

## Book Review

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### **Interoperability in Digital Public Services and Administration: Bridging E-Government and E-Business**, Yannis Charalabidis, Editor

This nineteen-chapter resource focuses mainly on interoperability efforts throughout Europe, with some exceptions including one chapter focused on Thailand and some chapters that survey various best practices throughout the world. The focus of the book reflects the increasing emphasis placed on enterprise interoperability by the European Union since 2005. Globalisation is making interoperability increasingly important, prompting many researchers to study its multiple facets including processes, data and technical standardisation. The book begins with not only a preface, but with three forewords which examine the issues from the policy, industry and research viewpoints. This is an extremely useful aspect of the book since it highlights the connections between the contributions, and missing important connections is often a problem when reading a compendium of research from different authors with different perspectives.

Section 1 contains chapters addressing interoperability guidelines, frameworks and standards. The first chapter provides a survey of standards, platforms and initiatives throughout the world. This is followed by specific case studies from the Netherlands in Chapter 2, where e-invoicing and customs reporting have been successfully implemented, and from Thailand in Chapter 3 where an electronic official correspondence exchange system has been implemented across agencies. Chapter 4 looks at the status of the Lithuanian interoperability framework and puts this in context with the rest of Europe.

The next set of chapters in Section 1 focus on specific applications that lack interoperability, but which would benefit from it. Thus in Chapter 5 the authors discuss finding and sharing information resources which could make all government entities better informed and efficient, but which are currently plagued by interoperability issues. Chapter 6 presents requirements for e-participation, an increasingly useful form of e-government for acquiring citizen input and support.

Section 2, the largest section, discusses infrastructure and services. Chapter 7 presents infrastructure requirements in the context of a system designed to support electronic VAT statement transactions. Chapter 8 focuses on the European Commission's Semantic Interoperability Centre, which is a pan-European attempt to deal with the semantics issues that plague data exchange still, in these early but promising stages. In Chapter 9, a prototype of a reference architecture that integrates processes using process orchestration and web services is examined. The 'service provider' perspective is given in Chapter 10, which describes the architecture and requirements for points of single contact to enable easier connectivity of public administrations to the service provider infrastructure. This chapter also discusses security services for keeping data and documents secure and private, and identity management issues.

Chapter 11 examines Web 2.0 services as provided in support of eGovernment portals, and reports on a study which shows that portals interoperable with geographic information systems are more attractive to users since they are often capable of providing a personalised location-based experience. Also important is the degree to which such portals allow interactivity. One problem with interoperability in the provision of citizen services is the fact that different government organisations store data about the people they serve in separate locations. Chapter 12 makes the case for common directories (termed 'core directories'),

assessing the interoperability issues associated with building and deploying the required infrastructure. The importance of core directories for application areas such as Social Services information management is demonstrated in Chapter 14, in a case study drawn from Finland.

Section 3 is research oriented. In Chapter 15, the semantic annotation of business documents is considered to aid cross border co-operation between European chambers of commerce. Although such work has multiple applications, it is applied to e-government interoperability in this case. Chapter 16 covers knowledge management.

Chapters 17 and 18 are distinct from the other chapters in that they examine the business aspects of deploying interoperable infrastructure and services. In Chapter 17, the author takes a critical look at how the benefits of interoperability can be measured in order to help governments justify the costs of their interoperability initiatives. In Chapter 18, the question arises as to how to make interoperability a higher priority for both governments and enterprises, and the chapter proposes implementation of an enterprise interface to facilitate use by enterprises.

Chapter 19, co-written by the editor with two other collaborators, sets the stage for a growing interdisciplinary research agenda drawing on the rich background of interoperability research from the last 30 years. The chapter discusses the four main facets of interoperability – technical, semantic, organisational and enterprise, and the authors define interoperability science as having four levels of concern – semantics, models, tools, and orchestration, and then sketch a plan consisting of three ‘waves’ of research. The first wave, establishing the foundational principles and concepts, is well underway. The second wave consists of stabilising models and tools, creating solutions and assessing impacts. This wave has just started. The third wave is anticipated to bring industrial-quality solutions implemented throughout broad communities, demonstrating and substantiating interoperability’s value.

Overall, this volume is an accessible text that provides easy reference to policy and standards being developed, and research being conducted, in e-government interoperability. Most of the authors are well known hands-on practitioners and researchers in the domain. Great care has been taken by the editor to organise, edit and introduce the material to support its contribution to the text. When reading a book like this which stitches together independently developed chapters, it is typical to wish for clearer and stronger interconnections between the chapters. Here the job has been done well. Perhaps a more cohesive text could have resulted from a clearer ‘vision’ for each chapter being established before contributions were solicited, and with explicit integration of the resulting material. This certainly could help with readability. However, such an approach would also have narrowed the breadth and scope of what is, as it now stands, a valuable publication.

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