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4D ASSET MANAGEMENT: A BETTER 'WEATHER MAP'

Dissatisfied with how other CAFM and IWMS software managed assets across a campus, software provider CloverPoint and engineering firm Stantec came up with their own. Two key team members tell the story

BY LEONARD RODRIGUES AND KARL SWANNIE

It was a dark and stormy night. At least it can feel that way when a university architect is faced with requests for information about a particular faculty or department: which spaces within buildings they might occupy, what growth they are anticipating, where that growth should be housed, how that growth might impact other faculties and departments... In any institution or corporation, versions of these requests occur daily.

In some instances, the answers are easy: standard facility management software can generate a report that catalogues the buildings and rooms, uses, and departments in a nice neat list. These kinds of lists are straightforward to interpret and understand when the locations are easily visualized and under-

What was needed was a 4D application that could capture space, assets and time acting as one coherent system...

stood by administration and facility people alike. The task becomes much more complicated and difficult – both to explain and to document – when the questions that are asked impact the entire campus, involve many interdependent spatial impacts, and occur over a span of years.

When these instances arise (and they do regularly), traditional Computer Aided Facility Management (CAFM) and Integrated Workplace Management System (IWMS) software reveal their greatest weakness: the reports they generate cannot illustrate more than one floor of one building at a time. As a result, it is a common sight to see the facility team of a major campus papering the walls of the planning “war room” with individual floors of individual buildings placed in more or less proper spatial relationship to one another. At this point, the red Sharpies make their appearance and the planning team scribbles notes and draws lines between various floors showing anticipated moves, decants, swing spaces, and backfills. The results are an explosion of arrows and annotated data that highlight high “pressure” areas, low “pressure” areas, development

“fronts,” and impending facility “storms” that can appropriately be called “weather maps.”

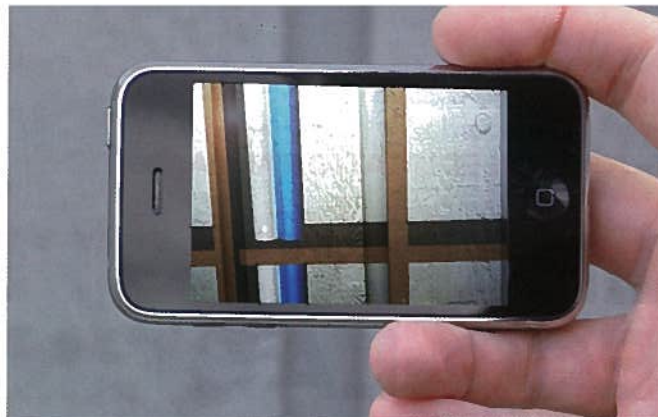
Fully immersed in an assignment at the University of British Columbia to create a 3D electronic facsimile of the campus and its buildings, CloverPoint was drawing on its considerable experience in asset-focused assignments. But it was the drive to build a significantly better space management tool that led them to Stantec, an integrated design firm with broad perspective on facilities and infrastructure. Focusing on the UBC problem, the team began a year-long development process to further improve CloverPoint’s land asset management product by expanding its functionality to address space, asset, and infrastructure management issues of the kind facility professionals and managers face on an hour-to-hour basis.

With a prototype complete, the team engaged an interested past client, Grant MacEwan University in Edmonton, where Stantec had previously set up the University’s space management system utilizing FMspace. Using this as a platform, Stantec and CloverPoint used the data provided by MacEwan to explore and test the system’s components and functionality.

After some months of debate, trial, refinement, rework, and development (that continues as this is written), there now exists a new tool that turns the “war room” from one wallpapered with myriad overlapping drawings and Sharpie markings into one where a three-dimensional electronic model of the entire campus is projected and any split of data can be plotted to the model and read in relationship to any other, with GIS accuracy. With solid protocols around keeping data current, institutions can not only have the terrain modelled and buildings placed in proper space, but can have space types, faculty and department allocations, equipment, infrastructure, and hazardous materials identified and placed in the database with three-dimensional geographic precision.

ADDING THE DIMENSION OF TIME

But this was not enough. The partners realized from the beginning that asset management for a major institution is a long-term effort and requires going back and forth in time. The “weather maps” capture activity on campus and within buildings over an extended period of time and the data sets can store historic information, views, documents, models and other information that can place change in the context of a time line. Why not make that timeline dynamically accessible through a simple sliding scale in the application window? This allows the user to go back and see what was, as well as what is and what might be, by simply sliding a bar with a computer mouse. This makes the system a genuine “4D” application that captures the



InSight can import BIM models for use after construction. With the InSight Mobile App it's possible to view what's in behind what's visible.

true nature of facility issues and management – space, assets, and time acting as one coherent system.

InSight, the software resulting from this collaboration, is itself a robust data management platform. For institutions that might require a system and not have one, this option gives superior functionality and capability beyond IWMS software. For those who already have such a system, InSight reads the data from many systems and displays that data in a 3D context that adds that critical fourth dimension – what happens over time. The institution does not have to replace or change any system to which they have become accustomed. This integration capability also means that separate databases, managed and maintained by different groups, can be coordinated and output through InSight.

While InSight's 4D capabilities give it an obvious advantage over other IWMS and CAFM tools, it also provides a new way of seeing the campus in a 3D context. Many institutions and consultants use Google Earth as a platform to create 3D models in context. However, Google Earth is a public forum and models uploaded to it are the property of Google. With InSight, once the 3D model is created, it is the property of the institution and not any third party. Access restrictions and security are robust and permissions can be developed to restrict access to sensitive information, while less sensitive information can be made available throughout the institution over the web.

'X-RAY GLASSES' WITH A MOBILE APP

Facility managers can also take advantage of other InSight capabilities. Picture the director of engineering and infrastructure at a major university walking with colleagues to review the location of a new building on campus. As they consider various aspects of siting, they are curious about the position of underground servicing in their location. With their iPhone or iPad, they start the InSight Mobile App and hold the device up to the view of the ground under which they want to look. On screen appears a graphic, three-dimensional display of the data, in the correct aspect and view. It's like seeing the subsurface infrastructure with those x-ray glasses you wanted as a kid!

University architects and campus planners can do the same for proposed buildings and look at a planned structure on site through an iPhone or iPad, in context. The applications are almost endless: from viewing hazardous material locations in the field or emergency lockdowns and locations; to simply understanding which spaces are assigned to which faculty and department while walking through the spaces themselves.

And while the tool was developed and tested on higher education facilities, any "campus" environment will benefit from its implementation, including corporate and healthcare campuses. Facility managers, campus architects, infrastructure specialists, and operational staff now have a tool to help them plan and manage the entire spectrum of campus assets, and to relay the content of those plans to their administrations and campus communities with clarity and geographic accuracy. | **CFM&D**

Len Rodrigues, MAIBC, AAA, FRAIC, AIA, LEED® AP, has been Practice Lead for Higher Education at Stantec since 2007. From 2003 to 2007, he was the University Architect for the University of Alberta. Karl Swannie is CEO of CloverPoint USA and Director of Business Development for CloverPoint Canada.



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