to the citizens’ needs. They now expect e-governance to be more open, efficient, effective, and fully transparent. Thus, e-participation of the citizens in the running of the affairs of the government and the production of the relevant e-services that reflect the citizens’ opinions and voices are now high on the agenda and a necessary minimum requirement.

With this understanding, governments that are at a higher level of c-government maturity are beginning to employ latest methodologies such as service-oriented or component-driven architectures for more efficient and seamless development and integration of Web-based services. These governments are keen to be seen as using the emerging technologies such as Web 2.0, social media, mobile technologies, and cloud computing for better provision and access of such e-services.

In this context, this book, Emerging Mobile and Web 2.0 Technologies for Connected E-Government, considers the various dimensions of the connected government and connected e-governance and presents the current situation in the form of status reports, development methodologies, practical examples, best practices, case studies, and the latest research. The present volume is a collection of 12 chapters authored by well-known academics and industry practitioners from around the world. The book will serve as a reference text in the subject areas of connected e-government and e-governance as well as mobile government (m-government).
BOOK OBJECTIVE

This book, *Emerging Mobile and Web 2.0 Technologies for Connected E-Government*, aims to serve as a reference text and presents latest research focusing on the use of the latest ICTs, in particular Web 2.0, social media, and mobile technologies, as well as the case studies. The objective is to understand the use and effectiveness of such technologies and best practices that provide successful strategies towards developing a connected government that is more responsive to the needs of the general public and is engaged in full e-participation of the citizens. To this end, the current volume presents reports and discussions on the following:

- Current research and new ideas for integrated e-government
- Frameworks and strategies for connected e-government
- Novel practices for the use of Web 2.0 and mobile technologies
- E-governance, e-inclusion, e-democracy, and m-government
- Best practices, practical suggestions, and recommendations
- Case studies highlighting practical experiences.

TARGET AUDIENCE

This volume, *Emerging Mobile and Web 2.0 Technologies for Connected E-Government*, is a reference text aimed at several groups of readers, including the following:

- University students, lecturers, and researchers interested in the field of Government 2.0 and the latest Web 2.0, communication, and mobile technologies
- Information systems specialists, technology experts, and practitioners in the field of ICT, Web 2.0, social media, and mobile technologies
- Decision makers, managers, and directors in government departments, public administration, and the business sector responsible for offering e-services
- Project managers and information systems architects tasked with the development of e-services and management of connected e-government projects.

BOOK ORGANISATION

*Emerging Mobile and Web 2.0 Technologies for Connected E-Government* is organised in 4 sections with a total of 12 chapters, authored by 23 academics and practitioners from around the world, as follows:

- **Section 1:** “Service Orientation and Virtualisation Technologies for Connected Government.” There are three contributions in this section. The first chapter discusses the Service-Oriented Architecture (SOA) approach for developing Web-based applications, the second chapter focuses on data categorization and virtualization techniques to enhance data management in e-government projects, and the next chapter presents a connected service delivery framework for interoperable government.
Section 2: “Web 2.0 Technologies and E-Participation for Next Generation E-Government.” This section also has three chapters. The first of these discusses e-readiness of the Nigerian nation considering Web 2.0, ICT infrastructure, and training provision. The second contribution focuses on mobile and Web 2.0 technologies for connected e-government, and the third chapter looks at the next generation of e-government in terms of the e-participation and data protection agenda.

Section 3: “Mobile Technologies for Smarter and Sustainable Mobile Government.” This section of the book also comprises three chapters. The first contribution presents ideas for a smarter governance employing latest technologies such as mobile and cloud technologies, whereas the second chapter focuses on the scalability and sustainability of mobile government projects. The final contribution in the section presents a case study of Mexican mobile government by considering e-services as mobile applications.

Section 4: “Social Computing and Data Modelling for Connected Services for Inclusive Government.” This final section also consists of three chapters. The first chapter suggests the importance of and mechanisms for cross-boundary delivery of e-services. The second contribution presents an analysis of critical success factors in terms of traditional and newly emerging technologies. The final contribution of this section of the book presents data modelling of a multifaceted electronic-card-based secure e-governance system.

CHAPTER DESCRIPTIONS

Detailed abstracts of the book chapters appear in the Detailed Table of Contents section. Here, very brief summaries of chapters’ content are presented.

Chapter 1 is titled “Service-Oriented Architecture for Developing Web-Based Applications for Connected Government.” Authored by Ramachandran, Mahmood, and Raj, the chapter looks into the use of Service-Oriented Architecture (SOA) paradigm for the development of open and flexible applications for an integrated and collaborative e-government provision. The concept of SOA is explained together with the associated technologies such as XML, WSDL, UDDI, and SOAP. The chapter also discusses a number of service component models that can be usefully employed to develop e-government applications. To illustrate the use of service orientation, a large-scale system, e-Taxservice, is presented as a case study.

Chapter 2 is developed by Milutinovic, Despotovic-Zrakic, Simic, and Andelic. Titled “Enhancing Data Management in E-Government Using Data Categorization and Visualization Techniques,” it analyses models and techniques for data categorization and visualization that can be utilised in the context of e-government developments. Various methods of categorization, metadata, and ontologies are explored, and a simple government ontology framework is developed as a starting point for introduction of ontologies into the e-government context. The aim is to correctly structure the information to allow easy correlation and navigation between concepts. The chapter also presents an intuitive visual representation of information to facilitate better understanding of the topic.

Chapter 3, co-authored by Al-Husban and Adams, is titled “Connected Service Delivery Framework: Towards Interoperable Government.” This contribution presents an interoperability integration framework that connects closely coordinated services based on SOA, Enterprise Service Bus, and Web services. The aim is to align the organizational structures and processes of different government departments while reducing implementation and ownership costs. To illustrate the effectiveness of the framework, it is applied to a realistic case example of integrating three different public services in a highly interoperable.
able manner with a high level of adaptability, the services being the applications for a Tourism Agency License, a Vocational License, and a No Criminal Record Certificate.

Chapter 4 is contributed by Ikponmwosa and titled “Web 2.0, ICT Infrastructure, and Training Provision for E-Government Readiness in Nigeria.” It presents a discussion on Web 2.0, social media, mobile/wireless, and other ICTs that can usefully help towards e-government readiness in the context of Nigeria. The chapter aims to articulate the necessary steps required (e.g. policies, programmes, processes, and technology infrastructures) for e-readiness assessment including the training provision for the citizens. The chapter highlights specific opportunities for the nation to harness the emerging technologies (such as social media, Web 2.0, and mobile/wireless technologies) to provide improved processes, increased efficiency, better transparency, and citizens’ effective participation.

Chapter 5 is titled “A Base of Knowledge, Mobile, and Web 2.0 Technologies for Connected E-Government.” In this contribution, the authors, Yusuf and Adams, present an in-depth evaluation of e-government practice and research since 2007 to provide insight on emerging issues, trends, and technologies (including mobile and Web 2.0 technologies). Discussing the practicalities of Web 2.0 technologies in domains such as government, regulation, cross-agency cooperation, and law enforcement, the chapter also presents a framework based on mobile and Web 2.0 technologies emphasizing government–people relationship to illustrate how the implementation of such latest technologies can successfully support connected e-government.

Chapter 6 is developed by Moloney and Coyle. Titled “Next Generation E-Government: Reconciling the E-Participation and Data Protection Agendas,” this contribution focuses on the active participation of citizens in the affairs of the government and the responsibility of the government to ensure citizens data confidentiality and protection. The chapter examines this dual agenda of modern governments to engage with its citizens to encourage transparency and open discussion. The chapter argues that a citizen-centric approach to online privacy protection that works in tandem with the open government agenda will eventually provide a unified mode of interaction between citizens, business organizations, and government departments in a digital society.

Chapter 7 is authored by Puthuru Raj. Titled “Mobile and Cloud Technologies for Smarter Governance,” this chapter looks into the context-aware people-centric applications and services for smarter environments such as smarter homes and efficient governments. The author suggest that such services can be dynamically created, orchestrated, and choreographed out of multiple atomic and discrete Web-based software services and hosted in cloud environments that facilitate provisioning and renting out already configurable and customizable resources on demand. The chapter discusses the related technologies including service-oriented architecture with respect to services development and subsequent adoption and migration to cloud environments.

Chapter 8 is titled “Scalability and Sustainability of M-Government Projects Implementation in Developing Countries.” Co-authored by Ogunleve and Van Belle, this contribution discusses the role of mobile and Web 2.0 technologies such as social media in the implementation of mobile government (m-government) in the context of developing nations. The chapter aims to provide an understanding of the inherent issues surrounding scalability and sustainability of m-government projects and applications. Various e-government maturity models are also discussed and guidelines presented with respect to the challenges of scaling up and sustaining m-government projects for a more effective connected e-government.

Chapter 9 is titled “The Case of Mexican Mobile Government: Measurement and Examples.” Co-authored by Sandoval-Almazan and Romero, it looks at the development of mobile government in Mexico
in the wake of the increase in the use of smart phones and mobile apps available to the citizens. Based on the data gathered from government departments, business enterprises, and citizen organizations, the chapter analyses and measures the impact of mobile apps on the uptake of connected government and suggests a classification approach. Forty-seven applications are classified and the findings are discussed in terms of five case studies to understand the effect of mobile technology for further developments in this context.

Chapter 10 is developed by Walter Castlenovo. The contribution titled “Social Computing and Co-operation Services for Connected Government and Cross-Boundary Services Delivery” discusses the delivery of cross-border services, across geographical boundaries between co-operating countries, as the next step towards truly global government. Considering the case of the EU member states, the chapter focuses on the need for seamless interoperability and social dimension of organizations as the basis of co-operability in the light of the unique nature of coupling of several technologies and processes with interpersonal styles – also considering the communication tools and conversational models employed within the inter-organizational workflows.

Chapter 11 is jointly authored by Claver-Cortes, Juana-Espinosa, and Valdes-Conca. Titled “Emerging and Traditional ICT as Critical Success Factors for Local Governments: A Longitudinal Analysis,” it describes the situation of emerging ICT in Spain and for Spanish e-government and presents the results of an empirical study based on a longitudinal quantitative survey carried out in 2005 to discuss the critical success factors that may enhance or hinder the effectiveness, connectivity, and transparency of a connected government. The findings establish an emphasis on political issues as triggers, both positive and negative, of the local e-government success. The chapter also discusses the effects of the emergence of social media, mobile technologies, and Web 2.0.

Chapter 12 is titled “Data Modelling of a Multifaceted Electronic Card-Based Secure E-Governance System.” Developed by Roy and Karforma, this chapter presents the development of a multifaceted electronic card-based secured e-governance mechanism. It is suggested that the proposed smart card system can act as an all-purpose electronic identity of the citizens, replacing existing identity instruments such as Voter Card, Driving License, Employment Card, Health Card, Insurance Card, etc. as well as an instrument to conduct financial transactions. To address the security issues, data modelling techniques and authentication procedures are also discussed and implemented using object-oriented modelling of the RSA digital signature algorithm.

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