

THE APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS IN DISASTER AND EMERGENCY MANAGEMENT IN EUROPE

Attila J. Hertelendy^{1,2} , Krzysztof Goniewicz³ , Amir Khorram-Manesh^{4,5} 

¹Department of Information Systems and Business Analytics, College of Business, Florida International University, Miami, FL, USA

²Department of Emergency Medicine, Beth Israel Deaconess Medical Center, Disaster Medicine Fellowship, Boston, MA, USA

³Department of Aviation Security, Military University of Aviation, Deblin, Poland

⁴Institute of Clinical Sciences, Department of Surgery, Sahlgrenska Academy, Gothenburg University, Gothenburg, Sweden

⁵Research Advisor, Department of Development and Research, Armed Forces Center for Defense Medicine, Gothenburg, Sweden

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Today, the effectiveness of public administration depends on the speed of collecting, processing, and providing information. This effectiveness translates into public satisfaction, which is important for maintaining power in democratic countries. What is more, European society, following the example of developed societies from Asia and USA, demands a constant increase in the level of security in practically every area of life [1]. This task, under the will of the majority of voters, is shifted to the governmental and local governmental authorities, which in Europe results from two factors. First, the public sector can accumulate human, financial, logistic, etc. resources on a scale inaccessible to residents, communities, or private sector entities. Secondly, public institutions have the right to apply coercion in specific situations.

The unique powers of the government or local government, granted indirectly by the constitution or directly by statute, may result in the limitation of civil liberties. The social system, structured in this way, requires public entities to also take responsibility for crisis management, and for neutralizing security threats [2]. In the age of computerization and social demands, preparedness for disasters must be increasingly based on real-time accurate information in which geographical information systems (GIS) play an increasingly important role.

Government entities need to collaborate with private industry partners to create a compatible

and interoperable infrastructure to support meta-data-described spatial data sets, services, processes and procedures and the technical support to utilize spatial information in disaster and emergency settings.

Advances in computer engineering and the development of GIS enable the synthesis of multiple data sources to provide digital visualization and sophisticated simulation simulations to aid in disaster and crisis preparedness and response [3–5].

Computerization and development of GIS enabled the digital visualization of space for interactive analysis of multiple data in the form of models or simulations [3, 4]. On the other hand, computerization of the environment has become a source of new threats for the state, society and the individuals themselves, especially in the area of personal data protection. However, technical and technological progress seems nowadays to be indispensable, due to the possibilities it provides, for example, in the area of geoinformation.

GIS has fundamentally impacted the effectiveness of the public sector response to crisis and disaster preparedness in Europe. For the past few decades, the advantages of GIS have contributed to an increased sense of security for European citizens. During the COVID-19 response, governments have relied on visual data provided by GIS to make critical decisions. Further integration across the

ADDRESS FOR CORRESPONDENCE:

Krzysztof Goniewicz, Department of Aviation Security, Military University of Aviation, Deblin, Poland
e-mail: k.goniewicz@law.mil.pl

European continent of GIS will require a significant capital investment. Government policy makers should consider high level standardization that addresses privacy and security concerns while providing real time accurate data that is accessible on mobile platforms. COVID-19 is an example of why accurate, real time data provided by GIS is an essential tool used to manage a public health crisis. In a pandemic and other disasters speed in which data can be collected, analyzed and disseminated across a standardized information-sharing platform is of paramount concern for planners, responders and hospital emergency department who will ultimately be treating patients.

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