Geoskills Among Academic Librarians in Greece, Cyprus and Spain

Ifigenia Vardakosta [a,b,*], Estefanía Aguilar-Moreno [c], Carlos Granell-Canut [d], Sarantos Kapidakis [b]

[a] Harokopio University, Library and Information Centre, El. Venizelou 70, 17671 Kallithea, Greece
[b] Laboratory on Digital Libraries and Electronic Publishing, Department of Archive, Library and Museum Sciences, Faculty of Information Science and Informatics, Ionian University, Ioannou Theotoki 72, Corfu 49100, Greece
[c] Institute of New Imaging Technologies (INIT), Espaitec 2, 5th floor, Office UB-1518, Universitat Jaume I, E-12006 Castellón de la Plana, Spain
[d] Institute of New Imaging Technologies (INIT), Espaitec 2, 5th floor, Office UB-1520, Universitat Jaume I, E-12006, Castellón, de la Plana, Spain

ARTICLE INFO

ABSTRACT

Existing literature on Geographic Information (GI) and libraries points out that American and Canadian librarians have long been aware of the intimate relationship between geospatial data and libraries. In Europe, though, there is almost no literature to this regard, and academic libraries that offer GI services are the exception. Despite the fact that European and National institutions are putting lots of efforts forward for making open data freely available to society, and for supporting full programs to generate business out of it, this paper examines why libraries and librarians are not perceived as key players in the (geo) data-driven economy. Starting with a survey addressed to academic librarians (in three European countries: Greece, Cyprus and Spain) about their GI knowledge and skills, the paper attempts to shed some light on the librarians' perception about their role in GI management, and to identify to what extent they are ready for providing GI services to their communities. The ultimate goal of this paper is to serve as a triggering factor to wake up European academic libraries, Librarianship programmers and librarians themselves, to encourage them to look for opportunities in geospatial data management.

© 2016 Elsevier Inc. All rights reserved.

INTRODUCTION

Data is increasingly turning into a valuable asset across economic sectors, widely recognized by international organizations like the European Commission (EC) that recently outlined a strategy to accelerate the transition towards a data-driven economy in Europe (COM, 2014 442 final). Opening up public data is central to such strategy. In the 2014 "Guidelines on recommended standard licenses, datasets and charging for the reuse of documents" (OJEU C/240-1), the EC prioritized datasets from the public sector information (PSI) (Directive 2003/98/EC) that must be openly available to support a data-driven economy was reported. Geospatial data was the top category because of its special relevance in the context of economic growth (COM (2011) 882 final), (COM, 2014 442 final) and transparency initiatives. Despite being left out of the "geospatial data" category, the next listed categories – earth observation and environment, and transport – cannot be fully understood without a spatial dimension.

The above guidelines report and EC communications suggest that geospatial data undoubtedly play an important role in the economy and public sector. To put it simply, everything that happens somewhere has a footprint and a location. Geospatial data is so pervasive because of a conglomeration of factors:

- the easiness of generation of geospatial data with the help of ubiquitous technology (smartphones, sensors, etc.) provokes
- an increase in the number of individuals (government, education, private sector, and society at large), out of the strict researchers' community and experts, dealing with and benefiting from data (Sui, 2014); which in turn leads to
- a full range of uses across many disciplines, from Sciences to Humanities (Blaschke & Merschdorf, 2014).

As Clemons (2015) argues "the management of geospatial data sets is increasing in importance because of the proliferation of available data". This fact should make us reflect on the importance of geospatial data by itself, as a critical category of data within open data. When it comes to public-funded research data, not only journal articles and papers – as direct output generated by research processes – should be managed and uploaded into open access repositories, but other outputs being generated during the course of research projects such as informal documentation and data sets, among other resources, need proper preservation and curation (Ride the wave, 2010). This is also prioritized by the strategic policy for the European Research Area (ERA) (COM, 2012 392 Final) highlighting on the one hand, more effective national research systems, and on the other hand, the need for optimal circulation,

* Corresponding author at: Harokopio University, Library and Information Centre, El. Venizelou 70, 176-71 Kallithea, Athens, Greece. Tel.: +30 2109549170.
E-mail addresses: ifigenia@hua.gr, ifigenia@ionio.gr (I. Vardakosta), eaguilar@uji.es (E. Aguilar-Moreno), carlos.granell@uji.es (C. Granell-Canut), sarantos@ionio.gr (S. Kapidakis).

access and transfer of scientific knowledge. Better management of geospatial data from academic institutions could directly contribute to the ERA priorities and consequently impact the improvement of research infrastructures and the re-use of information (Steinhart, 2006).

In this context, universities and academic institutions are beginning to look at Research Data Management (RDM) as a key factor for developing an open access strategy that catalyzes Science and Innovation. However, geospatial data – as part of the open data movement and research data – has not yet been considered individually. There is an urgent need to specifically treat geospatial data as a specific category of datasets by its own, given:

- its paramount importance as an economic booster (Carpenter & Snell, 2013),
- its social importance and wide diffusion (Craglia & Shanley, 2015),
- its particular role in being a common substrate in research data coming from many diverse scientific disciplines (Schade, Granell, & Perego, 2015, p. 271–293), and
- its particular characteristics (Lemmens et al., 2006).

Despite the aforementioned efforts and initiatives being made towards an economic model based on the access, exploitation and reuse of (geospatial) open data, there are still critical barriers that deserve a further look. Through the exploration of the librarian community in three Mediterranean countries (Cyprus, Greece and Spain), this paper aims to reveal to what extent academic librarians support geospatial data management activities and whether they are ready to offer geographical information services to patrons.

THE ROLE OF LIBRARIES IN GEOGRAPHICAL DATA MANAGEMENT

A common claim is that "somebody else" has to provide the ground level support and to "engage and thrive in the messy and ambiguous" (Jaguszewski & Williams, 2013, p. 14) panorama of data management. This situation is getting worse in the European context where geospatial data management lacks a clear professional profile to take care of the entire life-cycle of geospatial data. However, in order to play a role on the geo-driven data economy, research institutions have to define who is going to take the responsibility for all this data, as well as sustain it for later discovery and use. As suggested in the guidelines mentioned above, it is strongly recommended to "ensure[ing] their availability, quality, usability and interoperability [of open data]", as well as its preservation, and these are exactly the tasks addressed by library professionals when dealing with information and data in general. Despite the fact that libraries have always been in charge of managing information – which is in its minimal unit data – they are not perceived as centers for taking care of the whole data life cycle (Clemons, 2015). Cataloging, documenting, curating, metadating and preserving large amounts of research data (and other kinds of information) to ensure long term access for future investigations have been traditionally part of the know-how acquired by librarians over years. Libraries can be effective in handling massive and heterogeneous geospatial datasets, thereby contributing actively to the development of geospatial (cyber)-infrastructures (Wright & Wang, 2011; Yang, Raskin, Goodchild, & Gahegan, 2010), as they possess expertise in areas like collection development, archival practices, cataloging and indexing, development of platforms for discovery and distribution, education and user support (Steinhart, 2006). Given the increased pressure in the researcher's community to make research (spatial) data available (Little, 2012), librarians and libraries as key stakeholders involved in boosting the access to scientific information, could substantially contribute to the process of opening geospatial data for making research data accessible and increase the rate of reuse of previous research results.

Universities and public libraries in the USA have been involved in managing and disseminating geospatial data across disciplines since the '90s. To the contrary, universities and academic or research libraries in Europe have not paid enough attention to geospatial datasets which, to some extent, contradicts EC guidelines. This paper argues that while RDM initiatives and specific educational programs for librarians have been already started (Pinfield, Cox, & Smith, 2014), little room has been left to geospatial data as a particular case. A new profile called "geolibrarian" or "geographic information librarian" should emerge in Europe, as it happened in other countries (ALA, 2008), to fill the gap among communities involved in data management, and to leverage the potential capabilities of librarians regarding geospatial data management.

LITERATURE REVIEW

One of the initial requirements for a successful implementation of GI services in libraries is having a well trained staff (Abbott & Argentati, 1995; Florance, 2006; Longstreth, 1995). Cline and Adler (1995) stated that GIS support and implementation in a library environment requires not only the typical skills that librarians should have but also an understanding of computing and the ability to work with visual representation of data, while Adler and Larsgaard (2002, p. 904) also claim that "*the significant learning curve associated with GIS has placed new demands on library staff*". Similarly, Abbott and Argentati (1995) revealed that the librarian's role is more complex than assisting users to use GIS as a high-tech map-drawing tool, since they should assist users to be able to search, select and integrate data from various databases for producing the desired result. On the other hand, Longstreth (1995) identified institutions with strong GIS programs already associated with the library and argued that these librarians may have little experience to draw upon in developing GI services. Gabaldon and Repplinger (2006), in their survey about libraries offering GI services in two consortia, concluded that one of the barriers for implementing GI services is having trained and experienced library staff. Shawa (1998) indicated the lack of staff preparation and specific training as the main reasons for GI services to fail. For Boston, Dean, Phillips, and Pope (1998) the integration of geospatial resources and services in their university library was accompanied by a training project for librarians aiming to improve their knowledge and skills, as well as developing an understanding of the geospatial data sets.

The ARL GIS Literacy Project was chronologically the first initiative in developing GIS collections (Vardakosta & Kapidakis, 2011a, 2011b, 2012a, 2012b) in which librarian's training was foreseen (ARL, 1999; French, 2000). The term "*Geographic Information Librarianship*" and "*GIS Librarian*" as "*the profession of providing geographic information resources and services in a library setting*" (Weimer & Reehling, 2006) was formally defined thereafter. Shawa (2002) stated that a geolibrarian "[*has*] *knowledge of GIS data models, concepts, techniques, technologies, and information and library science, and of who can apply this knowledge in collecting, organizing, disseminating, and preserving geographically referenced data, providing general help in GIS reference and in displaying geospatial data*".

MAGIRT[1] and WAML[2] in the USA, ACMLA[3] in Canada, and ANZMapS[4] in Australia and New Zealand, are some of the map and library organizations which provide fora for people involved in map librarianship around the world. MAGIC[5] (Map and Geoinformation Curators Group, formerly the LIBER Groupe des Cartothécaires) associated with the ICA Commission on Digital Technologies in Cartographic Heritage, and the Map Curators Group of British Cartographic Society[6] in the UK are well-known at the European level. Most of them – besides being a

---

[1] http://www.ala.org/magirt/front.
[2] http://www.waml.org.
[3] http://www.acmla-acacc.ca.
[4] http://www.anzmaps.org.
[5] http://cartography.web.auth.gr/ICA-Heritage/MAGIC.
[6] http://www.cartography.org.uk/default.asp?contentID=702.