Digital Object Identifier 10.1109/TETC.2021.3077158

Guest Editorial: Special Section on eGovernment Research, Management and Innovation (SIEGRMI)

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An information and knowledge society creates value by gathering, processing, evaluating, and sharing digital products and services. However, no citizens can be left behind in introducing Web-based technologies to the ad- ministration, creating a digital divide. Representatives of the governments, international organizations, and universities should develop a vision for eGovernment, management, and innovation.

The term eGovernment covers information and communication processes between governmental institutions, pri- vate companies, and citizens. Besides, its focus should be on developing electronic services for taxation, social security, health care, enrollment in education, and job search, among others. Governmental institutions offer their electronic ser- vices not only to citizens but also to companies and orga- nizations. Also, the government uses Internet technologies to unify and improve the processes within its respective organizations.

The Special Section on eGovernment Research, Management and Innovation (SIEGRMI) is a peer-reviewed special section of *IEEE Transactions on Emerging Topics in Computing*. It covers technical aspects of eSociety, eGovernance, ePartic- ipation, eDemocracy, eGovernment, and eHealth. The main objectives of SIEGRMI are as follows: first, to generate and disseminate knowledge in eGovernment, applied in the academic sector, government, and industry worldwide; and second, to discuss the regions' transition to an information and knowledge society that will accelerate and enhance regional economic, social, cultural, and technological development and exchange.

SIEGRMI addresses the main issues of public administration with an academic and practical perspective. In this Special Section, six papers were published and are briefly described below.

The first paper, entitled "Open data categorization based on formal concept analysis" by Frtunić *et al.*, discusses data categorization and introduces a so-called EODClassifier framework. The framework relies on formal concept analysis to produce a data structure to reveal shared con- ceptualization starting from tags as a knowledge base to categorize open datasets.

The second paper, entitled "An Empirical Investigation of the Relationship between Local Government Budgets, IT Expenditures and Cyber Losses," by Kesan and Zhang. In this work, the authors conduct an empirical approach to investigate the cyber risk in the public sector. It shows the most common cyber threats targeting local governments and builds linear models to illustrate the relationships among cyber losses, local government budgets, and IT ex- penditures. The authors' fundings propose that investing in information technology becomes more effective in de- creasing the loss-to-budget ratio. On the other hand, local governments with small budgets do not benefit from this change as much as the large ones do.

The third paper, entitled "The e-LocGov Model for In- troducing e-Governance into Local Governments: an Esto- nian Case Study" by Pappel *et al.* In this work, authors detail the results of an ongoing, long-term, large-scale, cross-organizational, and canonical action research project in Estonia from 2003. The project develops a reusable model defined as e-LocGov to introduce e-governance into local governments systematically. The e-LocGov model consists of primary building blocks, each of which meets with a significant challenge in introducing e-Governance. The au- thors provide a comprehensive explanation of the e-LocGov model, report on the research methodology and the project's theoretical background.

The fourth paper, entitled "Polynomial Vault: A secure and robust fingerprint-based authentication" by Sadaf Ali *et al.* In this work, the authors present a technique, the so-called Polynomial Vault, to secure a fingerprint-based system. The fingerprint features and a unique user key- set to generate a secure template for a user by using a non-invertible transformation. If a user template is compro- mised, the proposed technique provides a way to construct a new template by changing the user key-set values. A thorough experimental analysis was conducted in different databases to demonstrate the efficiency and robustness of the proposed technique.

The fifth paper, entitled "Iterated Watersheds, A Connected Variation of K-Means for Clustering GIS Data" by Soor *et al.,* proposes a novel algorithm to solve the clustering problem with an additional constraint of connectivity. A modified K-Means algorithm accomplishes this objective to incorporate connectivity constraints. The modified algorithm includes repeated application of watershed transform

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and hence referred to as iterated watersheds. To illustrate the applicability of iterated watersheds, a simple problem of placing emergency stations and the suitable cost function is considered. Lastly, and using real-world road networks of various cities, iterated watersheds are compared with K-Means and greedy K-center methods.

Finally, the sixth paper entitled "Public Service Models: a systematic literature review and synthesis" by Gerontas *et al.* This work aims to identify and analyze in a systematic way existing public service models and compare them with core public service vocabulary-application profiles. This article concludes that the core public service vocabulary- application profile is comprehensive but can be further enriched with concepts from other public service models. Besides, the authors also provide evidence that the pro- posed enriched core public service vocabulary-application profile better supports the European Union policies. Finally, this work presents a proof-of-concept pilot of the enriched model using linked data to demonstrate its technical feasi- bility and added value.

The accepted articles published within *IEEE Transactions on Emerging Topics in Computing* in this special section strive to stimulate administrations and politicians by applying information and communication technologies for the public sector.

We want to thank the authors and the reviewers for their outstanding contributions to this special section. Special thanks go to the editor-in-chief, Prof. Paolo Montuschi, for letting us serve as guest editors. Additionally, we would like to thank the administrative team of *IEEE Transactions on Emerging Topics in Computing* for their guidance and support offered throughout the editorial process.

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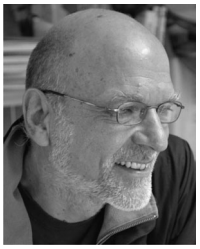

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