

# Preface

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## Abstract

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*This preface addresses the book Global E-Government: Theory, Applications and Benchmarking. It points to four major interrelated trends in global markets over the last decade, which have brought the concept of e-government to the forefront of politics and top government officials. These trends are innovation, information society, globalisation, and democracy. The preface discusses the advantages and barriers of implementing e-government programs. The book covers various theoretical and applications aspects of e-government. It comprises 19 chapters organised into three sections: e-government theory and state-of-art, e-government applications, and benchmarking. The book provides insights and support for academic professionals as well as for practitioners concerned with the management of e-government programs.*

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## Introduction

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Electronic government (e-government) is the use of information and communications technologies (ICT) to transform government by making it more accessible, effective, and accountable (InfoDev, 2002). This transformation should, according to the European Commission, be combined with organisational change and new skills to improve public services, increase democratic participation, and enhance public policy making (European Commission, 2005). E-government has the potential to change the relationship between government officials and the public (IPCS, 2003). The impact of e-government will depend not only on technology, but also on organisational resources and strategic vision.

There have been four major interrelated trends in global markets over the last decade, which have brought the concept of e-government to the forefront of politics and top government officials. These trends are as follows:

1. **Innovation:** The current era is associated with widespread and successive waves of technology-driven innovations in information and communication technologies. Technologies such as the Internet, network technologies, electronic commerce, World Wide Web (www), and mobile commerce bring with them ubiquitous connectivity, real-time access, low cost of information exchange, and overwhelming volumes of data and information. Organisations, individuals, and governments are increasingly using these innovative technologies for a large range of purposes.
2. **Information Society:** The world has experienced a transition from an industrial economy to an information economy. Data and information have become a strategic necessity for organisations (Eckerson, 2002). *Information Society* is a term for a society in which the creation, distribution, and manipulation of information has become the most significant economic and cultural activity (Whatis.Com, 2005). Some governments are making efforts to bring about social change in the move to the information economy (MobileMan, 2006). In June 2001, Lena-Hjelm Wallén, then Deputy Prime Minister of Sweden, said “In the modern information society knowledge is the driving force behind the development of whole nations (IDEA, 2005).
3. **Globalisation:** Changing conditions of competition have forced organisations to adopt an increasingly global strategy. Lambert and Copper (2000) point out that one of the most significant paradigm shifts of modern business management has been that individual businesses no longer compete as autonomous entities, but rather as supply chains. This requires business to deal with both local and international entities in their supply chain with minimal regard to the national boundaries. Dornier, Ernst, Fender, and Kpivelis (1998) provide significant statistics about the effect of globalisation on American industry. They indicate that about one fifth of the output of U.S. organisations is produced by foreign companies and one quarter of U.S. imports are between foreign affiliates and American parent companies. Free international trading, networking, and e-commerce facilitate globalisation. Even if companies do not participate in business overseas, the presence of foreign companies in local markets affects their competitive advantage. Governments can respond in various ways: for example, by liberalising trade and telecommunication policies and providing appropriate government regulations and legislation to help manage risk.
4. **Democracy:** A significant facet of modernisation is the recognition of the importance of interaction between governments and their citizens in decision making. Input from citizens in policy formulation and implementation are a crucial requirement for democracy. The European Commission considers wide participation in decision making the life blood of democracy (European Commission, 2005). ICT can reduce and overcome barriers between government and their citizens so long as citizens have sufficient access to ICT services.

The implementation of e-government is not limited to developed countries; rather e-government has now become a priority in an increasing number of developing countries. Evidence shows that “the most innovative uses of Internet in governance are appearing in the developing world” (InvoDev, 2002).

## Advantage and Barriers

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E-government offers impressive benefits and opportunities at a national level, including more efficient access to government services and officials, reduced government expenditures on administrative functions, increased public access to budget information, and increased access to government documentation and activities (IPCS, 2003). The World Bank emphasises that e-government promotes civic engagement by enabling citizens to interact with government official. In addition, e-government provides development opportunities for rural and communities with low service levels (InfoDev, 2002). From an economics viewpoint, e-government leads to lower information costs as well as lower transaction processing costs, thus saving human resources and providing more effective service levels which are available 24 hours a day, 7 days a week. This provides citizens with greater flexibility in processing transactions at a time of their convenience rather than only during working hours.

At an international level e-government serves as a worldwide showcase and permanent promoter of the country's political, cultural, and business aims (Kostopoulos, 2005). E-government may even considerably promote tourism. For example, the European Commission recommends that private sector and regional authorities of their member states work together to define and launch e-services to promote Europe and to offer user-friendly public information by 2005. The Commission is now developing a European Tourism Portal (eEurope, 2005). However, the effect on global economies is uncertain. The World Bank's Centre for Democracy and Technology considers that the global trend of increasing e-government may very well reduce income disparities between countries while increasing income inequalities within countries (InfoDev, 2002).

E-government requires careful study of the cultural, social, and economics environment. There are several issues requiring consideration:

1. **Process reengineering:** Neither advanced technology nor the automation of government procedures themselves can boost the effectiveness of e-government, enhance civic participation, or alter the attitude of bureaucrats towards citizens (IPCS, 2003). Rather, e-government introduces a new way of communication and relationship between the government-to-citizen (G2C) and government-to-business (G2B) and finally government-to-government (G2G) to manage a country's affairs. This requires redesigning the government processes to fit the new way of communications and interactions, that is, the application of Business Process Reengineering (BPR) to redesign government processes and functions. BPR can be defined as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service, and speed (Al-Mashari & Zairi, 1999).
2. **Physical boundaries:** E-government requires governments to reveal information and to form policies and design strategies in cyberspace where national boundaries are irrelevant while global forces and foreign legal systems are significantly relevant. This is completely different from traditional operations of governments.
3. **Improved responsiveness:** E-government is designed to promote better service levels and to create better relationships between citizens and government officials. This requires significant changes in the attitude of officials in considering citizens as

their customers, and also relies on citizens increasing their engagement and input in government processes and policy creation.

4. **Literacy:** It is readily apparent that the concept of e-participation requires not only the ability of a citizen to read and write but also a reasonable ICT knowledge. An e-government program should create opportunities to educate and train citizens in the use of ICT. E-literacy encompasses both ICT literacy and information literacy, and needs to be combined with other knowledge relevant to the particular education context (Institute of Education, 2004).
5. **Infrastructure:** Governments bear the main burden of providing adequate ICT infrastructure to their citizenry, and the success of e-government initiatives depends to a large extent on the quality of Internet access that governments make available to their users, particularly in the case of individual citizens.
6. **Skilled professionals:** Transformation to e-government requires specific human resources capable of operating, maintaining, and continuously and timely updating the government Web sites.
7. **Information sharing:** E-government necessitates timely information sharing electronically between various departments of the government and between government and citizens. Official bureaucratic attitudes, awareness of the importance of information sharing, the availability of suitable infrastructure, security of information, trust, lack of suitable legislation, and so forth, are factors which may affect the timely and transparent information sharing.
8. **Trust:** E-government requires a citizen to reveal personal information and communicate with officials in a very impersonal way compared with phone calls and face to face meetings. A high level of trust forms a critical factor for implementing a successful e-government program.
9. **Security and privacy controls:** As e-government services are introduced, so issues of security, privacy invasion and information integrity arise. Concerns related to on-line transaction security continue to be barrier for some. Confidence in information integrity and privacy depend on adequate data and network security as well as having controls in place to ensure that information can only be accessed or modified by those authorised to do so (Whatis.Com, 2005).
10. **Legislation and regularity compliance:** Legislation is another key challenge to successful e-government implementation. Without adequate legislation to guard against fraud, sabotage, and crimes associated with invasion of information systems and breaches of security and privacy, e-government cannot be trusted.

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## The Structure of the Book

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Interest in e-government, both in industry and in academies, has grown rapidly over the past decade, and continues to grow. The book is written by experts from academia and industry with a threefold aim. One is to examine the practices of e-government in developing and developed countries; the second is to present recent theoretical research in e-government;

while the third section is to provide a platform to benchmark the best practices in implementing e-government programs. The book will be of interest to both:

- Practitioners and managers involved in e-government functions
- Academics and researchers in the field of information systems, in general, and in e-government, in particular

This book comprises 19 chapters organised into three sections: theory and state-of-art, applications, and benchmarking. The following is a brief description of each section of the book and the chapters included in them.

## **Section I: E-Government: Theory and State-of-Art**

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This section features eight chapters which deal with both theoretical aspects and state-of-art e-government concepts. The theoretical chapters are directly based on problems and challenges facing the implementation of e-government initiatives. The case study aspects provided in this section point directly to the applicability criterion.

The first chapter in this section, Chapter I, “Semantic Web Mining for Personalised Public E-Services” by Konstantinos Markellos, Penelope Markellou, Angeliki Panayiotaki, and Athanasios Tsakalidis, explores the way semantic Web mining technologies can be incorporated into the public e-services domain in order to better meet citizens’ and authorities’ requirements. It describes the various steps of the personalisation process and examines various support techniques in use today. A recommendation scenario for an e-city portal is provided. Finally the chapter illustrates current trends in the field suggesting directions that may lead to new scientific results in the area.

Chapter II is authored by Elena Mugellini, Maria Chiara Pettenati, and Omar Abou Khaled, academics from three European universities. Entitled “Requirements Analysis and General Functional Model of Seamless, Citizen-Oriented Service Delivery,” the chapter outlines main requirements for the delivery of seamless services and presents a general functional model (e-government service marketplace) for the delivery of shared services to citizens at the transaction level (i.e., supporting a complete online handling of a service). The main functionalities of the e-government service marketplace are analysed in detail. Advantages, disadvantages, and the impact of this concept on the three fundamental axes — social, economic, and technical — are discussed as well. The chapter ends with some insights on future trends and open issues about seamless services delivery and enabling systems.

Chapter III, entitled “Automatic Governmental Cross-Agency Processes Using Web Service Orchestration: A Gap Analysis” by Jeffrey Gortmaker and Marijn Janssen, investigates the applicability of Web service orchestration for the automation of governmental cross-agency service delivery processes. Based on a case study using a specific computerised system known as BPEL4WS, the chapter shows a gap between the capabilities of Web service orchestration technology and the organisational arrangements needed for automating the processes. The chapter identifies three organisational issues that at least need to be addressed before governments can profit fully from the advantages of Web service orchestration technology:

(1) ensuring correct and in-time execution of business processes; (2) information sharing; and (3) responsibility and accountability.

Chapter IV features a state-of-art on the analysis of the role of government in e-business adoption with empirical evidence from Australia. The chapter, entitled “The Role of Government in E-Business Adoption” by Barbara Roberts and Mark Toleman, shows that government influence is multifaceted. Governments champion e-business adoption for national economic gain; they provide the physical network on which much of the e-business depends; and increasingly provide e-government services to improve regulation and compliance effectiveness. E-government in particular can act as a strong driver of organisational adoption for some types of e-business processes. The chapter discusses the external environmental factors implications and deals with perspectives of diffusion of innovation (DOI) theory and TAM related theories on the role of government in e-business adoption. The chapter hopes that further research by ICT professionals will guide future e-business project directions by improving the understanding of government’s role in e-business adoption in practice.

In the Information Age, citizen-government interaction through information and communication technologies (ICTs) such as e-mail, digital policy forums, and real-time digital chat already, have happened. Digital deliberation is one example for such interaction. Chapter V, “Digital Public Sphere: Rhetoric or Reality?” by Seung-Yong Rho, argues that the policies should be made by the will of citizens in democratic governance but current practice of digital deliberation did not support this assertion. Citizens’ unawareness of digital deliberation, citizens’ lack of active participation, and public officials’ less positive perspective on the digital deliberation make current digital deliberation unconstructive. The chapter concludes that citizens’ strong will of active digital deliberation is a key to the success of digital deliberation in the democratic governance. In addition, public officials’ positive view and strong support on the digital deliberation are important to make digital deliberation effective.

The central government in the United Kingdom is determined to employ new surveillance technology to combat the threat of terrorist activities. Chapter VI, entitled “Electronic Surveillance for the Public Good” by Liz Lee-Kelley and Ailsa Kolsaker, contributes to the current important debate on the relationship between citizens and the government, by discussing not whether electronic surveillance should be used, but rather, when it is acceptable to the populace. The chapter concludes that a reconciliation of state-interest and self-interest is critical for the success of e-governance; as such, electronic surveillance’s mission has to be about serving the law-abiding majority and their needs, and its scope and benefits must be clearly understood by the visionaries, implementers, and the citizenry.

Chapter VII, entitled “A Community Facilitation Model for E-Government: A Case Study in Monitoring Water Quality” by Kyle Murray and Cory A. Habulin, introduces a community facilitation model for e-government. The central tenet of this approach is the empowerment of a segment of the population to act, by providing the tools and information necessary to tackle issues that have been difficult to address with traditional approaches to government. Under this model, government provides an initial spark and then plays a supporting role in the growth of the community. By doing so, the costs of the program are minimised while the impact of the program is maximised. The chapter examines the viability of the model by looking at a case study in water quality monitoring. The case illustrates the power of a government facilitated community of action to address an important problem, and it suggests that such a model can be applied globally and may be relevant to government initiatives beyond water monitoring.



Chapter VIII, entitled “Healthcare Network Centric Operations: The Confluence of E-Health and E-Government,” is written by a consultant and an academic, Dag von Lubitz and Nilmini Wickramasinghe. The chapter proposes that in order for health care to reap the full benefits of the transition from the traditional pattern of operations to e-health, the implementation of the doctrine of health care network centric operations (HNCO) may become mandatory. Otherwise, millions if not billions of dollars will be spent on a futile chase of the definitions of how and when will the computer, health care provider, and health care administrator interact most efficiently and at the least expense. Drawing upon the strategies and techniques employed by the military to develop network centrality, the chapter outlines the essential components necessary for the establishment of the doctrine for HNCO, and highlights the integral role played by information, computer, and communication technologies (IC<sup>2</sup>T). The chapter underscores the pivotal role of health care network centric operations (HNCO) for policy makers and governments and points at the important yet rarely acknowledged confluence of e-health and e-government.

## **Section II. E-Government Applications**

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This section presents nine chapters dealing with application challenges of e-government initiatives and programs. The first three chapters speak about the e-government applications in three developing countries: Nigeria, Egypt, and Sri Lanka. The next two chapters present e-government applications in two fast transition countries: Korea and China. The last four chapters present the application of e-government programs in developed countries, including the UK, Spain, Norway, and Japan.

Developing countries in Africa are making efforts to harness the new technology. Chapter IX, entitled “Moving Towards E-Government in a Developing Society: Glimpses of the Problems, Progress, and Perspective in Nigeria” by Princely Ifinedo, reviews the problems, progress, and prospects of e-government in Nigeria, a Sub-Saharan African (SSA) country. The chapter highlights the lessons from Nigeria for comparable nations in the SSA region as they prepare for e-government and concludes that governments in the developing countries of SSA can benefit from e-government initiatives, as do their counterparts in advanced nations, when the concept of e-governments is understood, and concerted efforts are committed towards institutionalising it in the region.

Chapter X, entitled “E-Government Emerging Trends: Organizational Changes” by Inas Ezz, demonstrates the importance and challenges considering technology adoption in general and e-government adoption in particular in the context of a key strategic process for the Egyptian government. The chapter deals with the foreign finance process and clarifies that the Egyptian Cabinet Information and Decision Support Center (IDSC) plays a key role in providing support for this process. The chapter comprises qualitative findings resulting from interviews with the CEO of IDSC, Ministry of Economy middle managers and executives, and academics from the Faculty of Economics and Policy in Cairo University and the American University in Cairo. The chapter deals with the organisational challenges affecting the foreign financing process and concludes that inter and intraorganisational integration technologies in the form of G2G or some of the new trends such as g-government can help in resolving some of those organisational challenges.

The level of preparedness to adopt e-government initiatives and activities is referred to as e-readiness. Chapter XI, “Towards Measuring True E-Readiness of a Third-World Country:

A Case Study on Sri Lanka” by Reggie Davidrajuh, talks about measuring true e-readiness of Sri Lanka. This chapter assesses e-readiness of Sri Lanka using a measuring tool that utilises 52 socioeconomic indicators. Based on the assessment, the chapter reveals that the measurement does not indicate true e-readiness of the country, as the tool does not model or incorporate parameters for measuring the domestic digital divide that exists between communities or groups within the country. The chapter proposes a method for incorporating the domestic digital divide measures in e-readiness calculations.

Chapter XII, “An Evaluation of Digital Deliberative Democracy in Local Government” by Seung-Yong Rho, evaluates the current status of digital deliberation in the local governments of Seoul Metropolitan area in Korea. The chapter reviews literature on digital democracy and develops a Web site evaluation framework of digital deliberative democracy of four stages: information acquisition, communication and consultation, citizen participation, and public deliberation. The chapter uses the framework to evaluate the current practices in digital deliberative democracy of 25 administrative districts in the city of Seoul. The results show that a few administrative districts have performed good practices in digital deliberative democracy. Though it could be said that many administrative districts have performed good practices of information acquisition (1<sup>st</sup> stage of digital deliberative democracy), communication and consultation (2<sup>nd</sup> stage), and citizen participation (3<sup>rd</sup> stage), public deliberation (4<sup>th</sup> stage) is not fully performed in the Web sites of the administrative districts. Based on the results, this research explores some policy recommendations to improve digital deliberative democracy.

Chapter XIII, entitled “The Development of Urban E-Government in China” by Zi Lu, Jing Zhang, Bing Han, Zhuopeng Deng, and Jie Lu, assesses and recognises the development of urban e-government in China from two main aspects: functionality and complexity. Nine Web sites of urban governments in China at three levels were selected for assessment of functionality. Data from these Web sites that was needed for the study was tracked and recorded continuously for six weeks. The influence of e-government on urban modality and evolution are explored for complexity. The research shows that e-government has a leading role in the gathering and decentralisation of urban space, the organisation of material (people) flows, and the informal exchange in internal cities. The chapter states that the development of urban e-government in China is still at an early stage. It concludes that e-government enhances the control of urban material (people) flow.

Electronic delivery of government services (i.e., the National Health Service, Defence and Criminal Justice systems) becomes more commonplace in developing countries. Chapter XIV, entitled “Web Services in Government Policy: Case Study from UK National Health Service” by Mathew Guah, reports on a three years of research, which looks at the application of Web services into United Kingdom health care as a fulfillment of numerous semi and unsuccessful IT projects, that — fell short of delivering any tangible benefits. The chapter looks at the National Health Service’s current IS strategy — fully dependent on Web services application — with the criteria of successful implementation, return on investment, increased productivity, innovation, and user benefits.

Chapter XV, “Empirical Study of the Municipalities’ Motivations for Adopting Online Presence” by Susana de Juana-Espinosa, reveals the motivations for creating a Web page in local administrations, and thus determines the nature of those Web sites. A personal survey was addressed to the CIOs (chief information officers) of 65 city councils out of the 69 with Web sites in the province of Alicante (Spain), regarding their perceptions about the purpose of their Web pages. The results show that, although most councils confer a strategic orientation



to their Web pages, communication goals are more popular than internal efficiency concerns. Consequently, a general lack of commitment is found with local e-government strategies. The chapter concludes that understanding the implications of this duality may help other public organisations develop their modernisation strategies.

User involvement in e-government is the subject of Chapter XVI. Entitled “User Involvement in E-Government Development Projects” by Asbjørn Følstad, John Krogstie, Lars Risan, and Ingunn Moser, the chapter introduces two Norwegian case studies that exemplify user involvement practices. User involvement methods and practices are in particular discussed with regard to the challenges of the wide range of users and stakeholders, legal limitations, and evolving goal hierarchies of e-government projects. The chapter identifies future trends and research opportunities within the field of user involvement in e-government development.

Chapter XVII, entitled “Local E-Governments in Japan: IT Utilization Status and Directions” by Sadaya Kubo and Tatsumi Shimada, explains the actual state of digital readiness of the local governments in Japan, and describes the stages of achievement in digitalisation and the direction that should be taken. The items being analysed are the digitalisation of governmental administration, services to residents, and information security. In order to clarify the direction of digitalisation, the chapter proposes stages of progress of the digitalisation of the local governments.

### **Section III. E-Government: Benchmarking**

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This section presents two chapters that deal with issues related to benchmarking: the performance of e-government implementation and applicability of a general framework for both developed and developing countries.

The first chapter of this section, Chapter XVIII, “E-Government, Democratic Governance, and Integrative Prospects for Developing Countries: The Case for a Globally Federated Architecture” by Jeffrey Roy, provides a conceptual framework for understanding e-government and considers the relevance and applicability of the framework for both developed and developing nations. The chapter explores the interface between domestic and transnational governance reforms in an increasingly digital era and stresses that the world in the twenty-first century needs a globally federated governance architecture, the design of which must include social, economic, political, and technological considerations. This strengthened focus on transnational governance systems must also be joined by the recognition of the dysfunctional nature of the present system of bilateral international assistance programs among countries. With improved governance conditions of transparency and trust transnationally — facilitated in part by a much more politically creative and aggressive use of new technologies — the resources allocated by each country across its various recipients would serve both developing nations and the world as a whole if they were pooled and coordinated through new transnational mechanisms.

Chapter XIX, entitled “E-Government Concepts, Measures, and Best Practices” by Shin Young-Jin and Kim Seang-Tae, explains how international agencies measure e-government according to standards and performance. The chapter explores e-government projects that have been accepted and performed as national policies in several developing and developed countries. It compares e-government readiness of 15 countries over the years 2002-2005. The chapter shows that the U.S. always has the highest readiness index. Denmark which

ranked 9 in 2002 becomes the second ranked country in 2004 and 2005. The chapter also benchmarks the performance of top cities in digital governance in terms of privacy, usability, contents, service, and participation. The benchmark shows that Seoul ranks as the top city in digital performance followed by Hong Kong, with Singapore coming in third. New York is the fourth ranked city in digital performance despite the fact that the U.S. ranks first in e-government readiness.

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