

# White Paper

## Blending GIS and Facilities Management Applications

For years, facilities management software companies have been eying the GIS market, proffering applications that ostensibly blend the two disciplines into a unified whole. Leading GIS software companies have been doing the same thing. Yet, while there has been some successful integration of data, the professions that encompass facilities and spatial data analytics and management remain largely separate. Why? Perhaps it is because terms used to define facilities management are many, as are the varied components of the professional practice. Each of us defines it a little differently from our peers based on personal experiences and background.

The facilities management professions have evolved largely from architectural and engineering planning and design, combined in recent years with maintenance management. The work is still mostly underpinned by inventory management and control, with marked improvements in performance and cost measurement. The end state results drive towards the beneficial management of costs (return on investment) and even if indirectly, contributions to the bottom line financial performance of organizations. Moreover, the data used comes from drawing files that, from the start, are tied to a known coordinate system of origin.

By comparison, business processes embedded in GIS analysis are much less about control and more about comparing one set of data against another, usually gathered from different origins. And because of this, concerns over positional accuracy are normally more acute than what we see in facility management applications. While architectural representations data most always evolve from the same base file(s), GIS data sets can (and most often do) come from disparate sources, most often collected or created over some longer period of time and to vastly different accuracies. To make it all work, especially in precision-based applications, mapping scientists apply calculative formulae to adjust datasets for positional placement, one to another and all tied to a referenced ellipsoid (a mathematical idealized representation of the earth's surface).

In recent years, advances in metadata, and when combined with significant improvements implemented by software manufacturers, have eased the tedium of merging data. Most all of the arithmetical calculations needed to make spatial data "line up" correctly can be accomplished with processes operating in the background. However, this does not change the underlying premise that practitioners in facilities management and GIS are most often looking for different modeling and analytical capabilities; supporting very different decisions. As such, using GIS tools in facilities management work remains inefficient, as do attempts to use facilities and asset management tools for decision support involving land and infrastructure.

Almost by definition, facilities management data is transactional. We see something and act on it – assign space, make a move, process a service request, track equipment installations, etc. Most all actions are in the present and once made, archival activity has little value in decision analysis. Archived data exists most only to protect an investment in data should file corruption or loss occur.

In GIS, practitioners are more and more interested in the temporal, what something looked like (where it was, how large it was or what were its characteristics) today versus yesterday. This focus on change detection and management spans time and establishes trends about land areas and components under consideration.

We have all seen the presentations where a campus map is zoomed-in to reveal individual buildings. Then, the view goes inside the building to a specific floor and room where we see who it is assigned to, what serialized furnishings and equipment are there and what the status is on open services requests for a particular device. Yes, that's possible and it looks almost seamless. And yes, it is both entertaining and impressive; and has probably been used to sell lots of software. But, what measurable value was delivered; what benefit accrues to the bottom line of the organization?

As a simple example, Google Earth uses that "whole globe" view before it zooms in to a location; then if the location is changed, it zooms out, swirls around and then zooms in again. Is it a technical success? Of course. But aside from being reminded that Bangkok is a long way from Kansas City, what value in information was delivered? Probably none, at least none worth paying for. Did it really matter that many data files were stitched together to create that result? Not likely. Was the sufficiency of the dataset tested for predictable results in any application or data query?

Let's not be unfair to the good folks Google for doing what they could to build their brand and bring potential customers to their door. But it does raise a valid question about how data that we pay to acquire or create gets used or valued by all this zooming in and out as the lines of facilities management and GIS software applications become blurry.

Look at it this way, literally. For any presentation of facilities management or GIS data, ask yourself:

- What you would use it for?
- How would you interrogate it for answers you need?
- It is capable of giving you reliable results in decision support?
- And if so, at what cost?

In as much as a campus map won't help you process a maintenance request for a blown transformer, a space assignment plan probably won't help you manage schedules and work orders for HVAC system preventive maintenance. The amalgam of data is just too broad. Said another way, it is not a one size fits all scenario for either facilities management or GIS. Data in every application will come from different sources and at different thresholds of accuracy and cost. Each must be evaluated on the basis of its return on investment to the enterprise and if the value proposition can't be proved, it is probably best to avoid that data and processing capability in the first place.

This is not to suggest that facilities management and GIS applications and data cannot peaceably coexist. They can and, in some organizations, the combined suites of tools and data are being used in elegant, cost effective and productive ways that return significant value. And the continuing efforts by facilities management and GIS software companies are making it easier to bridge across different dataset types are admirable, especially in how they exchange data files, one to the other.

But, we cannot ignore the reality that data is expensive to produce, usually multiples of any associated system costs. If not maintained, even critical data will quickly fall into obsolescence while increasing the potential for discrediting any and all associated data. Organizations will soon realize that potentially erroneous modeling results are driving spending decisions.

Our best strategy in data remains that we should:

1. Assess the decisions that we need to make about land, facilities and the infrastructure both across sites and inside buildings.

2. Determine what data is necessary to support those decisions, how expensive it will be and whether or not it can be maintained cost effectively at reliable quality levels.
3. Calculate the return on investment for the combined costs of software, systems, data and work processes needed to generate desired outcomes.
4. Then (and only then), select the best software tools for gathering, storing, interrogating and presenting that data.

Notice that nowhere in here are assumptions made based on familiarity with one software product versus another, nor are values automatically assigned based on what software an organization currently uses. Depending on the requirements of the work, analytics and decisions to be made, organizations should design datasets and select management software based on that work. Sometimes, a facilities management tool will be most appropriate and sometimes it will be GIS. Sometimes, it will be a little of both.

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