GIS Reshaping the IWMS Environment

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UC 269 - Tuesday, July 15, at 3:15pm - Room 28A
Meet your Presenter

Jonathan Contract, NCARB
Senior Space Planner

- GIS and TRIRIGA Space Planner for UMass, Amherst
- Background in Space Planning, Project management, CAFM and IWMS
- Over 15 years of experience in the media, education and financial industries:
  - 3 years at the UMass Amherst, GIS and TRIRIGA implementation
  - 3 years at NBC Universal, directed the CAFM group
  - 9 years at Lehman Brothers Holding Inc., directed the CAFM group for North America
  - Successful integration of the London based IWMS software Accordant Locator for Neuberger Berman
  - Award for IWMS Best Practices from the 2011 Archibus User Conference (NBC Universal)
Presentation Topics

• Overview of the University of Massachusetts Amherst Campus and Master Plan
• State of the IWMS Community
• Growing relationship of the IWMS and GIS environments
• The University of Massachusetts Amherst approach - GIS as the central enterprise solution to capture graphical data from:
  – BIM (Building Information Modeling)
  – IWMS (Integrated Workplace Management System)
  – CMMS (Computerized maintenance management system)
UMass
Founded in 1863 (Land-Grant Agricultural College)

28,000 Students

6,500 Employees

13 Million Square Feet (33,000+ Rooms)

181 Million Annual Research Activity

300+ Major Buildings (Main Campus)

1,450+ Acre Campus
Pre-GIS, IWMS and CMMS (Umass Perspective)

- Two homegrown systems for space data and one operations solution no longer supported
- No linkage between CAD drawings and space and operations data
- Surveys were manual, in-person and paper-based
- Lack of integrations presented opportunities for error and imprecision
- Inability to focus on multiple buildings and relationship outside landscape
- Reporting was difficult, and reporting with CAD graphics was manual and time consuming
The Structural Dilemma
**IWMS**  *(Integrated Workplace Management System)* – What Is It?

- User-friendly web interface
- Excellent out of the box reporting tools for space use, organization and occupancy
- Currency and financial reporting tools
- Modules for Real Estate, Project Management, Capital Budgets, Strategic Planning, Energy and Operations
IWMS (Integrated Workplace Management System)

IWMSconnect, a leading workplace technology research and advisory firm, announced (May 14, 2013) that worldwide IWMS technology spending is projected to reach $1.01 billion in 2013, a 16.3% increase from 2012 spending of $869 million, and $1.7 billion by 2018. This growth will outperform projected CAGR for other enterprise application segments such as ERP (6.7%), CRM (9.1%) and BI (7%) during the same period.
IWMS (Integrated Workplace Management System)
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2014 Magic Quadrant for Integrated Workplace Management Systems

- Manhattan
- IBM-Tririga
- Accruent
- ARCHIBUS
- Planon
- Skire
- Business Integration Group
- Bricsnet
- Oracle
- SAP
- FM Systems
- Siterra
- Indus
- Business Integration Group
- Skire
- Business Integration Group
- Bricsnet

1982 Archibus
1983 Manhattan CenterStone
1984 FM:Systems
1992 CAD Management Limited (CADM)
1998 Business Integration Group, Inc.
2000 Planon
2006 TRIRIGA (Acquired by IBM 2011)
IWMS Survey Administrator Portal
(UMass Tririga Space Module)
IWMS Survey Administrator Portal
(UMass Tririga Space Module)
IWMS - Visualizing Space Data - Departments  (UMass Tririga Space Module)
GIS = IWMS + CMMS + R25 +

UMass Spatial Data Roadmap
GIS and IWMS Timeline

1969-1980

1982

1985

1991

1995

2000

2001

2002

2005

2008

2009

2009

2009

2009

2014


Commercially Available CAFM – IWMS System, ESRI releases ARC/INFO

Integrated CAFM – IWMS System for Personal Computers

CIFM Enterprise Systems, ESRI releases ArcView

Web-enabled FM Cyberspace and 1st TIFM Offerings – ESRI releases MapObjects

Further development of TIFM and IWMS real estate and operations modules

ESRI maps and IWMS space data aids recovery efforts in New York City and at the Pentagon

IWMS TIFM forgo client server architecture, all development via the web

BIM connections to IWMS

IWMS and GIS users dealing with the problems / costs for upgrading 2nd and 3rd generation product

Maturing of cloud-based Real Estate, Infrastructure, Facilities Management and Strategic Planning Solutions

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2014 Blurring of GIS and IWMS Industry offerings, cloud enterprise integrations

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Applying BIM to TRIRIGA and GIS
Applying BIM to GIS via FME  Part 1
Applying BIM to GIS (ArcMap) Part 2

[Image of ArcMap interface with layers and tools]

[Image of a building floor plan with room labels and numbers]

[Image of a feature selection tool in ArcMap]

[Window for selecting features with options like Identify and Select Features]

[Table with fields and values for a selected object, including OBJECTID, SHAPE, SHAPE_LENGTH, and SHAPE_AREA]
Applying BIM to GIS via FME (With Polylines)
Applying CAFM DWG’s to GIS Part 4
Applying Tririga and R-25 Data to GIS - Part 5
GIS Bringing it Together
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Traditional Uses of GIS: Campus Master Plan

- Spines & views
- Courts
- Complete streets
Traditional Uses of **GIS**: Suitability/Risk Analysis, Solar Radiation Study
Traditional Uses of **GIS**: 2D Analysis
GIS Project Goals and Objectives at UMass - (Vision)

- Commercial off the shelf software
- CAD integration
- Easy of access to reports and graphics via internet browser for a broader audience
- Automated space survey tool incorporating flexible business rules to ensure data integrity
- Reduce the time required to generate reports and analyses
- Track spatial information to a greater level of detail
- Track and display assets graphically
GIS and IWMS Parallel Implementation

Approach

• Tririga ongoing development
  – Space management, data/drawing migration, integrations
  – Space Survey, asset management
  – Operations and WorkOrder Management
• GIS connectivity to University databases
• Unit and System Testing
• User Acceptance Testing
• Focus Group Feedback
• Training
• Deployment
• Hypercare
GIS (Why?)
Exiting Landscape

Fly Over
Proposed Landscape
Benefits, Challenges, Opportunities and the Future
GIS – (Central Point for IWMS +)

• Space data more accessible and visible to the campus community
• Access to online floor plans, visualization of space data (*alternative to SharePoint*)
• Greater incentive to maintain accurate data – accountability
• Owners of data are maintaining the data
• Integrated solution provides better data on occupants and principal investigators
• Improved decision-making
**GIS + IWMS** Challenges

- Automate the GIS inclusion on a weekly basis the Space, Operations, HR and Registrar databases
- Standardization of space use and organization colors
- GIS Change Management
  - Shift in data maintenance responsibility
  - Decentralization of responsibilities
- Improve data integrity and accessibility
GIS Change Management

Degree of GIS Involvement and Ownership required

Elapsed GIS Schedule

Build stakeholder involvement and ownership by generating awareness, understanding, buy-in, commitment and action.

Communications activities typically address earlier stages of building “awareness,” “understanding” and “buy-in.”

Awareness
- Encounters change
- Realizes change is imminent

Understanding
- Accepts nature and intent of change

Buy-in
- Works toward change
- Invests time in change
- Articulates commitment to goals of change

Commitment
- Articulates the changes as norms
- Articulates his/her personal ownership of the change

Action
- Participates in facilitating change
- Attends training
- Changes behavior or procedures to support process changes

Training and Hyercare continue to deepen “commitment” and lead to “action.”
GIS and IWMS Roadmap at UMass

- Continuation of successful implementation of IWMS and CMMS TRIRIGA modules
- GIS automation of workflows and business methodology – (GIS central graphical database)
- Sophistication of GIS reporting analytics
- Improved BIM, Web and Cloud integration
Why GIS will Enhance IWMS and CMMS Environments at UMass

• Central graphical database for visualization of space assignments for 30,000+ rooms, in over 300 active buildings

• Use data on nearly 13 million gsf and up-to-date floor plans

• Utilization of campus buildings for effective use and building characteristics

• Off-campus leases

• Visualization of programming and assessment of space needs for small to large projects

• Visualization of programming and cost basis for Capital Plan development
ESRI Strategy For **IWMS** and **GIS** Integration

- Potential ESRI Strategy **1**: Esri builds IWMS workflows extensions into the ArcMap environments.
- Potential ESRI Strategy **2**: ESRI enables business partner to develop IWMS workflow / analytics into the ArcMap environments.
- Potential ESRI Strategy **3**: ESRI works with the IWMS community to provide the infrastructure to import the IWMS analytical graphical data into ArcMap. Web / Dashboards. Two separate entities with common connectors.
- UMass has adopted strategy **3**
Q&A

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