Implications and Saturation for the Administration of Higher Education Site Licenses

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ABSTRACT
The purpose of this poster is to describe the administration of the educational license for Environmental Systems Research Institute, Inc. (ESRI), the largest geographic information systems (GIS) software company in higher education. ESRI’s GIS higher education site license allows for unlimited use for teaching, research and administrative purposes throughout an entire university, school district, or state. Administration of unlimited users varies at each institution depending on the information agency responsible for local distribution of the desktop and cloud versions of software. The poster presents survey findings of the higher education site license administrators and outlines the factors associated with distribution, including type of software distribution, frequency of distribution, and the information agency charged with distribution on each campus, as well as the number of devices/downloads of service credits. In a world with ubiquitous location-based services via the Geoweb and location a key factor in many decisions, GIS software should be a standard part of any office software suite training for today’s knowledge workers. The educational implications for faculty and students without GIS access are costly. The poster concludes and invites further discussion on why GIS, this earth processing system, is not as common in higher education computer labs as other common software suites.

Keywords
Geoweb, geographic information systems (GIS), site license administration, higher education

INTRODUCTION
Geographic Information Systems (GIS) allow users to analyze large quantities of geospatial data. Two common GIS types exist: traditional desktop-based GIS and the geospatial platforms on Web 2.0. Desktop-based GIS allows users to go beyond mapping and perform advanced spatial analysis to solve many real-world problems (e.g., monitoring climate change, track disease, assist first responders, enable democracy). ESRI was founded in 1969 as a privately held consulting firm that specialized in land use analysis projects and in 1982, the company launched its first commercial GIS software called ARC/INFO. To date, when totaling all versions of ESRI desktop, more than one million users have installed the software in more than 350,000 organizations that include most US federal agencies and national mapping agencies, 45 of the top 50 petroleum companies, all 50 US state health departments, and most forestry companies (ESRI, 2014). For power users, desktop GIS allows for advanced data manipulation and the creation of professional cartography. The ARC Advisory Group estimates ESRI’s worldwide market share at 40.7 percent of all GIS software types that perform basic mapping functionality on a spectrum from pin mapping (e.g., geocoding) to advanced spatial analysis (e.g., cluster detection) (Reiser, 2010).

Information from the Geospatial Web (Geoweb) is an especially important tool for people making informed decisions about the use of space, wayfinding, and other issues through location-based services. The Geoweb refers to the intersection of geographic information, geospatial technology, and the Web (Herring, 1994). The Geoweb is not new. MapQuest launched in 1996, but was surpassed in traffic in 2009 by GoogleMaps. The US government also created Geoweb tools including the United States Geological Survey (USGS) National Map Viewer that launched in 2001 and serves up downloadable geospatial data of aerial imagery, elevation, place and feature names, water, land cover, transportation, structures, and boundaries. Most web-based mapping applications operated in either the public or private sectors have similar interfaces consisting of functionality that allow users to pan and zoom across base maps, a directory of data to select for

77th ASIS&T Annual Meeting. October 31 - November 4, 2014, Seattle, WA, USA.
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display, and various visualizations. The creation of new sites and applications within the Geoweb has caused a huge influx of new users and volunteered geographic information (VGI) (Goodchild, 2007). Whereas previous users of desktop GIS were historically professionally trained geographers, cartographers, or students of other geo-related disciplines, the Geoweb has opened the potential of GIS to the average person regardless of educational background (Haklay et al. 2008).

In part in response to the changing market and growing potential of the use of the Geoweb, ESRI launched ArcGIS Online in 2012. This cloud-based mapping system offers collaboration tools for cataloging, visualizing, and sharing geospatial information that enable users to deliver any GIS resource as a web service utilizing more powerful analysis than other Geoweb tools. ESRI’s role in the growth of the GIS industry relates closely with its educational strength through its unlimited campus-wide site licenses. ArcGIS Online operates on unlimited user service credits that monitor the amount of data used for users compared to the annual download for ArcGIS Desktop. Still, each institution administers access to GIS differently and a study of how unlimited users are treated in higher education provides insight into all site licenses.

Oxera (2013) puts the global revenue for the geospatial industry at up to $270 billion per year. The Urban and Regional Information Systems Association (URISA) found in their last survey that GIS professionals earn, on average, $10,000 more per year than non-GIS professionals, and this amount is increasing (URISA, 2012). Therefore, access to GIS software is a valuable learning opportunity and the boundary to access does not start with the vendor in this instance. The institutional administration is the last gate to keep for some departments and other campus entities to control access to the future of GIS education and research.

METHODS

Upon IRB approval a recruitment email was sent out to the 2,000 campus administrators. Consent from participants was received and participation was anonymous. Site license administrators for all types of higher education institutions were asked a series of questions outlining the factors associated with distribution, including type of software distribution, frequency of distribution, and the information agency charged with distribution on each campus, as well as the number of devices/downloads of service credits.

FINDINGS

Preliminary findings suggest that a recent shift has occurred moving away from departmental and academic library administration of the site license toward university information technology campus support and control. The information agency mentalities of different models appear to influence the saturation of the software on percentage of campus devices. Cost recovery models by individual unit site license administrator that lower the cost burden also result in lower campus saturation. Those campuses with more automated download and service credit processes also have higher campus saturation. Nationally, each institution needed more service credits than originally expected for ArcGIS online’s 2012 launch. The survey is still open, therefore more trends may emerge.

DISCUSSION AND CONCLUSION

In a world with ubiquitous location-based services and geography a key factor in many challenges and opportunities faced by society, faculty and student access to GIS software should be as common a tool to learn and use in higher education as word processing software or other productivity packages. It is difficult to imagine English departments controlling access to word processing technology and thus its education on campus, but this poster indicates this circumstance exists at some institutions for the worldwide industry leader in GIS software. Some academic libraries have had success with the promotion of software and data and this customer service orientation coupled with librarian’s educational charge could be parlayed to encourage GIS saturation across campus. Further analysis is required to give complete findings at a granularity that respects non-disclosure agreements and institutional privacy as some models are unique. The major contribution of this work gives information science some insight into the types of software access approaches used at a large number of institutions in higher education of various sizes. The GIS software studied provides an ideal subject to begin study in this area as ESRI has considerable global market share with the capacity for unlimited simultaneous users on campuses. In effect, giving a baseline for site license administration across higher education and leaving a strategy for further exploration of other types of software. Furthermore, ESRI is switching to cloud based software model from a desktop and management issues abound when users pay for services based on data usage rather than single device unlimited use.

REFERENCES


