Advancing the Spatially Enabled Smart Campus

MICHAEL GOULD
Global Education Manager, Esri
Associate Professor, Information Systems, University Jaume I
Email: mgould@esri.com

I work with Esri’s 84 international distributors to assist the 10000-plus universities around the world who use our software for teaching and research. Recently we started revisiting some of our key university users, to propose new thinking about how GIS is used on campus. In far too many institutions GIS software is hidden away in a few teaching laboratories, while at the same time the university shares many of the concerns as a small city—safety, public transportation, planning, facilities management, etc.—which could benefit from GIS application. Some 1,200 universities around the world are running an Esri University Site License, a form of Enterprise License Agreement, which allows unlimited software installations on desktop, server, cloud (ArcGIS Online), and mobile platforms. A growing collection of innovative universities are beginning to exercise these licenses to their full potential, creating a form of smart campus.

Smart Campus
Smart City projects are all the rage these days. Most are based on applying technology to improve energy efficiency, mobility, ease traffic congestion, and hopefully improve quality-of-life for citizens. The university can be considered an enterprise in a similar way than is a city. So why is it the case that many universities do not use their GIS as enterprise software? Why do individual professors struggle, often times, to secure funding for GIS software for teaching purposes, when it should be an enterprise-wide investment for administrative, research, and then teaching purposes? Other IT software and services, such as databases, IP telephony, hardware maintenance, or WIFI infrastructure, are funded that way. We use figure 1, below, to remind university (and school district) administrators that the enterprise GIS should be theirs to own, and not only relegated to only a few geo-savvy professors teaching class.

Figure 1. Uses beyond the classroom, which include a wide range of administrative applications for GIS across the campus, school district, etc.
GIS has demonstrated its capability to unite disparate data systems and themes, via the unique identifier that is geography, or the location of each entity being studied or monitored. Decision-makers need to see where they are wasting energy, where space is underutilized, where lawns are overwatered, etc. Decision-makers can gain access to this integrated information via what is called an Operational Dashboard (Figure 2). This vision of GIS is what is being implemented in countless organizations around the world, so it behooves universities to both teach and employ this enterprise implementation pattern as well.

Some of the attendees and speakers at this meeting will demonstrate progress being made in this sort of enterprise GIS or spatially enabled Smart Campus. Others will cover the intriguing area of knowledge representation, or in this context, “How might we make our campuses smarter?”. One of the key questions I hope we will answer is “What do we mean by smart campus, and which are its requirements as derived from students, faculty and administration?” In addition to helping moderate the conversation I will be listening to suggestions and needs to bring back to Esri colleagues. Esri welcomes collaboration in improving solutions for smart campuses.

Figure 2. A sample Operational Dashboard, providing a synthetic view of the overall performance of a spatial jurisdiction: shopping mall, city, port complex or university campus.