White Paper

Location, Location, Location

The unique value of location-based facility management technologies.

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George Dailey, Education Administration/Operations Manager, Esri

"We've made tremendous strides in getting our information accurate. By using location as the organizing principle, we can keep track of what we have, where things are, what's being done where and by who, and how it's being paid for."

- Stefan Otto, Senior Technical Project Manager with Facilities Technology Services at the Los Angeles Unified School District

Facilities Are Mission Critical: How Enterprise "Facilities GIS" Technology is Solving the Complex Facility Management & Safety and Security Challenges of K12 School Districts, January 2016

The infrastructures of modern facility portfolios are more complex than most people realize—and far more expensive. The land itself has extraordinary value, each of the buildings cost millions to build and maintain, and the utilities and technology that serve them require constant investment to keep pace with demand. For most organizations, facilities-related costs are the second largest budgetary expense, right behind salaries and wages.

We often hear from real estate professionals that the three most important value drivers for a piece of property are "Location, location, location." Though clichéd, the statement is valid—even for facility management professionals. With so much data to organize, it pays to have a system that uses location as the organizing principle to create order of this complex information.

1. What are some facility management challenges that can be aided by location-based software technology?

In order to optimize the value and function of a real estate portfolio, facility management professionals must have command of a vast array of information types and systems. Some of this information is directly related facility productivity, like:

- How many employees are served by our available office space? Do I have too much space or not enough?

- How many customers have visited this retail location? Can the surrounding demographics support a successful operation or should I close this location and open up a new store somewhere else?

- How many student classroom hours have been delivered over the past semester? Is this space being thoroughly utilized to provide a full return on investment?

There is also information that is associated with the building's function and appearance, such as its energy usage, its janitorial contracts, or its maintenance and repair activities. Other information relates to compliance with regulatory agencies, such as OSHA, ADAAG, EPA, etc. Safety and security information shared with public safety providers is vital, too. The list of information that a facility manager is expected to master is seemingly endless.

To add complexity to the situation, all of these different forms of information are housed in their own, often isolated systems that are usually managed by different groups of people. For example, there are:

- facility management systems,

- maintenance management systems,

- building management systems,

- access control systems,

- CCTV camera systems,

- human resources systems,

- file shares full of lease agreements, occupancy permits, and other documents,

- compliance reporting systems,

- hardcopy design documents and floor plans,

- CAD design and construction data,

- GIS base maps,

- BIM design and construction data,

- and myriad other lists, schedules, manuals, and spreadsheets full of important information that does not have an enterprise information management system to organize it.

Every day, management decisions require that many of these information sources be used in concert with one another.

- "Where can we drive the tent stakes for the party so that they don't damage the irrigation lines (or worse, the electrical distribution system)?"

- "When do we need to bring the middle school up to temperature to ensure it is ready for classes?"

- "Where do we have enough contiguous space to house an expanding marketing department?"

- "Where can the people in building 123 go while we renovate that space?"

- "If there is an emergency in building 456 at 2:00pm on a Wednesday, who will be in the building and how do we notify them as well as emergency responders?"

- "Is there sufficient electrical capacity on the south side of this property to support the buildings that are planned to be built there over the next five years?"

Answering any of these questions requires information from many different systems and data formats. The information must be complete, it must be accurate, and it must be current. And in most campus environments, this information is stored in different locations, either in dusty boxes or computer systems that don't talk to each other—sometimes even in the minds of facility managers who may soon retire and take the knowledge with them. This disparity is incredibly inefficient but all too common for facility management teams around the world.

2. How does organizing facilities data by location add value to my current systems and workflows?

The challenges of facility management data organization are real, but they are presently solvable. Modern systems, data interoperability tools, and information standards make it possible to automate the aggregation of data from different formats and systems. If data is catalogued using location as the organizing principle, disparate information becomes organized and accessible. Georeferenced* data can be made available to decision makers in any combination and displayed graphically. Using a visual, map-based interface, data becomes easy to understand, and is more useful in a wider variety of different business cases.

This new approach to facility management— managing geographically—is already changing how organizations around the globe are operating. Diverse information from many systems and formats brought together through a map-based interface supports an astonishing array of decisions each day.

As a technology strategy, it is generally very low impact on existing systems and organizations. It's nothing like the heavy, expensive, and time consuming "rip and replace" approach that would be expected with a typical "uber-system." A location-based information system is relatively lightweight and can be put into place quickly with little impact on existing infrastructure.

* To georeference means to associate something with locations in physical space.
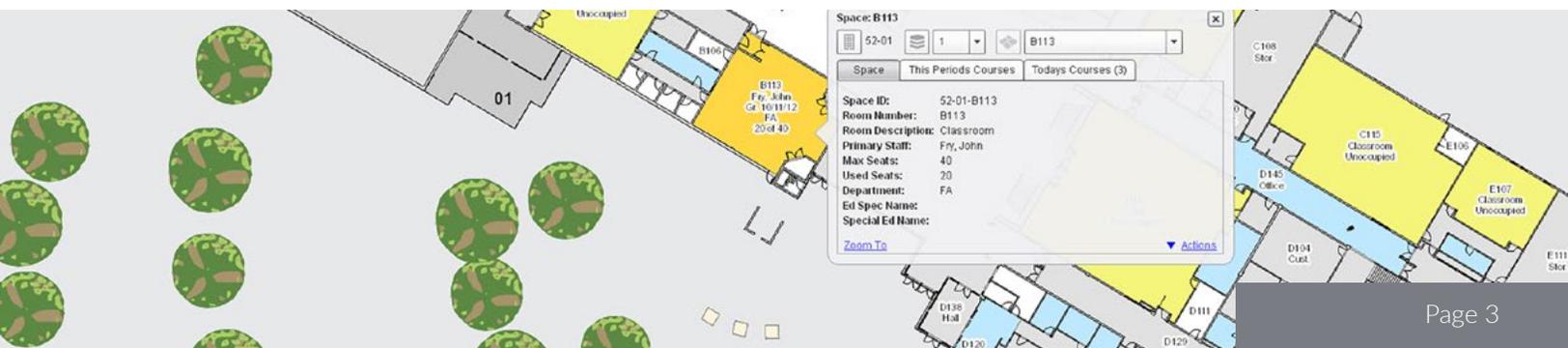
3. What are some real-world examples for how location-based FM software solutions are being used?

1. A security operations center application combined access control systems, CCTV cameras, and intercom systems with their school scheduling information so that officers can know which classrooms are occupied and how many students might be present at any given time.

2. A large city is pulling together information about work order history, deferred maintenance, employee assignments, condition information, and capital project requests from all city agencies in order to make better informed decisions about facilities-related capital expenditures.

3. A federal research campus is pulling together environmental health and safety information (asbestos, etc.), underground utilities, space use and assignment, and critical research habitats to inform the planning and scheduling of capital renovation projects.

In all of these examples, existing systems (i.e., data sources) have been maintained. However, by organizing information into a location-based data structure, it improves the value of these existing systems by making information more accurate and accessible to any group that demonstrates a need.

4. Conclusions

Facility management is all about location, location, location. Using location as the common denominator to create order out of complex facility related data is a concept that is compelling, powerful, and actionable. Location-based FM software solutions georeference not only building footprints, but also floor plans, assets, and countless other forms of facilities data from both sides of the building envelope.

InVision software from PenBay Solutions is a location-based FM software suite that is configurable to solve strategic and tactical problems in:

- **Portfolio Management**: Identifying, inventorying, analyzing, and managing property assets, owned or leased, and optimizing portfolio performance.

- **Operations & Maintenance**: Optimizing use of space, grounds, and assets while efficiently and sustainably managing and maintaining facilities and infrastructure (indoors, outdoors, and underground)—all while reducing lifecycle costs.

- **Safety & Security**: Proactively and effectively securing and protecting people, property, and assets.

By employing a location-based FM solution like InVision software, organizations are quickly reaping the benefits of saving time and money, better protecting lives and assets, and creating safer and more productive environments for building occupants and site visitors. Learn more at penbaysolutions.com/invision.

5. About the Authors

Stu Rich

CTO, PenBay Solutions

Stu is the Chief Technology Officer of PenBay Solutions with more than 15 years experience developing innovative geographic information systems and custom IT applications for government and non-government environmental organizations across the US and Japan. He has several years of extensive geographic information systems experience, with an expertise in ESRI technology, including project management, data analysis and modeling, and workflow methodology design work. Stu's strengths are seen in his work as a system architect, a business process analyst and strategic planning manager. He has a B.S. in Forest Management from University of Maine.

About PenBay Solutions

PenBay Solutions is the original and preeminent developer of Facilities GIS™ technology. Recognizing that facilities are mission-critical to any organization, its InVision™ software suite cohesively addresses a full range of facility management needs, from strategic portfolio planning and management, to day-to-day operations, maintenance, and security.

What differentiates InVision from traditional facility management and safety and security applications is that **InVision uses location as the organizing principle™ to create order out of prolific and complex data**. InVision solutions provide the data integration and technology interoperability needed to connect information silos, helping you better validate both strategic and tactical decisions that **solve problems throughout the facility lifecycle**.

PenBay Solutions is an Esri Gold Partner with more than fifteen years of experience in successfully implementing GIS solutions for a broad spectrum of clients in a wide variety of industries, including higher education, K-12 education, national government, national defense, state and local government, commercial, and public safety. PenBay Solutions is headquartered in Topsham, Maine and has offices co-located with Esri in Washington, DC and New York City.

PenBay Solutions, LLC is a privately held principal and employee owned company, and is certified as a Small Business Concern in accordance with federal Small Business Administration (SBA) size standards. www.penbaysolutions.com

George Dailey

Education Administration/Operations Manager, Esri

George Dailey is a demographer and rural sociologist by training, and a geospatial cheerleader, matchmaker, and evangelist by trade. Geography, maps, and spatial analysis have been foundations of his life since childhood.

Since late 1993, George has been part of Esri of Redlands, California, as a member of its education program team. Esri is the world leader in GIS, and its ArcGIS platform brings together geographic visualization, analysis, management, and content. The company's commitment to the use of GIS in education is long-standing, with its education team and program formally launched in 1992. George and his colleagues are focused on all areas of education—colleges and universities; K12 schools, districts and related agencies; libraries and museums; and research and science institutions. The uses of GIS in these organizations span instruction, academic research and administration. George leads the team's efforts in education administration—working with users and departments charged with planning, operating, and sustaining these entities. Key areas of use include: demographics, transportation, facilities, and safety.

He holds an MS in Rural Sociology from the University of Missouri-Columbia and a BA in environmental studies and sociology from the University of Illinois-Springfield.

About Esri

Esri, founded in 1969, is the worldwide leader in GIS technology. Esri inspires and enables people to positively impact the future through a deeper, geographic understanding of the changing world around them. The company's software, content, support, and partners empower organizations to apply geography in creating responsible and sustainable solutions to problems at local and global scales.

Esri software is used in more than 350,000 organizations worldwide including each of the 200 largest cities in the United States, most national governments, more than two-thirds of Fortune 500 companies, and more than 7,000 colleges and universities. Esri applications, running on more than one million desktops and thousands of web and enterprise servers, provide the backbone for the world's mapping and spatial analysis. www.esri.com

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Room: J-256

Hilton Head Elementary, an auth

Room Id:	HHIES_62
Building:	HHIES
Floor:	1
Section/Wing:	J
Long Name:	
Description:	
Space (As Designed):	Classroom
Space (As Utilized):	Classroom
Assignment:	5th Grade
Assigned Teacher:	
Access Type:	
Ceiling Height:	
Room (SF):	1,471.69
Capacity:	
Instructional Unit:	Yes
Key Number:	

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100 ft