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Handbook of Research on E-Services in the Public Sector:

E-Government Strategies and Advancements

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A Secure Electronic Voting 431
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A Global Comparative Analysis of Digital Governance Practices 1
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Governments all around the world engaged heavily in improving their capabilities and performance by developing and implementing strategic information and communication technologies. This chapter provides a comparative analysis of the practices of digital governance in large municipalities worldwide.

Chapter 2
Formal Verification of a Subset of UML Diagrams: An Approach Using Maude 14
Allaoua Chaoui, University Mentouri Constantine, Algeria
Okba Tibermacine, University of Batna, Algeria
Amer R. Zerek, Engineering Academy, Libya

This chapter outlines an approach discussing the verification of UML collaboration and sequence diagrams in respect to the objects of internal behaviours. The objects are commonly represented by state machine diagrams. It is based on the translation of theses diagrams to Maude specifications.

Chapter 3
Voice-Based E-Learning Approach for E-Government 25
A. A. Azeta, Covenant University, Nigeria
Charles K. Ayo, Covenant University, Nigeria
Aderemi Aaron Anthony Atayero, Covenant University, Nigeria
Nicholas Ikhu-Omoregbe, Covenant University, Nigeria

This chapter proposes a voice-based e-Learning system known as voice-learning (v-Learning) as a variant of the m-Learning with particular relevance to the visually and mobility impaired learners The

voice-learning has many diversified and complex processes in e-government are, hence the need for an appropriate training and learning strategy for governmental employees is essential.

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Tarek Zernadji, University of Batna, Algeria
Raida Elmansouri, University Mentouri Constantine, Algeria
Allaoua Chaoui, University Mentouri Constantine, Algeria

This chapter discusses software reuse in Component Based Software Engineering. It uses techniques characterized by their semantics which are defined in terms of rewriting logic. The objective of the chapter is to propose a formal specification of software components by using ECATNets formalism.

Chapter 5

A Methodology for the Development of Computer Ontologies Based Extractor Information..... 43
Hacene Belhadef, Mentouri University of Constantine, Algeria
Naouel Ouafek, Mentouri University of Constantine, Algeria
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The chapter proposes a new methodology for ontology building where the crucial step in the building process of this methodology is the transformation. This last concept is based on an automatic extraction of information for a conceptual model ER (such as entities, relationships, properties and cardinalities). The data stored in the database (the schema extension) are extracted and used to create instances of the ontology.

Chapter 6

An Intelligent Framework for Usable Speech-Enabled E-Health System..... 52
Oyelami Olufemi Moses, Covenant University, Nigeria
Uwadia Charles Onuwa, University of Lagos, Nigeria
Akinwale Adio Taofeek, University of Lagos, Nigeria

This chapter presents an intelligent framework for a usable speech-enabled e-health system that provides speech-based health information to cater to the needs of those not catered for in graphical user interface. It also introduces rule-based reasoning techniques into speech-based disease screening systems.

Chapter 7

An Overview of Internet Developments and their Impact on E-Government in South Africa..... 63
Goonasagree Naidoo, University of South Africa, South Africa
S. Singh, University of South Africa, South Africa
Niall Levine, University of South Africa, South Africa

The chapter provides an overview of the Internet usage and its impact on e-government in South Africa. Many challenges are facing the growth of the Internet in South Africa. These challenges are mostly related to the lack of infrastructures of the Internet, high cost of computer technology and service providers.

Chapter 8
Enhancing Democratic Participation: The Emerging Role of Web 2.0 and Social Media 78
Jenny Backhouse, University of New South Wales at the Australian Defence Force Academy, Australia

This chapter examines the nature of Web 2.0 technologies and social media and analyses their role in political campaigning, particularly in the context of the recent federal elections in America and in Australia. While broadcast television is still a dominant political player, the empirical evidence suggests that a viable campaign needs to integrate diverse communication strategies tailored to citizen's interests and the political environment. The interactive and participatory technologies of the online world are increasingly key components of such integrated campaign strategies.

Chapter 9
The Nigerian e-Government Strategies (NeGST): A Strategic Approach to Poverty Eradication in Nigeria 93
Charles K. Ayo, Covenant University, Nigeria
I.T. Fatudimu, Covenant University, Nigeria

This chapter presents a review of the e-Government strategies in Nigeria, the human capital development initiatives, the information and communications technology (ICT) diffusion and e-Inclusion. The global and continental ranking of the country is presented, as well as recommendations to accelerate developments towards achieving the millennium development goals.

Chapter 10
An Exploratory Analysis of the On-Line Dispute Resolution Mechanism..... 106
Panagiota-Aikaterina Sidiropoulou, Middlesex University, UK
Evangelos Moustakas, Middlesex University, UK

This chapter covers the role of government which is taken into consideration in the accreditation of service providers, as well as in the settlement of e-administrative disputes and the securing of e-transactions. The necessity for self-regulation, equality of digital divide and government's recommendation for ODR tools are discussed. The current chapter identifies and explores considerable notions, concepts and debates for moving towards the development of an international dispute resolution framework online and trustful mechanism internationally.

Chapter 11
Factors Affecting the Citizens' Trust in E-Government..... 118
Hisham M. Alsaghier, Griffith University, Australia
Marilyn Ford, Griffith University, Australia
Anne Nguyen, Griffith University, Australia
Rene Hexel, Griffith University, Australia

This chapter discusses issues that play a vital role in helping citizens overcome perceived risks. It emphasizes on how trust makes citizens comfortable in sharing personal information, making online

government transactions, and acting on e-Government advices. Trust is a significant notion that should be critically investigated to help both researchers and practitioners to understand citizens' acceptance to e-Government.

Chapter 12

An SMS-Based e-Government Model: What Public Services can be Delivered through SMS? 137
Tony Dwi Susanto, Flinders University, Australia
Robert Goodwin, Flinders University, Australia

This chapter introduces delivering public services through SMS (SMS-based e-government) which is becoming popular in developed and developing countries as a strategy to engage more citizens in using e-government services. Current advances in SMS-based e-government applications by local authorities in developed and developing countries are investigated to determine to what extent SMS-based e-government could deliver existing Internet-based e-government services and whether these services can fulfill the actual needs of e-government services users.

Chapter 13

E-Government Projects Risk Management: Taking Stakeholders in Perspective 147
Fatma Bouaziz, University of Sfax, Tunisia

This chapter shows that stakeholders are proactive in the development of e-government initiatives. Public organizations should be proactive in identifying all relevant collaborators, working with them and undertaking measures to systematically engage their stakeholders. Building coalitions with both internal and external stakeholders of e-government project may help in recognizing the critical stakeholders that deserve project managers' attention. Henceforth, e-government has to rely on a broad consensus, commitment and ownership at all levels among government officials and citizens.

Chapter 14

An ICT-Based Network of Competence Centers for Developing Intellectual Capital in the Mediterranean Area 164
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Francesca Grippa, University of Salento, Italy
Giustina Secundo, University of Salento, Italy

The chapter examines the rising of the knowledge of economy, enhanced by the fast diffusion of ICTs. It drives a wider perspective on the divide among Countries, interpreting more results of asymmetry in the access to knowledge and in the readiness to apply it in order to renew the basics of their development dynamics.

Chapter 15

Last Online Deposits Spatial Data in the Web 182
Mohamed-Khireddine Kholladi, University Mentouri of Constantine, Algeria

This chapter shows that the posting of interactive mapping is essential for the dissemination of information to the general public and in all areas. All the elements constituting a spatial object are represented by agreements with symbols. Each element is represented at the level of reality.

Chapter 16

Ontology Based Business Rules and Services Integration Environment 197
Aqueo Kamada, CTI – Information Technology Center Renato Archer, Brazil & State University of Campinas, Brazil
Adriana Figueiredo, CTI – Information Technology Center Renato Archer, Brazil
Marcos Rodrigues, CTI – Information Technology Center Renato Archer, Brazil

This chapter shows that the relationships among people, governments and organizations are subject to fast changes. The increasing demand for new services conducts to the need to create services from scratch and by integrating disparate and heterogeneous legacy systems. The problem is that the monolithic form as most of the systems were implemented turns the change excessively slow and expensive.

Chapter 17

Electronic Commerce in the Arab World 214
Robert Jeyakumar Nathan, Multimedia University, Malaysia
Mohammed Saeed Ahmed, Multimedia University, Malaysia

This chapter presents a literature discussion and empirical research that examines the factors that affect Electronic Commerce (EC) adoption in the Arab countries. The five countries that are represented in this research include Saudi Arabia, Qatar, Kuwait, United Arab Emirates and Yemen. The purpose of this research is to analyze the crucial factors affecting EC adoption among the Arab consumers.

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Apitep Saekow, Thammasat University - Rangsit Campus, Thailand
Choompol Boonmee, Thammasat University - Rangsit Campus, Thailand

This chapter describes the process of how governments have been developing electronic information systems to support labour market in form of on-line services, web-based application as well as one-stop service. One of the biggest challenges is to facilitate the seamless exchange of labour market information (LMI) across governmental departments. It introduces an efficient implementation of Thailand e-government interoperability project in LMI systems using service oriented architecture (SOA) based on XML web service technology.

Chapter 19

E-Services and the Digital Divide: The Role of Tertiary Education in Improving Public Engagement and Trust in E-Delivery of Services 244
Neil Gordon, University of Hull, UK

This chapter considers aspects relating to the role of tertiary (i.e. higher) education in improving the engagement of the public with government provided E-services. Some of the issues considered include those of tackling the digital divide – which can exist because of technical issues in provision of the actual infrastructures, financial issues limiting access to available provision and educational barriers. It also considers how to develop trust in online technologies.

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Rafik Braham, University of Sousse, Tunisia
Lilia C. Belcadhi, University of Sousse, Tunisia
Narjess T. Chebaane, University of Sousse, Tunisia
Maha Khemaja, University of Kairouan, Tunisia

This chapter shows that policy makers in Tunisian higher education have decided to explore ways in which e-learning and e-management could be introduced to enhance university administration and teaching. In this context, the e-learning team in the Higher Institute of Informatics and Communications in Hammam Sousse (University of Sousse) has developed and deployed a number of online courses as part of a blended learning program. Various e-learning projects covering both pedagogical and technical aspects as well as doctoral research works are under way to support this activity.

Chapter 21

Effort Estimation Model for Each Phase of Software Development Life Cycle 270
Sarah Afzal Safavi, COMSATS Institute of Information Technology, Pakistan
Maqbool Uddin Shaikh, COMSATS Institute of Information Technology, Pakistan

This chapter provides assessment of the main risks of software development. It discloses that major threats of delays are caused by poor effort/ cost estimation of the project. Low/ poor cost estimation is the second highest priority risk. This risk can affect four out of total five phases of software development life cycle i.e. Analysis, Design, Coding and Testing. Hence, targeting this risk alone may reduce the over all risk impact of the project by fifty percent.

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Charles K. Ayo, Covenant University, Nigeria
J.O. Daramola, Covenant University, Nigeria
A. A. Azeta, Covenant University, Nigeria

The chapter shows the important of the electronic electoral system to the survival of democracy all over the world. Current happenings around the world, particularly in the developing world where poor conduct of elections had left a number of countries devastated. They are of great concern to world leaders. Therefore, efforts are ongoing to introduce a voting system that is transparent, convenient and reliable.

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Say Yen Teoh, RMIT University, Australia
Mohini Singh, RMIT University, Australia
Josephine Chong, Auckland University of Technology, New Zealand

This chapter discusses the e-health development in Australia. The Australian government has been very proactive in e-government such as e-health in the last five years. E-health is an important application for innovation of the public sector due to its sparsely populated large rural areas.

Chapter 24
Building Security Awareness Culture to Serve E-Government Initiative 304
Ali Maqousi, Petra University, Jordan
Tatiana Balikhina, Petra University, Jordan

The chapter explains the process of building security awareness culture to serve e-government initiative. These initiatives together with the existing and emerging private initiatives which offer E-Services lead to dramatically increase in the number of the Internet user. It forms the infrastructure of E-Society. The level of citizen's engagement in these initiatives depends on the extent of confidence in the security system used by these initiatives.

Chapter 25
Mapping and Data Base Modelling for Public Sector Strategic Enterprise Resource Planning 312
J.D. Thomson, RMIT University, Australia

The chapter discusses a database model which provides a systematic, logical and regular basis for the collection, collation, dissemination and mapping of strategic e-purchasing data. Selective access to this accurate and timely data will measurably improve public sector strategic e-procurement performance, accountability and administration. It will assist the public sector to be more effective and efficient in resource allocation and investment outcomes measurement, more transparent, and will encourage the development of trust, networks and social capital amongst public sector employees and their suppliers.

Chapter 26
Surviving with SMS 326
Mohammad Shirali-Shahreza, Sharif University of Technology, Iran
Sajad Shirali-Shahreza, University of Toronto, Canada & Sharif University of Technology, Iran

This chapter introduces Mobile phone Technology used widely in these days. We expect in the near future that people will have at least one mobile phone. The chapter surveys a number of systems which are designed for communication in emergency situations. Three systems will extensively be explained. These systems were developed by the chapter's authors.

Chapter 27
Early Worm Detection for Minimizing Damage in E-Service Networks 336
Tarek S. Sobh, Egyptian Armed Forces, Egypt
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This chapter discusses one of the most powerful weapons for attackers known as the Internet worm. A worm attacks vulnerable computer systems and employs self-propagating methods to flood the Internet rapidly. Since "Worm" is self-propagated through the connected network, it doesn't need human interaction or file transmission to replicate itself. The chapter provides efficient methods of detection and correction.

Chapter 28
Towards a Dynamic Font Respecting the Arabic Calligraphy 359
Abdelouahad Bayar, Cadi Ayyad University, Morocco
Khalid Sami, Cadi Ayyad University, Morocco

This chapter explains the process of justifying texts as Arabic calligraphers use to stretch some letters with small flowing curves. The keshideh instead of inserting blanks among words. The stretching is context dependent. Adequate tools supporting such writing are based on a continuous mathematical model enables intersections to be determined dynamically.

Chapter 29
Building Semantic Webs for E-Government with WIKI Technology ..... .389
Mohammed Abdula Saleh Al-helali, Al-Rafedain University, Iraq

The chapter outlines that e-government webs are among the largest webs in terms of size, number of users and number of information providers. The creation of a semantic web infrastructure to meaningfully organize e-government webs is highly desirable. The chapter also points out that the complexity of existing e-government implementations provides challenges to the feasibility of semantic web creation.

Chapter 30
Design Principles for E-Government Architectures 406
Alain Sandoz, Université de Neuchâtel, Switzerland

This chapter describes a holistic approach for the design of e-government platforms. It defines principles for architecting a system which must sustain the entire e-government activity of a mid-level public authority (Geneva). It discusses the principles of Legality, Responsibility, Transparency, and Symmetry. These principles provide guidance to both policymakers and users.

Chapter 31
Learning from Failure: Braving the Multifaceted Challenges to E-Government Development 419
Fadi Salem, Dubai School of Government, UAE
Yasar Jarrar, Dubai School of Government, UAE

The description of one of the Large-scale electronic government projects is discussed in this chapter. A considerably large percentage of such projects effectively failed. The over-ambitious promise e-governance positively transforming public sectors in developing nations are not fully materialized. The actual causes of e-government failures are still to be explored in more detail to improve the understanding of the phenomenon by practitioners and scholars alike.

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A Secure Electronic Voting 431
Mohammed Abdula Saleh Al-helali, Al-Rafedain University, Iraq
Wamedh Wadood Abdoul Hameed, Al-Rafedain University, Iraq

This chapter discusses security framework architecture for electronic voting. The framework permits the avoidance of problems occasioned by interposing computer system and technical personnel between the voter and the electoral board. The architecture is based on replicating the conventional security mechanisms and in segregating all critical functions into very simple systems that are audited, monitored and physically secured.

Chapter 33

E-Business: Concepts and Context with Illustrative Examples of E-Business and E-Commerce in Education 450
Raid Al-Dabbagh, Mosul University, Iraq

This chapter outlines the importance of e-business in today's world and how one thinks it affects decision makers. E-business is extremely important for speeding up the whole process of ordering up. It means lead times can be decreased as ordering of products can be done much faster using the wide area network.

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