Preface

This preface to the third book of the series entitled “Advances in E-Services and Mobile Applications series” provides an overview of the book and its structure and contextualizes the major theme of the book. As the title of the book “Mobile Opportunities and Applications for E-Service Innovations” indicates, the major overarching theme of the book is innovation and innovativeness.

In fact, the chapters of this book deal with the theme of innovation and innovativeness in different ways. Some chapters deal with behavioural innovativeness at individual level. Most of these chapters deal with the factors that influence the behavioural intention to use and accept e-technologies. Some of these chapters make use of the Technology Acceptance Model or the Unified Theory of Acceptance and Use of Technology model (UTAUT) in their investigations, thus confirming that TAM and its variations are still important and useful models to measure technology acceptance at individual level. However this also shows that there is a need for “innovative” theories and models in this field of research. Such studies focus mainly on the e-services and mobile services within the business context as in the case of Internet Phone Services in the chapter written by Junkun Park or mobile banking services in the chapter written by Selvan et al. The two chapters that have conducted an extensive literature review (Varnali in the field of mobile services and Islam and Scupola in the field of e-government services) also show that consumer behaviour and technology acceptance at individual level are recurrent themes in studies dealing with the business and e-government contexts.

However, e-services are important for innovation and innovativeness also at organizational and inter-organizational level. For example, the chapter written by Krasonikolakis et al. studies the concept of Store Atmosphere in Virtual Commerce (V-Commerce) and suggest that while the social aspect dimension of V-Commerce limits customization capabilities, it provides several innovative options for manipulating Store Atmosphere in terms of storefront, store theatrics, colours, music and graphics. In addition, the study conducted by Carrus and Pinna in the specific field of logistics service providers shows the importance of innovative IT capabilities for these types of companies in order to improve supply chain performance.

The role of interoperability is in general very important for innovation and innovativeness at organizational and inter-organizational level. This book sees Interoperability as key to e-technologies adoption and diffusion at organizational, inter-organizational and inter-country level, especially in the context of e-government. This is for example showed by the chapter written by Markaki et al. This chapter introduces the Interoperability Observatory, a structured research effort for measuring interoperability readiness in the regions of South Eastern Europe and the Mediterranean region in response to the lack of a standard framework for benchmarking interoperability developments at country level. The other two chapters of this book dealing with interoperability investigate the organizational characteristics that
might favour or not e-services acceptance and diffusion such as company policies (Walser and Riedl) and companies’ architectures (Sanchez-Nielsen et al). Overall these chapters provide also normative models and recommendations on how to go to address interoperability issues.

Finally the book includes a number of chapters that develop theoretical models, platforms and applications aiming at facilitating such e- and mobile technologies acceptance to innovate and improve e-services both in the business (e.g. Obermeier and Böttcher) and e-government contexts (e.g. Medeni et al.; Alaiz-Moreton et al.)

The next section describes in detail the structure and contents of the book.

THE CONTENTS OF THE BOOK

The book is structured into five sections. The first section includes six chapters focusing on the factors that impact consumers’ level innovativeness in a business context. Two mobile services are particularly analysed in this section: Internet Phone Services (VOIP) and mobile banking. The second section focuses on factors that might impact innovativeness at organizational and inter-organizational level. The third section discusses theoretical models that can be used to innovate e-services and mobile services, while the fourth section focuses on a specific issue: interoperability. Finally the book concludes with a section on applications for e- and mobile services innovation and innovativeness.

A strong emphasis of the book is on the specific geographical region of the Mediterranean Sea. This is due to the fact that several studies investigate problems and issues in the country of Greece or that are of relevance to other Mediterranean countries as well.

THE STRUCTURE OF THE BOOK

Section 1: Consumers and Innovativeness

The first section focuses on innovation and innovativeness for online services related to the consumer market. This section, having a special focus on the individual level, touches upon different issues of innovativeness and acceptance in relation to e-service and mobile services including trust, behavioural intention to use e-technologies as well as the effects of experience and satisfaction on the re-purchasing of e- and mobile services in the online environment. This section includes six chapters.

The first chapter, titled “Personality Traits and Consumer Behavior in the Mobile Context: A Critical Review and Research Agenda,” is written by Kaan Varnali, Istanbul Bilgi University, Turkey. The chapter claims that the research focusing on consumer behaviour in the mobile context is rapidly accumulating, while the role of personality traits in explaining and predicting users’ perceptions regarding mobile services and behaviour within the mobile context is still under-researched. The author argues that if consumers are considered as dispositional entities, the lack of research interest on the role of personality traits for the value creation process of mobile consumers should be better scrutinized and analysed. In the strive to provide guidance as to why and how to incorporate personality-based variables within prospective research models attempting to explain and predict consumer behaviour in the mobile context, this chapter critically assesses the-state-of-the-art and presents a conceptual discussion regarding related future research avenues.
The second chapter, entitled “The Role of Consumer Innovativeness and Trust for Adopting Internet Phone Services,” is written by Jungkun Park, University of Houston, USA. In this chapter the author examines the adoption of Internet phone service in Korea in order to develop a better understanding of consumers’ acceptance of such service in this country. The study takes its point of departure in the Unified Theory of Acceptance and Use of Technology model (UTAUT) and adds two new constructs to the model. Such constructs, consumer innovativeness and perceived trust, might help to gain a theoretical understanding of consumers’ acceptance of Internet phone service in Korea. The results of the study show indeed that trust in the technology and personal innovativeness are important factors in determining whether or not consumers will use Internet Phone Services. The study also shows that technology performance expectancy is a major factor affecting the trust that consumers have toward Internet phone services.

The third chapter, titled “Examining Behavioral Intention toward Mobile Services: An Empirical Investigation in Greece,” is authored by Theodora Zarmpou, Vaggelis Saprikis and Maro Vlachopoulou. This chapter first develops a conceptual model for examining the effects of a number of variables on the intention to use mobile services. The model is then empirically tested using data collected with a survey conducted in Greece. The chapter shows that key factors encouraging m-services’ adoption include individuals’ innovativeness, the educational level, and the relationship ties between the users and the mobile services in question. The authors argue that what distinguishes this study from previous studies applying multiple behavioral theories and developing conceptual models to identify the different influential factors for the mobile services’ usage is that this study adds a marketing perspective to previous investigations. This is specifically done by including a new significant influential factor in the model, called “relationship drivers”.

The fourth chapter, titled “Colored vs. Black Screens or How Color Can Favor Green e-Commerce,” is written by Jean-Eric Pelet, University of Nantes, France and Panagiota Papadopoulou, University of Athens, Greece. This chapter presents the results of an exploratory study investigating the use of computer screen savers among consumers. The study conducted 26 interviews in order to get empirical insights into the use of computer screen savers among consumers. The results show that the use of screen savers is almost nonexistent. This feature, unknown or taking too long to apply, is not attractive to the persons interviewed who do not use it for sustainable development purposes. The chapter, after presenting the results of the qualitative study, offers an interpretive analysis and discussion of the reasons and factors that explain this type of computer user’s behavior. The chapter additionally discusses the potential of using screensaver functionalities in e-commerce websites, particularly in the Mediterranean region. In this direction, the study provides insights into how this could be done through the establishment of two elements - a browser and a website extension. These functionalities are subjects for further research and that can be tested in future online experiments.

The fifth chapter, titled “Identifying the Direct Effect of Experience and the Moderating Effect of Satisfaction in the Greek Online Market,” is written by Michail N. Giannakos, Adamantia G. Pateli, and Ilias O. Pappas, all working at the Ionian University in Greece. The scope of this chapter is to examine the perceptions which induce the Greek consumers to purchase over the Internet, by testing the direct effect of experience and the moderating effect of satisfaction. The authors state that a review of research conducted in the Greek online market demonstrates that satisfaction, self-efficacy, and trust have a prominent role in explaining the Greek customers’ shopping behaviour. To increase understanding of this behaviour, the authors include two parameters of the UTAUT model, performance expectancy and effort expectancy into their study. The findings demonstrate that customers’ perceptions about
the investigated parameters do not remain constant, but are a function of the experience accumulated through past purchases. Similarly, the relationship between experience and self-efficacy and intention to repurchase changes, as satisfaction gained from previous purchases increases. The authors expect that the implications of this study are interesting not only for the Greek market but also for the other Mediterranean researchers and e-retailers, since the Mediterranean e-business market shares several cultural similarities with the Greek market.

The sixth chapter, titled, “Behavioral Intention Towards Mobile Banking in India: The Case of State Bank of India (SBI),” is written by N. Thamarai Selvan and B. Senthil Arasu, both at the National Institute of Technology, India and M. Sivagnanasundaram, Kirloskar Institute of Advanced Management Studies, India. The background of the chapter is that the rapid growth of mobile technologies and devices makes it possible for the customers of banking services to conduct banking at any place and at any time. Today, most of the banks in the world provide mobile access to its customers for banking services provisions. One motivation for banks to do this is that mobile banking systems improve banks’ efficiency and reduce transaction costs. Banks have invested heavily in the mobile banking systems hoping that their customers would adopt it straight away and without problems. However, contrary to expectations, this has not been all that easy. Therefore, the authors argue for the need to understand the factors that affect users’ intention to use mobile banking. The study presented in this chapter makes such an attempt in the Indian mobile banking context. It extends the applicability of the technology acceptance model (TAM) to mobile banking. Based on an extensive review of literature, few additional constructs were added to the TAM model to take into account the case of mobile banking. Structural equation modeling (SEM) was used to test the casual relationships proposed in the modified model. Finally the findings of the study support the proposed model’s ability of explaining the users’ intention to adopt mobile banking in an Indian context.

Section 2: Organizational and Inter-Organizational Issues in the Online Environment

This section focuses on factors related to innovativeness and innovation in an organizational as well as inter-organizational level and includes two chapters.


This chapter studies the concept of Store Atmosphere in Virtual Commerce (V-Commerce) through the Web in order to empirically define its determinants and investigate their applicability and customization capabilities. The study employees a series of in depth interviews with field experts along with an online questionnaire survey as the data collection mechanisms. The empirical findings suggest that while the social aspect dimension of V-Commerce limits customization capabilities, it provides several innovative options for manipulating Store Atmosphere. Additionally, the results indicate that Store Atmosphere attributes can be grouped in three factors with high average scores concerning the importance users attach to them. Specifically, storefront, store theatrics, colours, music and graphics are grouped in Factor #1 and reflect the “Store’s Appeal”. Crowding, product display techniques and innovative store atmosphere services are grouped in Factor #2 labelled “Innovative Atmosphere”, while store layout constitutes the only attribute included in Factor #3. To conclude the chapter outlines the theoretical and managerial implications of these research results.
The last chapter of the section, titled “Information Technology and Supply Chain Management Coordination: The Role of Third Party Logistics Providers,” is written by Pier Paolo Carrus and Roberta Pinna, University of Cagliari, Italy. The chapter argues that Logistics Service Providers (3PL) have become important players in supply chain management and that in a highly competitive context characterized by “time compression”, a successful strategy depends increasingly on the performance of Logistics Service Providers as they play a key integrative role linking different supply chain elements more effectively. However, the role of the information technology capability of these 3PL has not drawn much attention, therefore the study investigates whether IT can be viewed as a fundamental supply chain management coordination mechanism and if so how may the IT capability of third party logistics providers improve performance in the supply chain and become a bigger factor in a strategic buyer-3PL relationship. By drawing on earlier research on the supply chain management coordination mechanism, the study conceptualizes the IT capability of third party logistics providers and conducts a case study to illustrate the theory.

Section 3: Models for Innovative E-Government Services

This section provides an overview of the state of the art of e-services within the e-government domain, highlighting the major factors dealing with innovation and innovativeness within this field as well as presents some theoretical models that could be used for innovation in the field of e-government.

The first chapter of the section, titled “E-Service Research Trends in the Domain of E-Government: A Contemporary Study,” is written by M. Sirajul Islam, Örebro University, Sweden and Ada Scupola, Roskilde University, Denmark. The chapter’s background is that government ‘e-service’ as a subfield of the e-government domain has been gaining attention to practitioners and academicians alike due to the growing use of information and communication technologies at the individual, organizational, and societal levels. This chapter conducts a thorough literature review to examine the e-service research trends during the period between 2005 and 2009 mostly in terms of research methods, theoretical models, and frameworks employed as well as type of research questions. The results show that there has been a good amount of studies focusing on ‘e-Service’ within the field of e-government with a good combination of research methods and theories. In particular, the findings show that technology acceptance, evaluation and system architecture are the most common lenses used to investigate innovation and innovativeness, with circa half of the studies surveyed focusing on the organizational level. From a research method perspective, the study shows that the most employed research methods are case studies and surveys, often with a mix of both types of methodologies.

The second chapter, titled “Proposing a Knowledge Amphora Model for Transition Towards Mobile Government,” is written by Tunc D. Medeni, Tolga Medeni, Asim Balci, from Turkstat, Turkey. The authors explain that the e-Government Gateway in Turkey focuses on the delivery of public services via a single portal on the Internet. The e-Government Gateway is an important project for Turkey to achieve Information/Knowledge Society Strategic Goals. The project has the goals, in later stages, of using other channels such as mobile devices to provide a transition towards mobile and ubiquitous government services. In order to provide a supportive base for this transition, the authors of the chapter develop a modeling of knowledge amphora (@), and link this conceptual model with the e-government gateway. Based on Knowledge Science concepts such as ubiquity, ba (physical, virtual, mental place for relationship-building and knowledge-creation), ma (time-space in-between-ness), reflection and refraction, the modeling of Knowledge Amphora incorporates the interactions @ the Internet and mobile
devices that contribute to cross-cultural information transfer and knowledge creation. The chapter presents recent electronic and mobile government developments of E-Government Gateway Project in Turkey as an application example of this philosophical and theoretical modeling. The Ubiquitous Participation Platform for Policy Making (UbiPOL) project developed in the chapter aims to develop a ubiquitous platform allowing citizens to be involved in policy making processes (PMPs). The resulting work is the illustration of a practical case study of how that develops new m-government operations.

The third and last chapter of this section, titled “Technical Audit of an Electronic Polling Station: A Case Study,” is written by Hector Alaiz-Moreton, Luis Panizo-Alonso, Ramón A. Fernandez-Diaz, And Javier Alfonso-Cendon, Universidad de Leon, Spain. This chapter shows the lack of standard procedures to audit e-voting systems and describes a practical process of auditing an e-voting experience based on a Direct-recording Electronic system (D.R.E). This system has been tested in a real situation, the city council of Coahuila, Mexico, in November 2008. During the auditing, several things were kept in mind, in particular those critical in complex contexts, as democratic election processes are. The auditing process is divided into three main complementary stages: analysis of voting protocols, analysis of polling station hardware elements, and analysis of the software involved. Each stage contains several items which have to be analysed at low level with the aim to detect and resolve possible security problems.

Section 4: Interoperability in E-Government and E-Business

The focus of this section is on interoperability issues in the field of e-government and e-business as essential to innovation and innovativeness at organization, inter-organizational and inter-country level.

The first chapter, titled “Measuring Interoperability Readiness in South Eastern Europe and the Mediterranean: The Interoperability Observatory,” is written by Ourania Markaki, National Technical University of Athens, Greece Yannis Charalabidis, University of the Aegean, Greece and Dimitris Askounis, National Technical University of Athens, Greece. This chapter introduces the Interoperability Observatory, a structured research effort for measuring interoperability readiness in the regions of South Eastern Europe and the Mediterranean, supported by the Greek Interoperability Centre. The authors argue that the motivation for this effort derives from the fact that, although interoperability is a key element for public administration and enterprises effective operation, and an important enabler for cross-country cooperation, a standard framework for benchmarking interoperability developments at country level is currently not in place. Interoperability-related information is highly fragmented in different ICT, e-Government and e-Business reports. In this context, the Interoperability Observatory attempts to provide the foundation for a structured collection of metrics and indicators, associated with the dimension of interoperability-governance, and a mechanism for gathering suitable information for a number of countries from various sources. The ultimate goal is the use of this information towards the directions of raising awareness on the countries’ interoperability status, promoting best practice cases and benchmarking.

The second chapter of this section, titled “Policy Cycle-Based E-Government Architecture for Policy-Making Organizations of Public Administrations,” is written by Konrad Walser and Reinhard Riedl, both at Bern University of Applied Sciences, Switzerland. The chapter outlines a business and application architecture for policy-making organizations in public administrations. The focus of the study is on the derivation of processes and their IT support on the basis of the policy-cycle concept. The derivation of various (modular) process areas allows for the discussion of generic application support in order to achieve the modular structure of e-government architectures for policy-making organizations of public
administrations, as opposed to architectures for operational administration processes by administrations. In addition, the chapter identifies further issues and spheres of interest to be addressed in the field of architecture management for policy-making organizations of public administrations. Different architecture variants are evaluated in the context of a potential application of the architecture design for policy-making organizations. This raises questions such as how the issue of interoperability between information systems of independent national, state, and municipal administrations is to be tackled. Further research is needed to establish, for example, the level of enterprise architecture and the depth to which integration in this area must or may extend.

The last chapter of the section, titled “Architectural Guidelines and Practical Experiences in the Realization of E-Gov Employment Services,” is written by Elena Sánchez-Nielsen and Daniel González-Morales, Universidad de La Laguna, Spain and Carlos Peña-Dorta, ARTE Consultores Tecnológicos, Spain. The chapter takes its starting point in the fact that today’s Public Administration faces a growing need to share information and collaborate with other agencies and organizations in order to meet their objectives. As agencies and organizations are gradually transforming into “networked organizations,” the interoperability problem becomes the main challenge to make possible the vision of seamless interactions across organizational boundaries. Today, diverse architectural engineering guidelines are used to support interoperability at different levels of abstraction. This chapter reviews the main guidelines’ categories which support aspects of architecture practice in order to develop interoperable software services among networked organizations. The chapter describes the architectural guidelines and practical experiences in the domain of e-Gov employment services for the European Union member state Spain. Finally the authors illustrate the benefits of the proposed solution and the lessons learned.

**Section 5: Applications for Innovation in E-Business and E-Government**

The last section of this book has the purpose of providing examples of platforms and applications that can be used to make organizations, public and private, more innovative.

The first chapter of this section, titled “The WA VE Platform: Utilizing Argument Visualisation, Social Networking and Web 2.0 Technologies for eParticipation,” is written by Deirdre Lee, DERI, National University of Ireland Galway (NUI Galway), Ireland, Yojana Priya Menda and Vassilios Peristeras, National University of Ireland, Ireland, and David Price, ThoughtGraph Ltd., UK. The chapter takes the starting point in the fact that the growth of Information and Communication Technologies (ICTs) offers governments advanced methods for providing services and governing their constituency. eGovernment research aims to provide the models, technologies, and tools for more effective and efficient public administration systems as well as more participatory decision processes. In particular, eParticipation opens up greater opportunities for consultation and dialogue between government and citizens. Many governments have embraced eParticipation by setting up websites that allow citizens to contribute and have their say on particular issues. Although these sites make use of some of the latest ICT and Web 2.0 technologies, the uptake and sustained usage by citizens is still relatively low. Additionally, when users do participate, there is the issue of how the numerous contributions can be effectively processed and analysed, to avoid the inevitable information overload created by thousands of unstructured comments. In this context, the authors propose the WA VE platform to address what the authors see as the main barriers to the uptake of eParticipation websites by adopting a holistic and sustained approach of engaging users to participate in public debates. The WA VE platform incorporates argument visualisation,
social networking, and Web 2.0 techniques to facilitate users participating in structured visual debates in a community environment.

The second chapter of this section, titled “Protecting a Distributed Voting Schema for Anonymous and Secure Voting against Attacks of Malicious Partners,” is written by Sebastian Obermeier, ABB Corporate Research, Switzerland and Stefan Böttcher, Universität Paderborn, Germany. In the chapter a distributed protocol is presented for anonymous and secure voting that is failure-tolerant with respect to malicious behaviour of individual participants and that does not rely on a trusted third party. The proposed voting protocol was designed to be executed on a fixed group of N known participants, each of them casting one vote that may be a vote for abstention. Several attack vectors on the protocol are presented, and the detection of malicious behaviour like spying, suppressing, inventing, and modifying protocol messages or votes by the protocol is shown. If some participants stop the protocol, a fair information exchange is achieved in the sense that either all votes are guaranteed to be valid and accessible to all participants, or malicious behaviour has been detected and the protocol is stopped, but the votes are not disclosed.

The third chapter of this section, titled “Applications of Intelligent Agents in Hospital Search and Appointment System,” is written by Tyrone Edwards, University of Technology, Jamaica and Suresh Sankaranarayanan, University of West Indies, Jamaica. The authors claim that the health sector is an important sector within the e-government domain. Access to the correct healthcare facility is a major concern for most people, many of whom gather information about the existing hospitals and healthcare facilities in their locality. After gathering such information, people must do a comparison of the information, make a selection, and then make an appointment with the doctor. The time spent for this purpose would be a major constraint for many individuals. Research is currently underway in this area on incorporating Information and Communication Technology (ICT) to improve the services available in the health industry. This chapter proposes an agent based approach to replicate the same search operations as the individual would otherwise do, by employing an intelligent agent. The proposed agent based system has been simulated and also validated through implementation on an individual’s smart phone or a PDA using JADE-LEAP agent development kit.

The last chapter of this section, titled “Intelligent Store Agent for Mobile Shopping,” is written by Ryan Anthony Brown and Suresh Sankaranarayanan, University of West Indies, Jamaica. The chapter deals with the business context and argues that the conventional shopping process involves a human being visiting a designated store and perusing first the items available. A purchase decision is then made based on the information so gathered. However, a number of unique challenges would be faced if potential customer had to execute this process using a mobile device, such as a mobile phone. Taking this aspect into consideration, the authors propose the use of an Intelligent Agent for performing the Mobile Shopping on behalf of customers. In this situation, the agents gather information about the products through the use of ‘Store Coordinator Agents’ and then use them for comparing the products with the user preferences. The agent based system proposed in the chapter is composed of two agents, viz., a User Agent and Store Coordinator Agent. The implementation of the scheme proposed in the chapter has been done using JADE-LEAP development kit and the performance results are measured and discussed in the chapter.

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