Maximo for Facilities Management

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Product Manager

PulseANZ 2010

Meet the people who can help advance your infrastructure

A globally integrated world creates new interwoven issues.

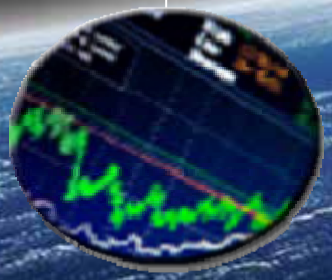
On going pressures to reduce cost.

Urban growth straining both new and existing infrastructures.

Increasingly empowered people demand better managed and eco-efficient workplace.

Energy shortfalls combined with volatility in price.

Buildings have new connectivity, communication and security imperatives.



The need for progress is clear.

42 percent

Worldwide, buildings consume 42% of all electricity —more than any other asset.

2025

By 2025, buildings will be the largest emitters of greenhouse gasses on our planet.

8 out of 10

All other things being equal, 8 out of 10 employees would prefer to work in a “green building”.

1/2

Buildings lose as much as 1/2 of the water that flows into them.

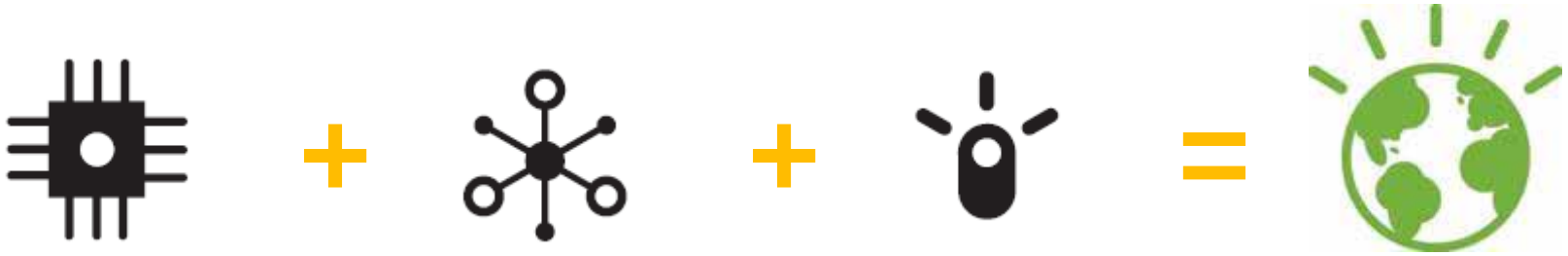
30 percent

Energy costs alone represent about 30% of an office building’s total operating costs.

59

Regions worldwide with pending or approved carbon reduction mandates that effect buildings.

Something profound is happening around us.



INSTRUMENTED

We now have the ability to measure, sense and see the exact condition of practically everything in near real-time.

INTERCONNECTED

People, buildings, campuses, cities, etc. are now interacting in entirely new ways.

INTELLIGENT

All this information can be used to make optimal decisions that are based on historical trends and predicted events.

SMARTER

We can gather, synthesize and apply this information to achieve financial, environmental and operational benefits in buildings.

What are smarter buildings?

Smarter Buildings are well managed integrated physical and digital infrastructures that provide optimal occupancy services in a reliable, cost effective, and sustainable manner.

Smarter Buildings…

- Are more cost effective by reducing energy and operating costs.
- Use active and designed-in techniques to achieve efficiency and environmental responsibility.
- Have the ability to interact with occupants inside them as well as the environment around them.
- Maintain a safer and more secure workplace.
- Communicate in real-time to supporting infrastructure (i.e. smart grid, broadband, etc.).

What does all this mean from an operational standpoint?

External data and event inputs

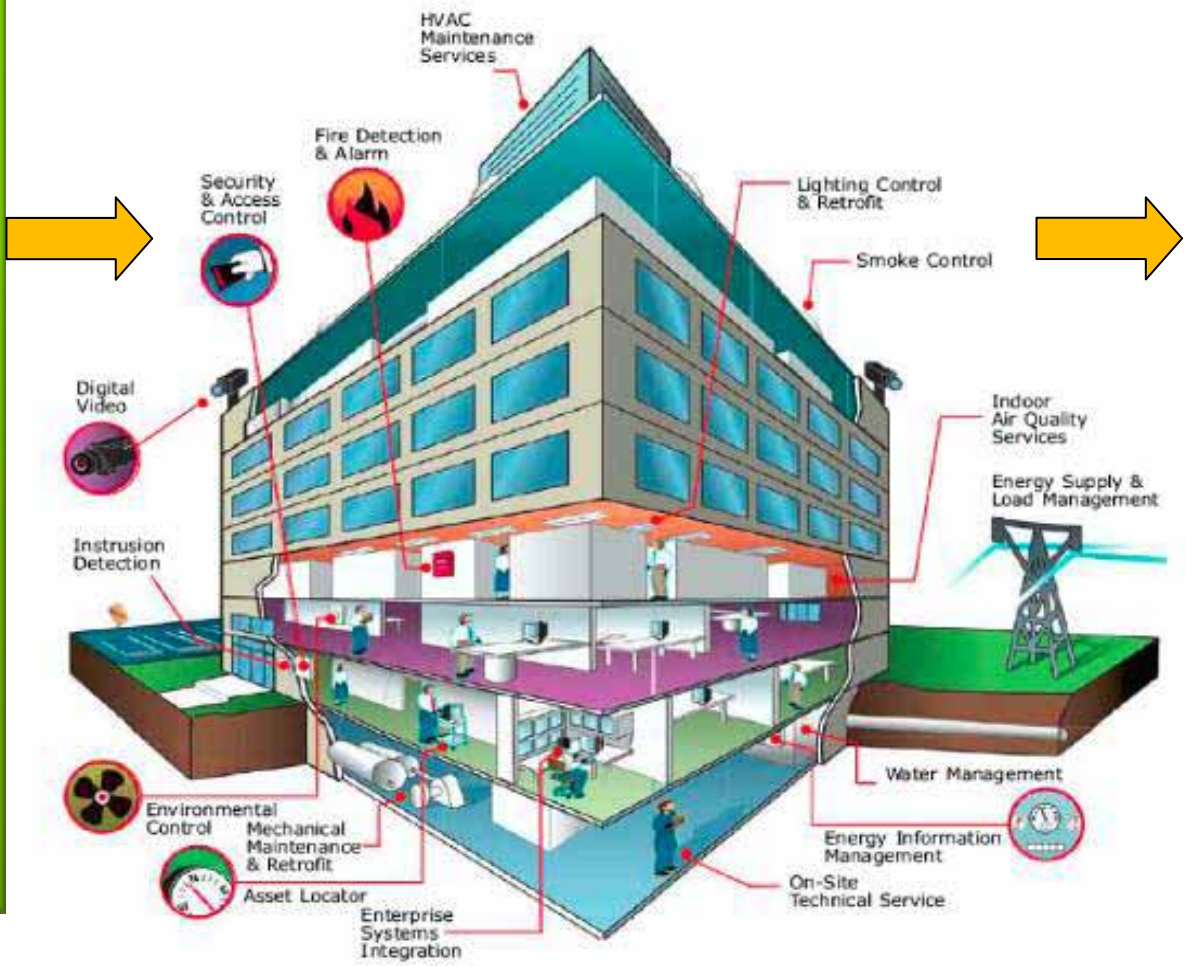
-Weather forecast

-Energy prices

-Human location information (e.g., People arriving / leaving work)

-Utility rates

-Demand Response



Analytics

-Demand Management System

-Security

-Identify out of spec building systems
- Gas
- Water
- HVAC
- Pumps
- Chillers

Control Mechanisms

- Automatically control the equipment

What does it mean to be Smarter Building?

The interconnection of physical assets and information technology can optimize efficiency, production and consumption in many types of buildings.

Smarter Commercial Building

- Provides integrated facilities operations information for owners/operators in order to optimize energy usage and services based on tenant's needs.

Smarter Cell Tower

- Integration of active and passive management enables optimized operations to reduce truck rolls.

Smarter Data Center

- Integrated facilities and IT insight to energy efficiency of datacenter and the correlation of IT and facilities information.

Smarter Campus

- Intelligent infrastructure platform and tools to manage plug-in electric vehicle stations, buildings, badging, central utility plant

What does it mean to be Smarter Building?

The interconnection of physical assets and information technology can optimize efficiency, production and consumption in many types of buildings.

Smarter Hotel

- Integration of all the guest subsystems of hotel that welcome guest according to their preferences and adds to convenience during stay.

Smarter Airport

- Provides efficient passenger and cargo services, climate control, wi-fi access, track maintenance tasks and help achieve security and safety compliance

Smarter Hospital

- Sensor instrumentation used in real-time for asset location and automated workflows such as medical equipment maintenance.

Smarter Government Building

- Utilize fully serviced office hubs and mobility tools to improve public services. Match occupancy levels with portfolio wide estates data to optimize building utilization.

Smarter Buildings help achieve financial, environmental, and operational benefits.

Governance and Business Strategy

- Comply with Fed/State regulations and company or organization goals.

Property Performance Management

- Manage facilities portfolio across campus, state, country, and world.

Business Modeling and Analytics

- Create insights from building data to feed decision support and action.

Asset Management

- Manage and extend life of all assets in a building or buildings.

Space Management

- Provide support for space planning, space reconfiguration, and moves within the building.

Building Management Infrastructure

- Better management of energy usage and reduce costs.

Building Process Integration

- Connect disparate systems to enable the transfer of business information to and from various technologies.

Smart Building to Smart Grid Integration

- To manage energy usage and demand response.

Improve the Value and contribution of IT backbone

- Integrate and optimize costs by leveraging existing building infrastructure to integrate systems.

Maximo's History in Facilities Maintenance…

- Providing Facilities Management to customers for almost two decades
- Strong Facilities Maintenance functionality

  Service Management, Space Planning, Sustainability, Data Center Infrastructure Management
- Long-standing Facilities Management Users Group

Facilities Management Customers

- *JCI*
- *UNNICO*
- *McCarran Airport*
- *General Dynamics*
- *LAUSD*
- *APS*
- *Woolworths*
- *The Venetian*
- *IAP Technologies*
- *Target*
- *IBM RESO*
- *US National Parks*
- *Purdue University*
- *Calgary Catholic School District*
- *Alberta Health*
- *Brookhaven National Labs*
- *GSA*
- *Sandia Labs*

…extends Facilities Maintenance to *Facilities Management.*

3nd Largest Maximo User Group - FMMUG

Over ***600*** members representing a variety of industries

Education and Higher Ed

- Calgary Catholic School District
- KU
- Penn State
- Purdue University
- Carnegie Mellon
- FIU Florida International University

Health Care

- University of Utah Health Care
- John Muir Health
- Alberta Health Services

Hospitality

- Only Vegas
- Disney
- NBC Universal

Service Providers

- Grubb & Ellis. From Insight to Results
- Coor Service Management
- Unicco (UGL)
- IAP Worldwide Services
- GSH
- Fluor
- Johnson Controls

Manufacturing

- Texas Instruments
- Intel
- Boeing
- General Dynamics

Retail

- IKEA
- Target
- JCPenney

Public Sector

- GSA U.S. General Services Administration
- Department of Veterans Affairs
- Sandia National Laboratories
- Broward County Florida
- APS
- Berkeley Lab
- SRP Delivering more than power.™

Market Trends – Smarter Buildings

- **Environmental Issues**
  - Track building energy consumption/performance to reduce spend, increase efficiency
  - Meet Regulatory Requirements – work towards LEED Certification
- **Improve Space Utilization**
  - Due to increased costs, look for opportunities to consolidate operations
  - Address Employee Mobility trends
- **Reduce TCO (total cost of occupancy) across enterprise**
  - Improve Visibility to Energy, Lease and Maintenance Costs
- **Convergence of IT and Facilities responsibilities**

Facilities Management combines *Integrated Workplace Management* with 3 additional areas of growing concern for out customers to fulfill the broad set of customer requirements necessary support Smarter Buildings, Cities and Infrastructure

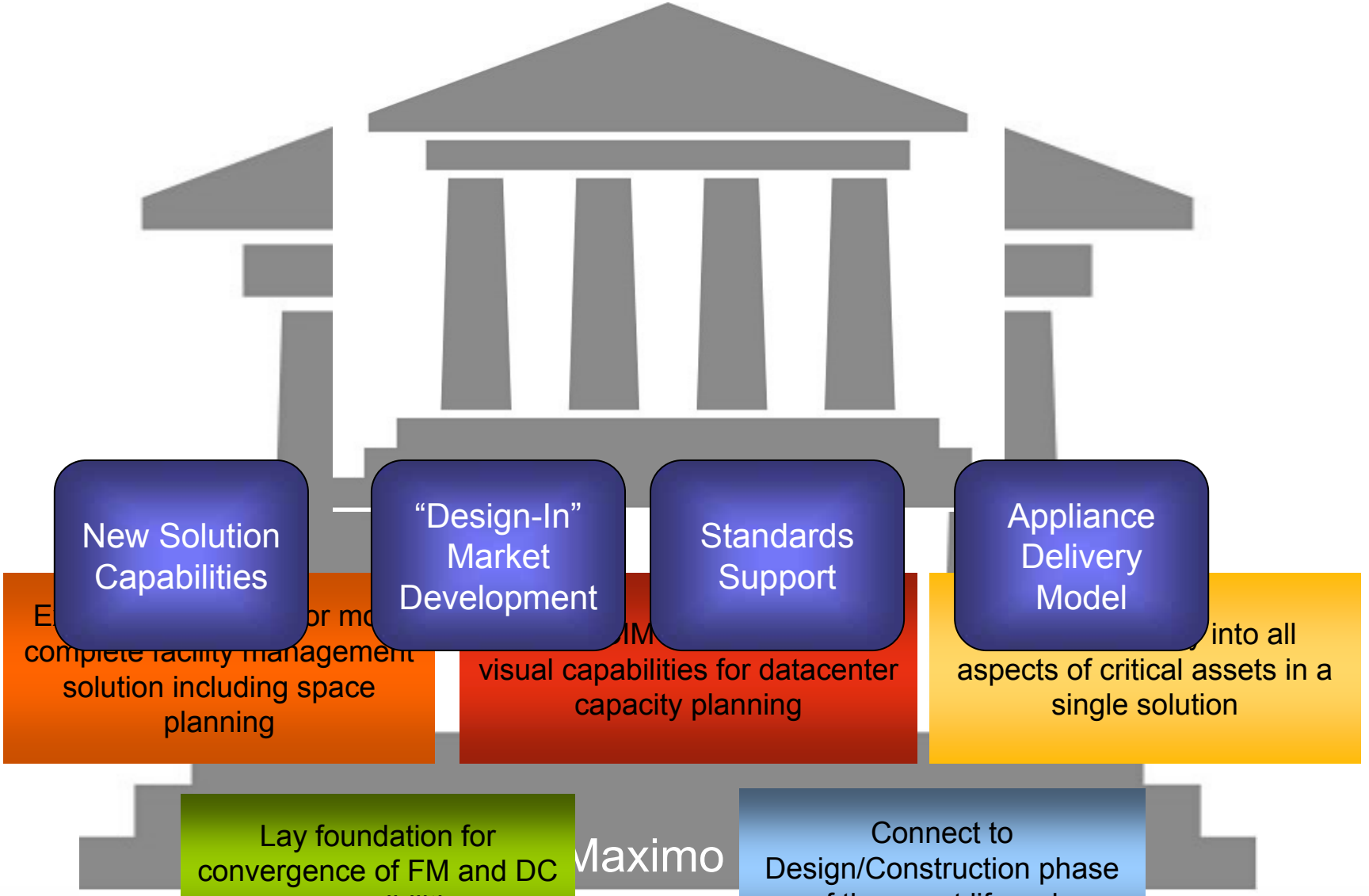
Smarter Buildings

Smarter Cities

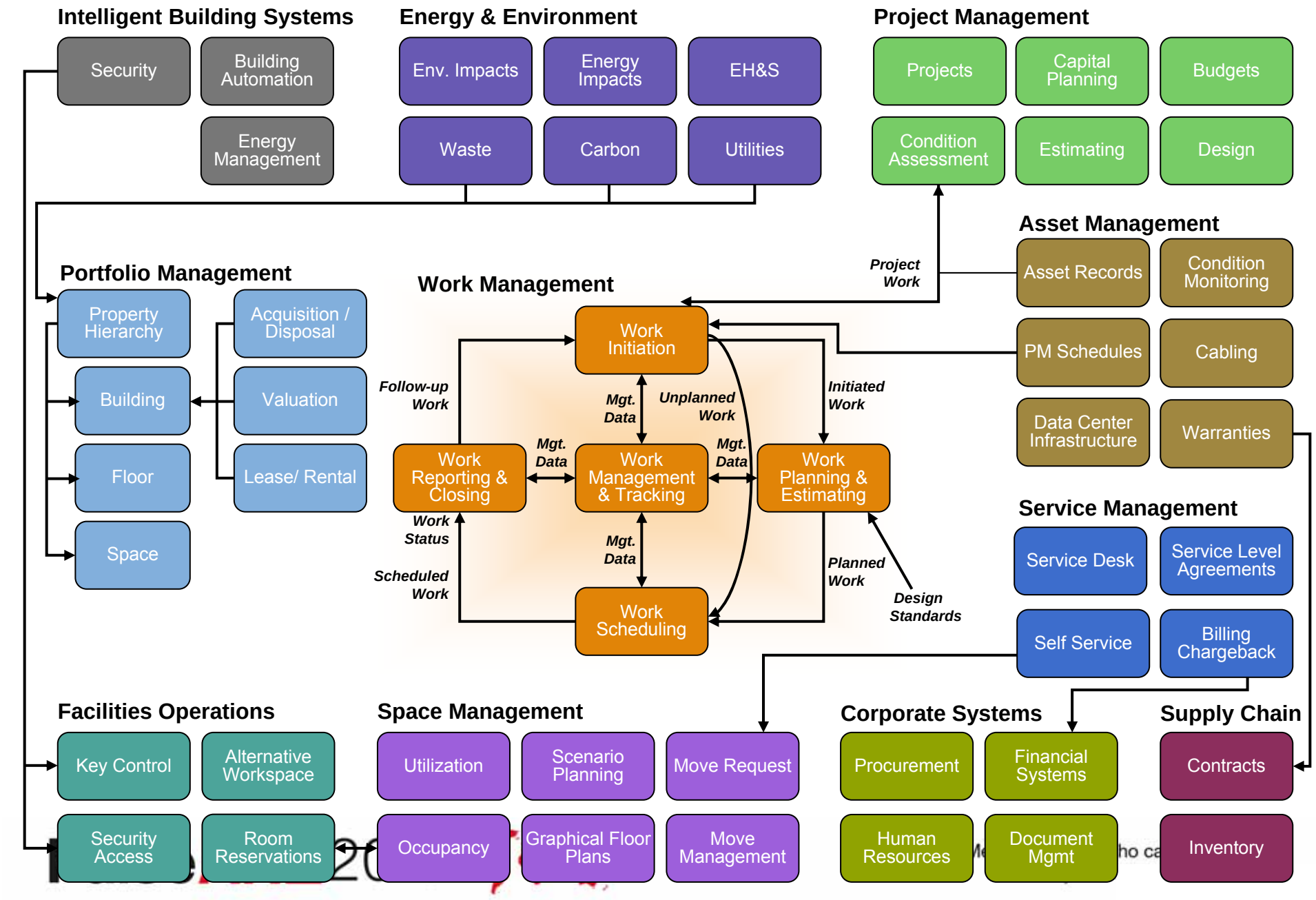
Smarter Infrastructure

Facilities Management	Service Management	Space Management	Datacenter Infrastructure Management	Energy and Environmental Sustainability	Real Estate Portfolio Management	Capital Project Management
• Asset mgmt • Work mgmt • Supply chain • Contracts • Reservations • Key mgmt	• Facilities Service desk • Service Level Agreements • Contracted Services • Customer Billing	• Space Utilization • Capacity Planning • Move, Add, Change	• Utilization • Allocation planning • Move, Add, Change • Cable mgmt	• Utility Tracking • Carbon output • Thermal mapping • Asbestos tracking	• Lease mgmt • Operating expense mgmt	• Condition Assessment • Construction Estimates • Budgeting • Project mgmt

Four Initiatives Will Drive Maximo Facility Management Strategy



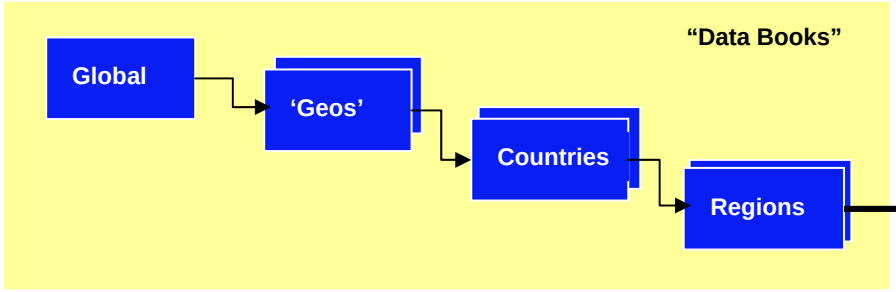
Maximo Facilities Management Solution Map



Real Estate Portfolio Planning

- PPMS Property Performance Management Solution
  - Data repository for Building Information
    - Costs
    - Occupancy
    - Usage
    - Property Rights
    - Utility Bills
    - Carbon
    - Waste
  - Provides basis for benchmark / comparison and reporting across entire property portfolio
  - Easily configurable to match organization type and geographic locality
- GBS accelerator and implementation services
  - More than 180 MBO's
  - Over 240 OTB Reports
- Globally available now on Maximo V6 and V7

Property Performance Overview



Areas

- Area Estates Manager
- Area Facilities Manager
- Area Environmental Manager
- Area Projects Manager

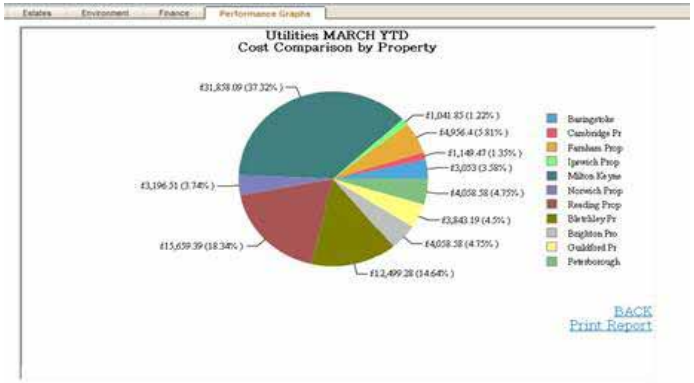
"Property-Level"

Properties

- Property Estates Manager
- Property Facilities Manager
- Property Environmental Manager
- Property Projects Manager

Buildings

Land



Estates Manager

- Locations
- Addresses
- Leases
- Freeholds
- Reviews
- Surveys
- Landlord/Tenants

Facilities Manager

- Assets
- Conditions
- Services
- SLA Management
- Work
- Help Desk
- Health & Safety
- Space
- Occupancy
- Spatial Integration
- Warranty

Environmental Manager

- Utilities
- Waste
- Carbon
- Energy Management

Projects Management

- Approvals
- Budgets
- Project Types
- Milestone Progress
- Milestone Costs

An example of data from multiple sources

MAXIMO - Property Locations

File Edit View Favorites T

Back

Address http://localhost/maximo/ui/maximo.jsp?event=loadapp&value=ppmloc

Go Links

Property Locations

Go To Start Center Profile Sign Out Help

Find: Select Action

List | Location | Space | FM | Environment | Estates | M & E Assets

From Space System

From Security System

Location	BASINGSTOKE	Basingstoke Normandy House	
Region	UK	Building Status	OPERATING
Attachments		Occupancy	Occupied
		Type *	PROPERTY

Filter 1 - 1 of 1 Download

Main Use	Net Rentable (Corporate)	WS Capacity	OCC 30 Day Avg	Size Band
OFFICE	96,390	717	574	

New Row

Property Information

Address 1	Normandy House
Address 2	Bunnian Place
Address 3	Alencon Link
City / Town	Basingstoke
County	Hants
Post Code	RG21 7EJ
Country	UK
Area	South

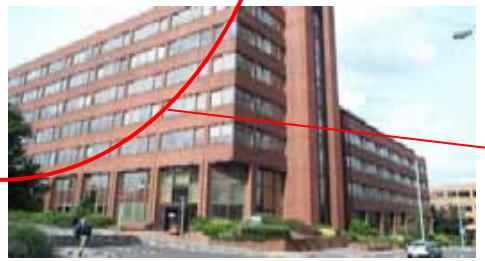
Contact Information

Person	8PRO266
Contact Name	John Smith
Contact Function	Facilities Manag
Primary Phone	01131-112777
Out of Hours Phone	07611-345678
Primary E-mail	John Smith@property.manager.com

From HR System

Other Information

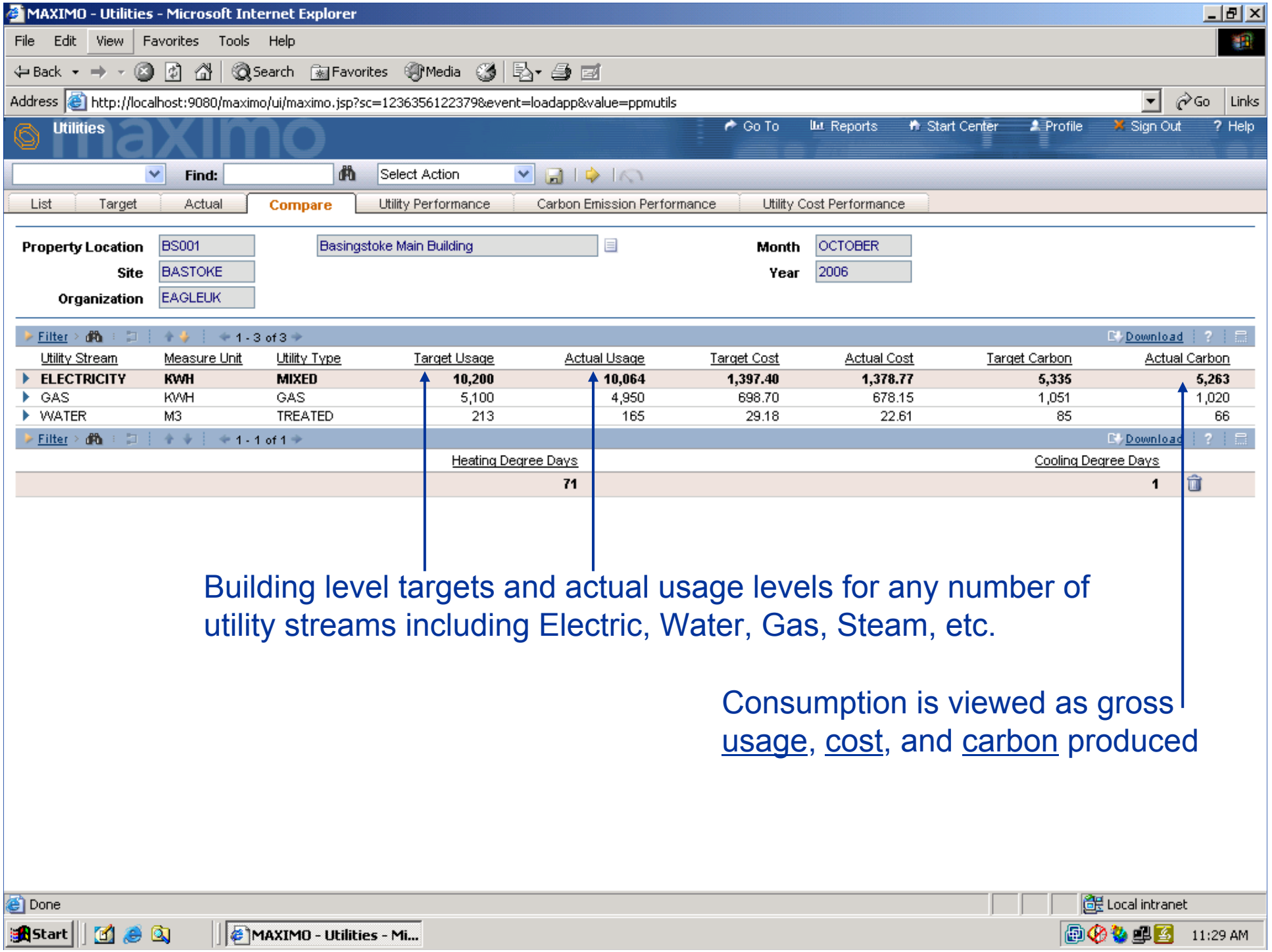
On Site Parking	284
Off Site Parking	82
Rented Parking	0
Subsidiary	
Tenure Belongs To	



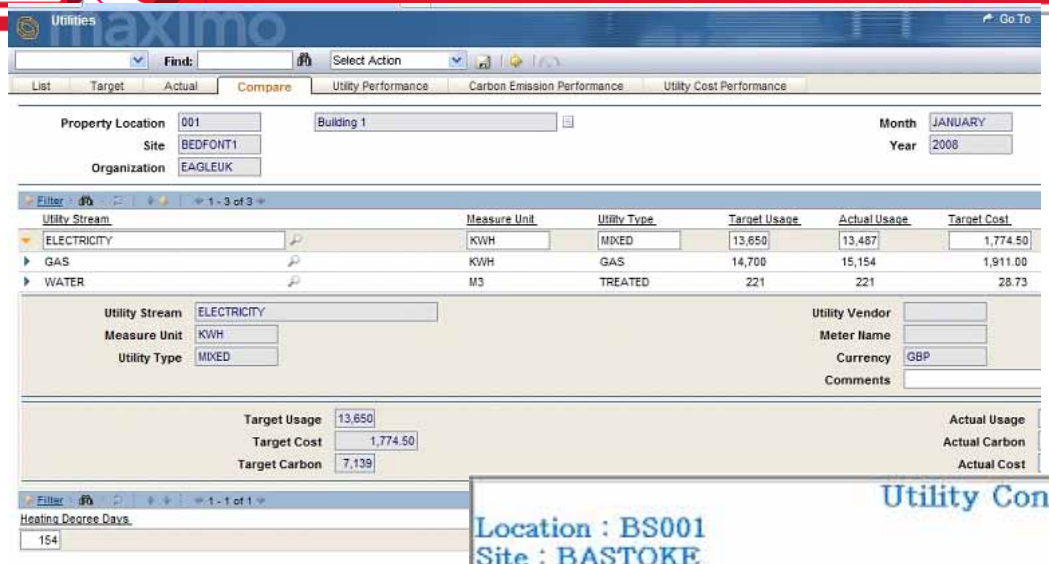
From Estates System

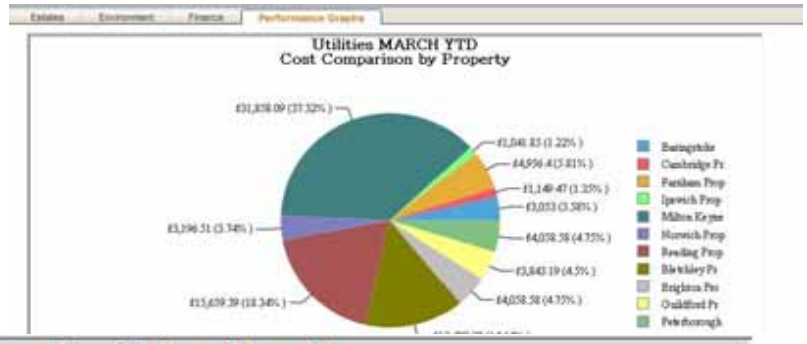
Done Local intranet

Start | Oracle SQ... | Command ... | Command ... | \\Hs-dtglf... | C:\WINNT... | MAXIMO ... | Document... | EN 17:05


MAXIMO - Utilities - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:9080/maximo/ui/maximo.jsp?sc=1236356122379&event=loadapp&value=ppmutils
Go Links
Utilities
Go To Reports Start Center Profile Sign Out Help
Find: Select Action
List Target Actual Compare Utility Performance Carbon Emission Performance Utility Cost Performance
Property Location BS001 Basingstoke Main Building
Site BASTOKE
Organization EAGLEUK
Month OCTOBER
Year 2006
Filter 1 - 3 of 3 Download
Utility Stream | Measure Unit | Utility Type | Target Usage | Actual Usage | Target Cost | Actual Cost | Target Carbon | Actual Carbon
ELECTRICITY | KWH | MIXED | 10,200 | 10,064 | 1,397.40 | 1,378.77 | 5,335 | 5,263
GAS | KWH | GAS | 5,100 | 4,950 | 698.70 | 678.15 | 1,051 | 1,020
WATER | M3 | TREATED | 213 | 165 | 29.18 | 22.61 | 85 | 66
Filter 1 - 1 of 1 Download
Heating Degree Days | Cooling Degree Days
71 | 1
Building level targets and actual usage levels for any number of utility streams including Electric, Water, Gas, Steam, etc.
Consumption is viewed as gross usage, cost, and carbon produced
Done
Local intranet
Start
MAXIMO - Utilities - Mi...
11:29 AM

A variety of ways to view data





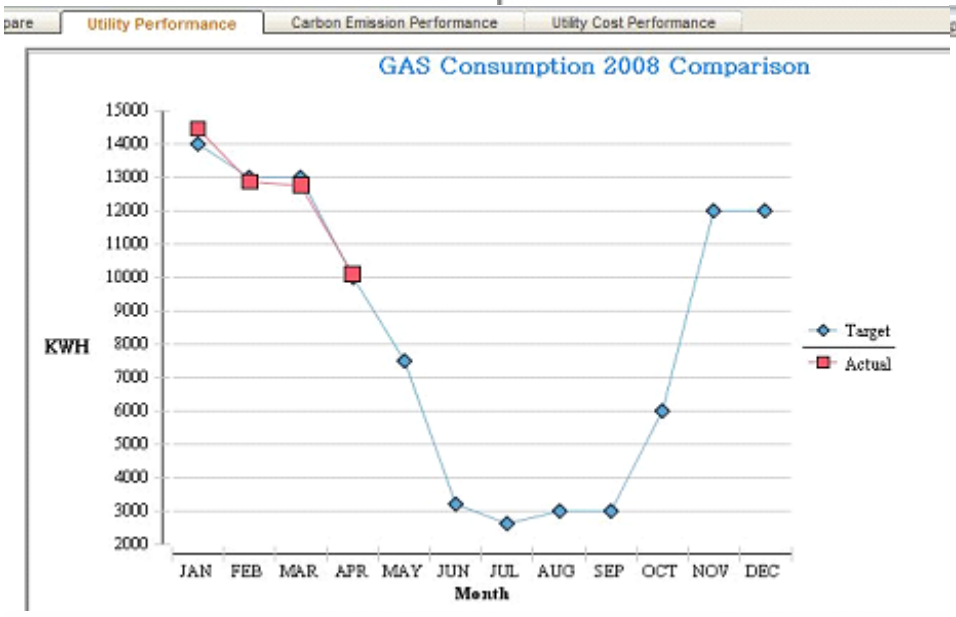
Utility Consumption Status Report

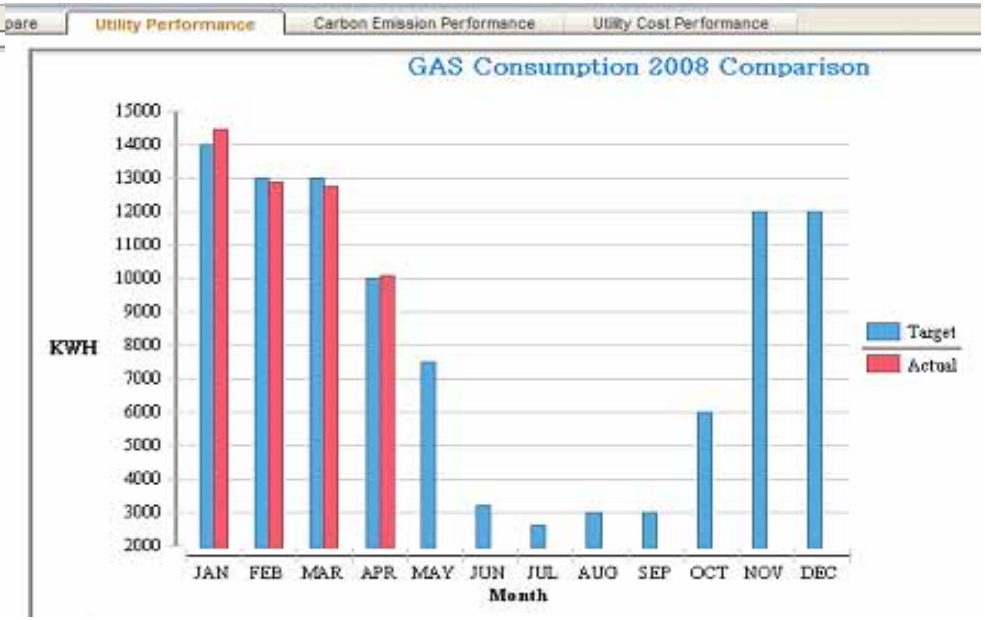
Location : BS001
Site : BASTOKE

Month : SEPTEMBER
Year : 2008

Utility	Measurement Unit	Utility Type	Target Usage	Actual Usage	YTD Target	YTD Actual
GAS	KWH	GAS	2550	2448	58905	58682
WATER	M3	TREATED	213	169	1583	1482
ELECTRICITY	KWH	MIXED	10200	10468	80750	86527

Print Report





Maximo for Service Providers

For managed service providers

Unicco

GRUBB & ELLIS. From Insight to Results

IBM

TRILLIUM ASSET MANAGEMENT

CBRE CB RICHARD ELLIS

Approximately 200 customers are using “Maximo for Service Provider” across all industries and asset classes

Companies who deliver asset management services to asset owners:

- **3rd Party Providers**
- **Facilities Managers**
- **Original Equipment Manufacturers (OEMs)**
- **IT Outsourcers**

Features

Financial Management

- Customer Billing
- Batch capability based on billing frequency requested Sales Order
- Create unique pricing transactions

Customer Management

- **Manage Multiple Customers**
- Segregation of customer data – complete security
- **Customer Information**
- Service addresses are associated with locations
- **Global and Unique Customer Agreements**
- Agreement Price Schedules
- Service Level Agreements (SLAs)

Service Management

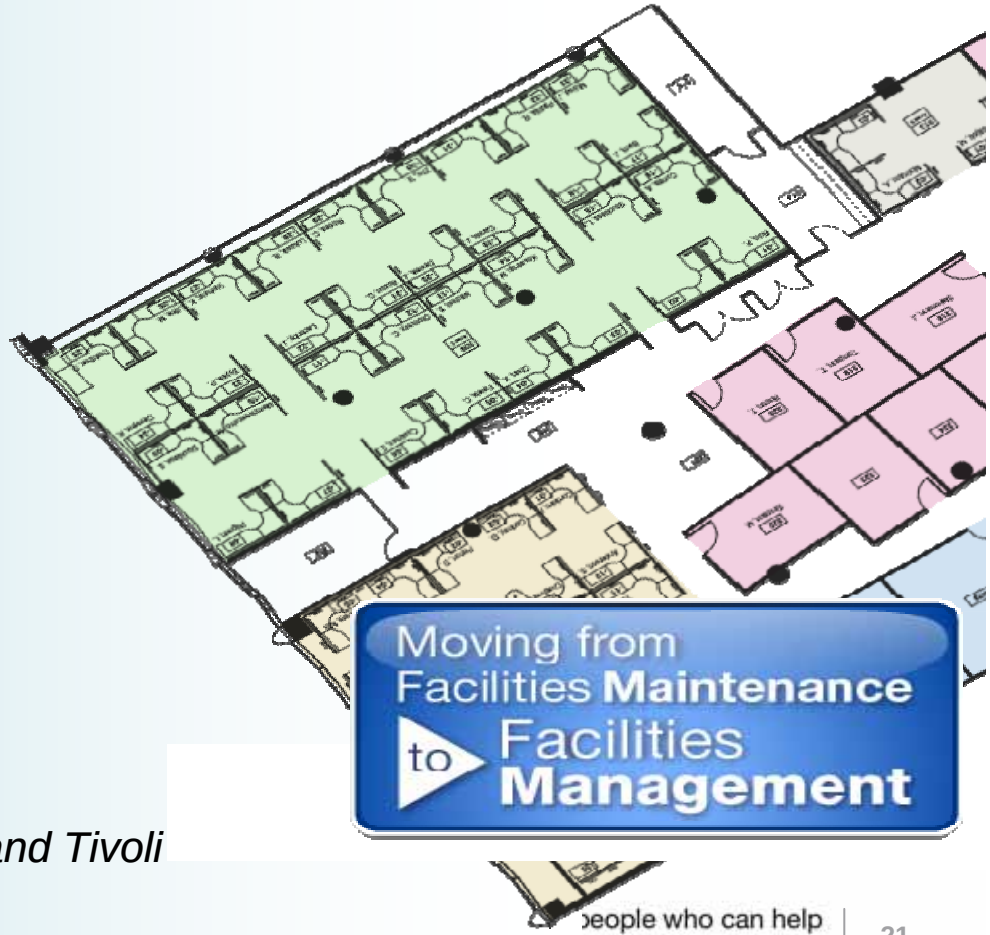
- Response Plans
- Work Order and Incidents Enhancements

Infrastructure Management – Facilities and Data Centers

Integrated Computer Aided Facilities Management (CAFM) with Maximo Asset Management to address the challenges faced by Facilities Managers:

Key Capabilities

- *Space Management & Accounting*
- *Move Management*
- *Occupancy Management*
- *IT Infrastructure Management*
- *LAN and telecom information*
- *Mechanical, Electrical, Plumbing*
- *Lock & Key Management*
- *Building Infrastructure Management*
- *Business continuity and safety information*
- *Business Resumption/Contingency Planning*
- *Hazardous Condition Tracking*
- *AutoCad and Microstation Compatible*
- *Robust Security Model*
- *Integrated with Maximo Asset Management and Tivoli Asset Management for IT*



Data Center Infrastructure Challenges

Improve visibility of data center infrastructure - what do I have, where is it, who owns it and how does it connect

Understand the impact of Moves, Adds and Changes on space and power capacity constraints

Optimize infrastructure to extend the life of the data center and reduce operational cost

Mitigate risk of system downtime through tighter control over the infrastructure

Provide data center and facilities management a common view of the infrastructure

Infrastructure Management Challenges

IN THE FACILITY

- Manage Occupancy
  - Department or individual moves supporting business rules and the association of all related assets (phone, furniture, etc.) including impact analysis and multiple what-if scenarios
  - Chargeback departments based on usage
  - Regulatory Report on utilized space
  - Make better Lease/Rental Decisions
- Enhance Maintenance and Operations activities
  - Create Service Requests and Work Orders from the floorplan
  - Understand mechanical, electrical, cable dependencies
  - See all work being performed in an area
- Emergency Management
  - Provide Evacuation and Haz-Mat information to local authorities
  - Support business continuity data requirements (current infrastructure)

IN THE DATA CENTER

- Improve understanding of the physical layer of the data center, so you know what you have, where it is and how it connects
  - Visibility over data center assets and equipment: graphical view of location of servers, racks, networking components, CRACs, PDUs, HVAC, cabling & wiring and how these connect
  - Floorplan visualization, including elevated rack views (2D representation of what is on floor and what is in racks)
- Consider the impact on rack-space and power consumption, when doing Moves, Adds and Changes, so you can reduce risk and unforeseen system downtime
- Optimize the data center infrastructure, including space and power capacity, to lower data center operational costs and extend the life of the data center

Space Planning provides important benefits across the organization

- Understand occupancy and usage across entire portfolio
- Allocate costs by usage
- Regulatory Requirements

COO/CFO

- Manage DC IT & energy costs, planning, & consumption
- Design & manage DC layout
- Buy, implement, maintain DC infrastructure assets including IT, UPS, PDU, CRAC

Data Center Manager

- Efficiently execute Move/Add/Changes
- Consolidate Space
- Make better Lease/Rental decisions

Space Planner

- Accurately request service based on location
- Visibility to nearby work

Self-Service Requestor

- Visibility to assets and dependencies for better work execution
- More effective capital project planning
- Understand asset inventory

Maintenance Manager

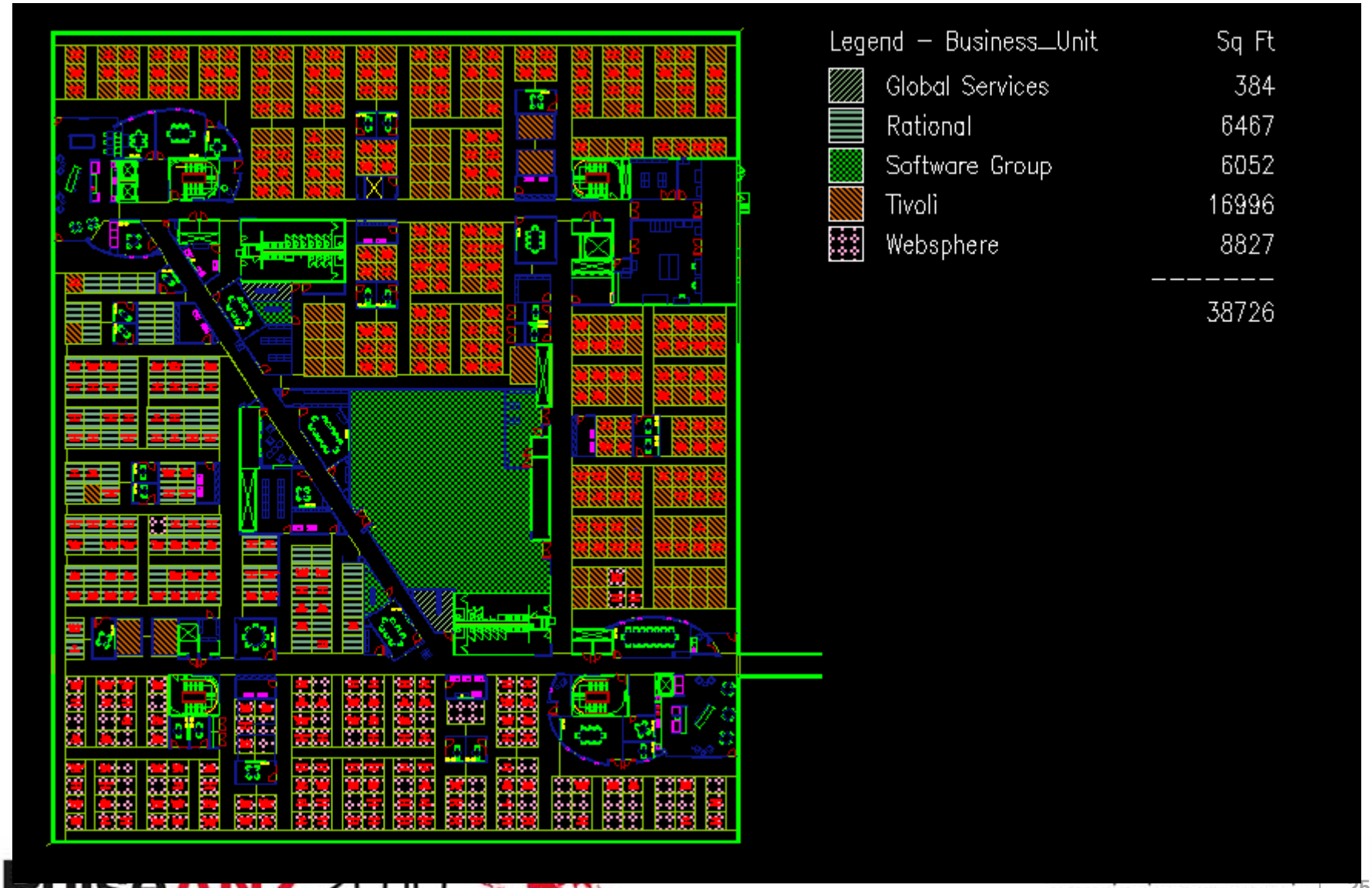
Planner/ Scheduler

- Better schedule resources based on work location
- Reduce downtime by understanding asset relationships

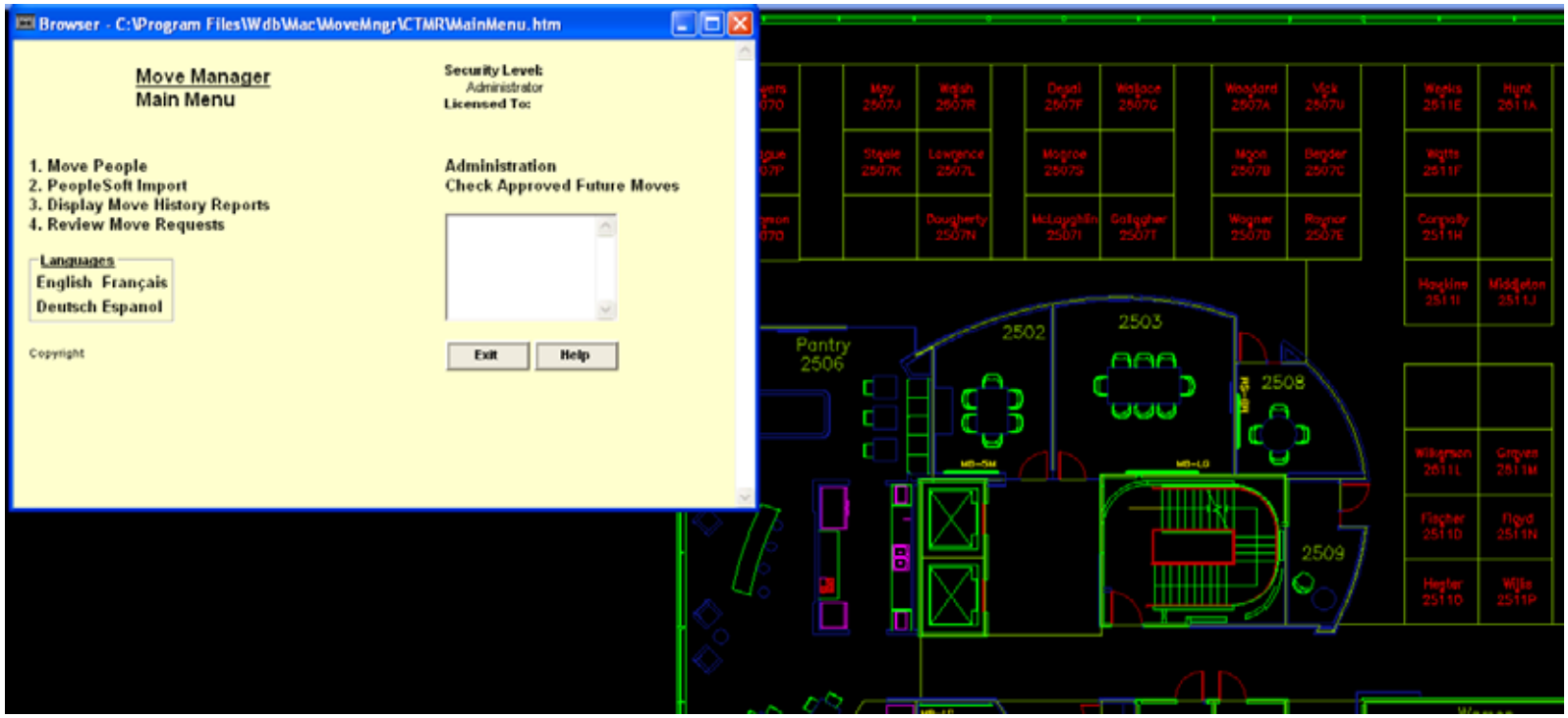
- Understand asset dependencies for minimal impact on building occupants
- Reduce travel time due to accurate work location

Maintenance Engineer

Space Allocation/Occupancy



Move Management



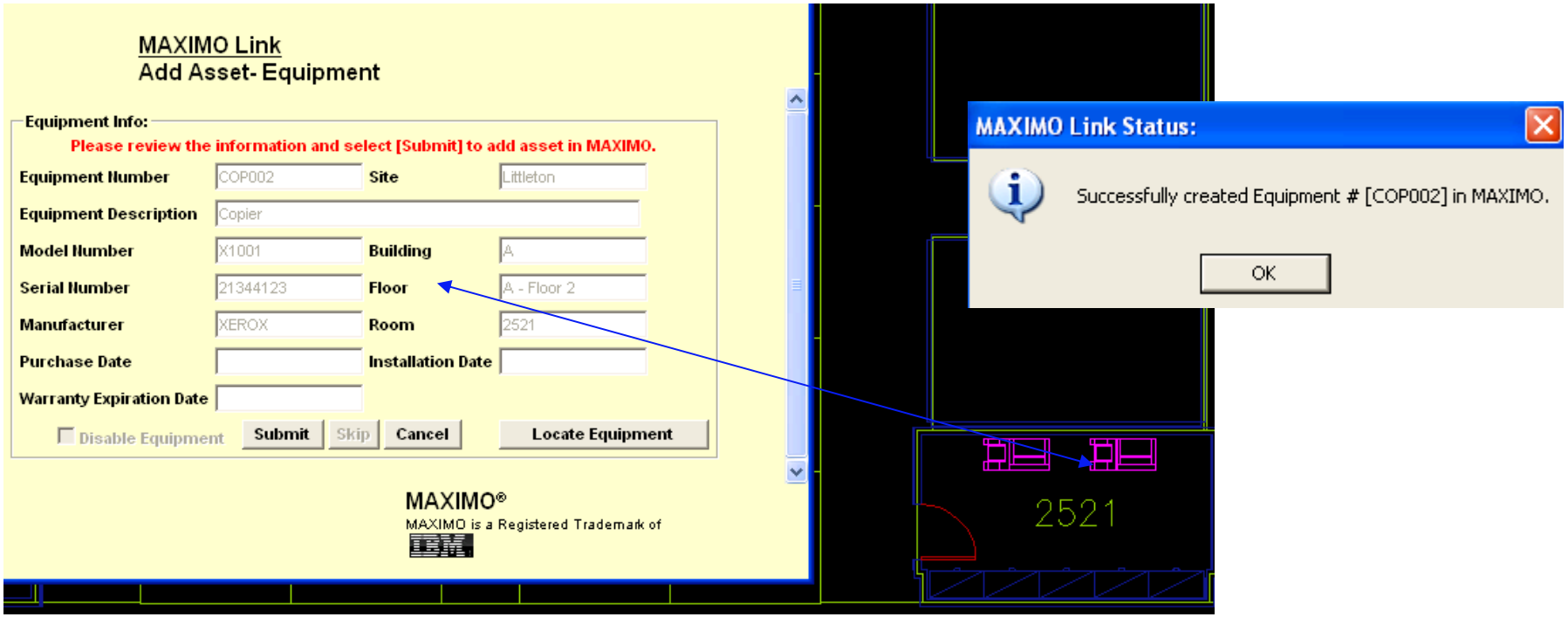
1. Immediate Moves
- A. Perform a Staff Move
- B. Perform a Staff Addition
- C. Perform a Staff Deletion

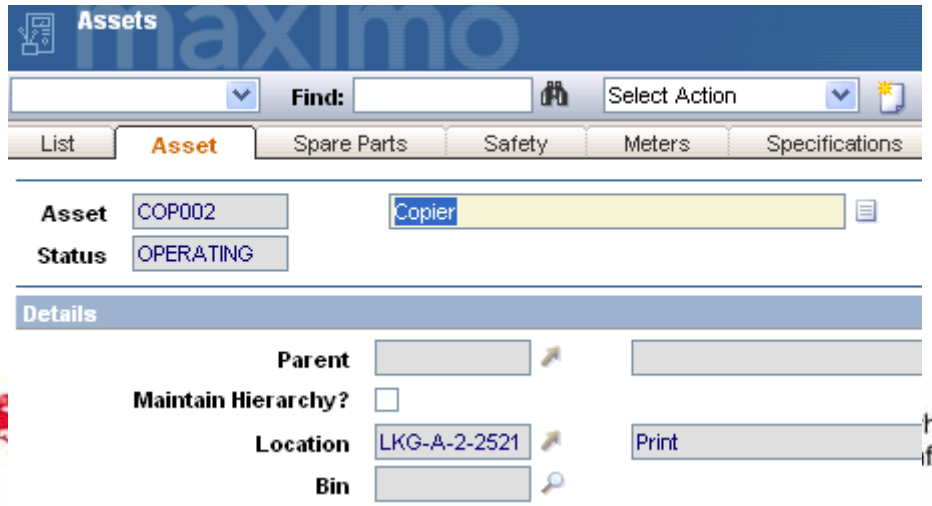
2. Future Moves
- A. Reserve a Future Move Date
- B. Schedule a Future Group Move
- C. Schedule a Future Staff Move
- D. Schedule a Future Staff Addition
- E. Schedule a Future Staff Deletion
- F. Import Future Moves from an External Table

3. List / Review Moves
- A. Review Move Requests
- B. List Future Moves Waiting for Approval
- C. List Approved Future Moves
- D. Review All Types of Moves

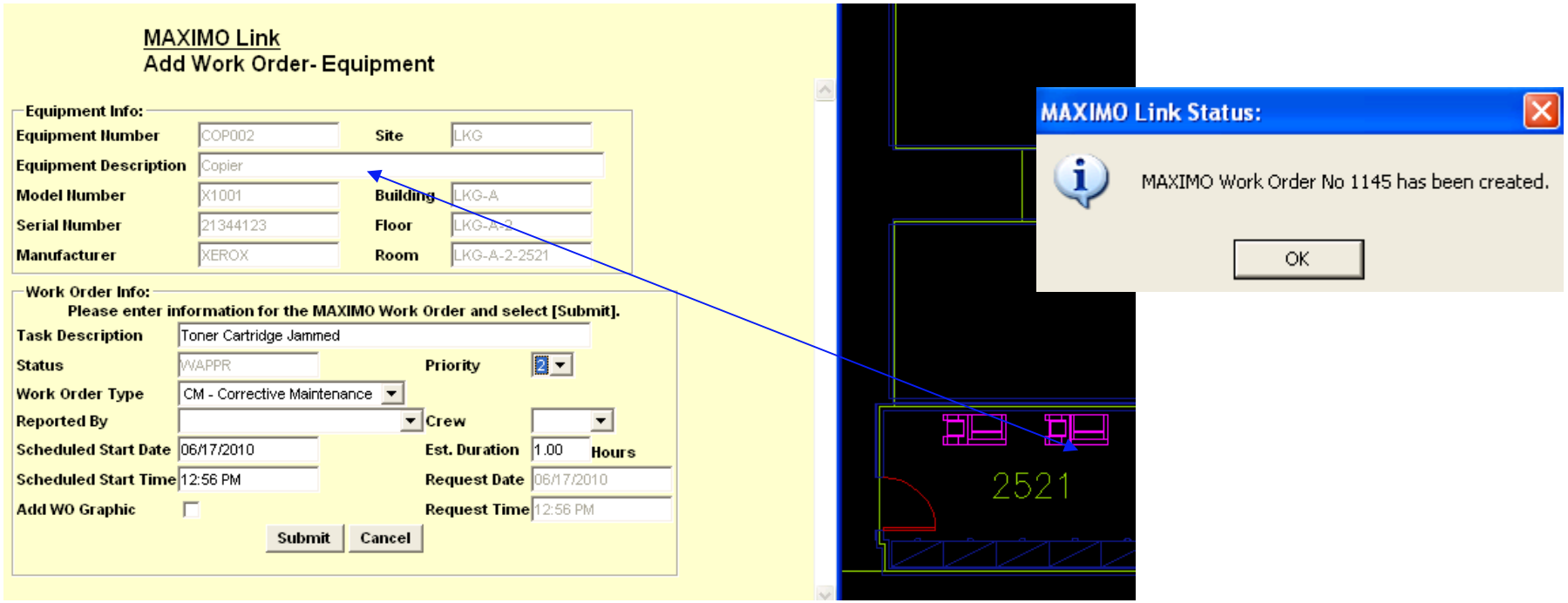
4. Display Moves Graphically
- A. Display Future Moves Graphically on Active Dwg
- B. Display Future Move Depts on Active Dwg

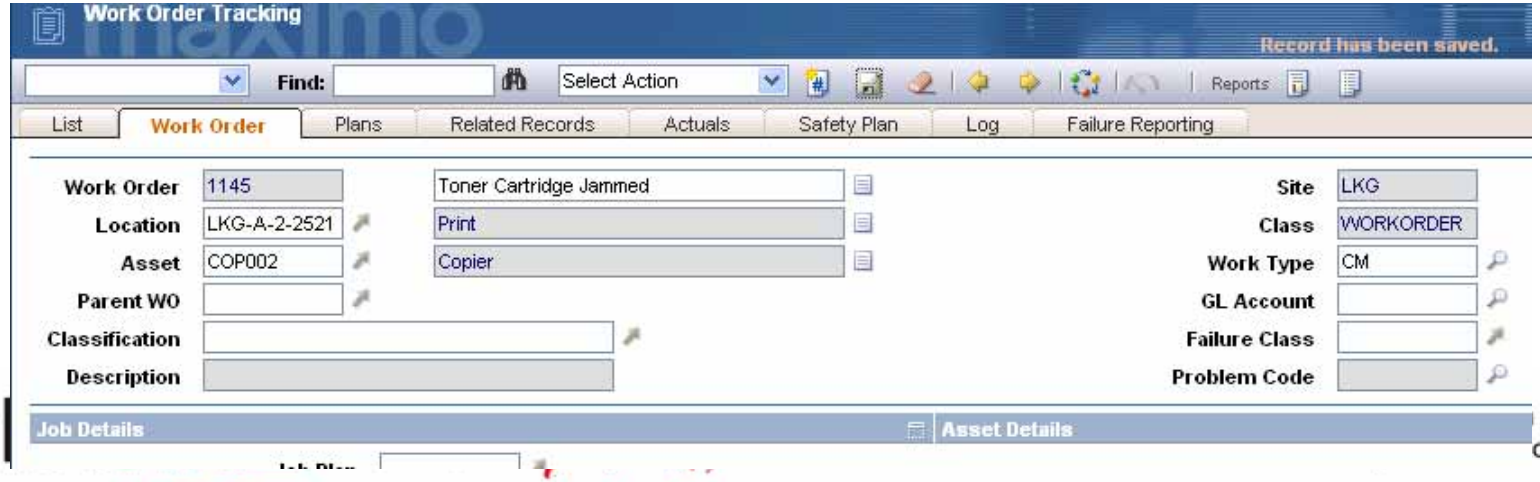
Add Asset from Floor Plan



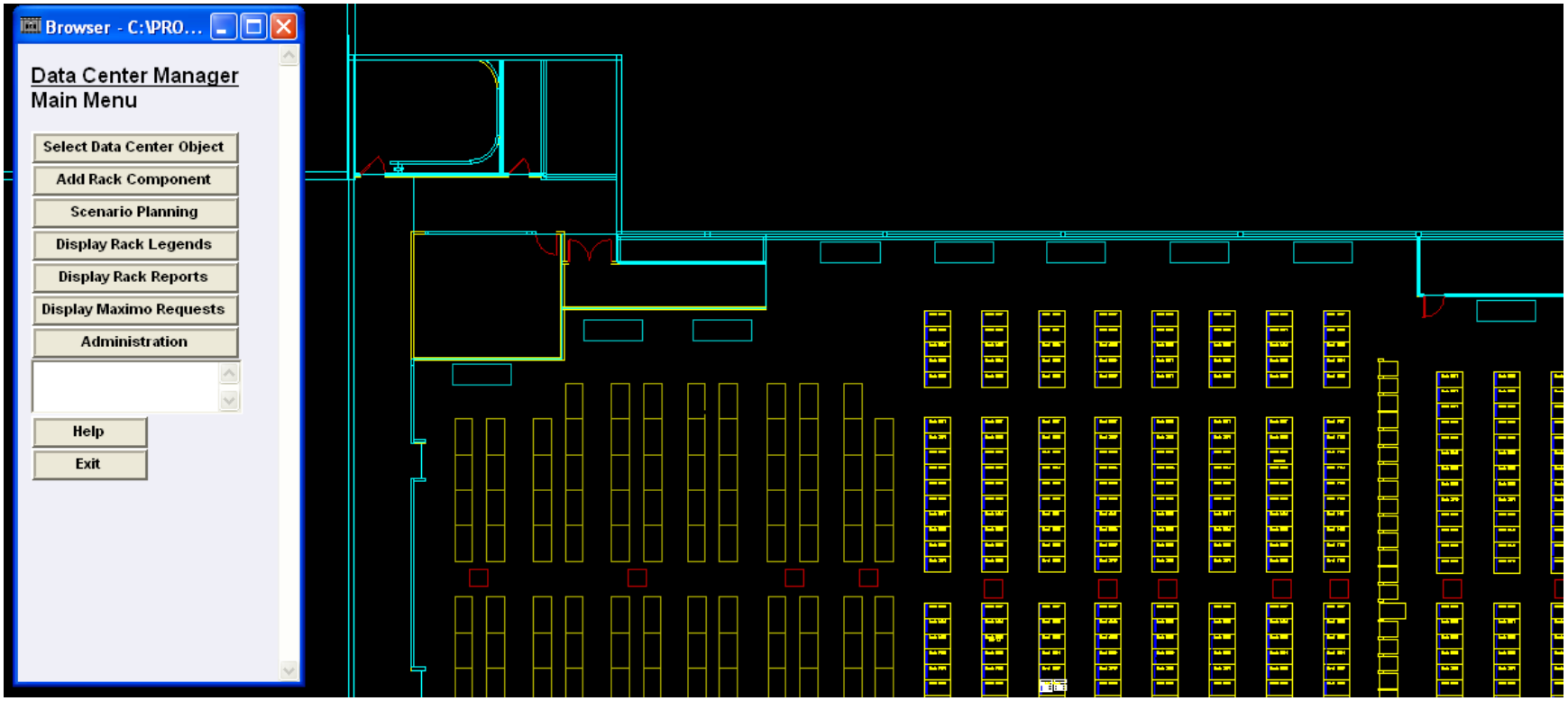


Add Work Order from Floor Plan

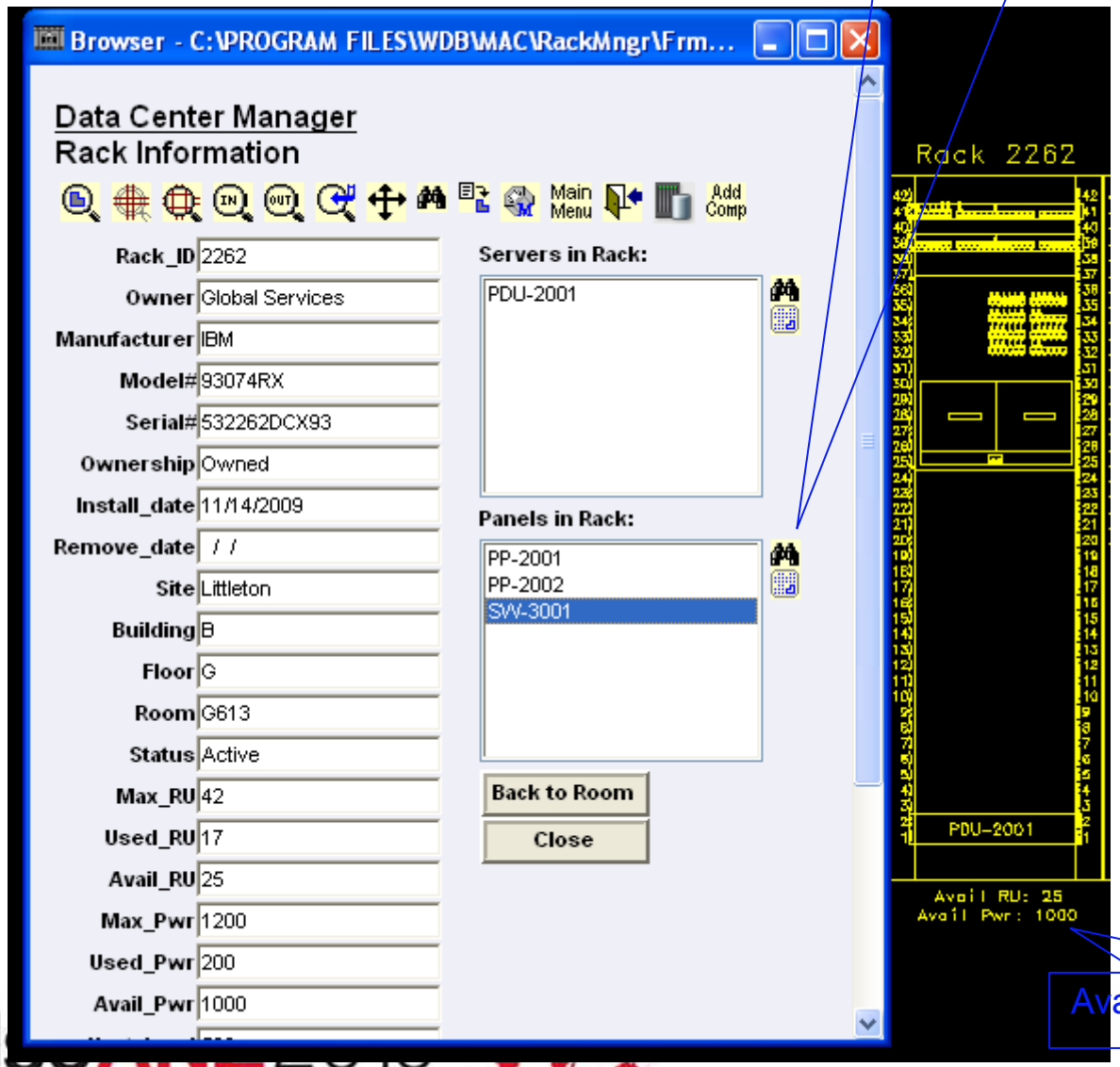




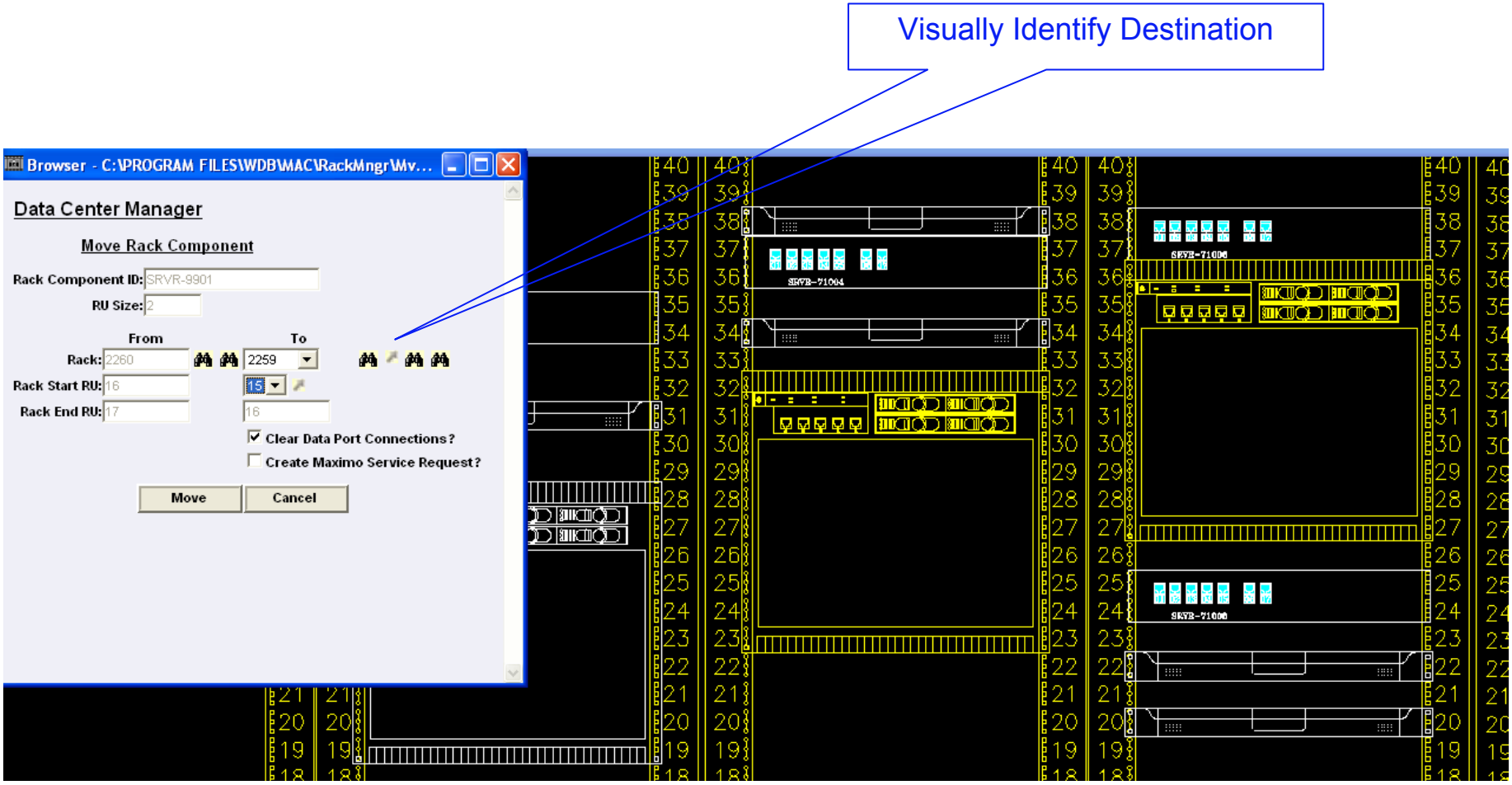
Maximo Data Center Infrastructure Management – Data Center Floor Plan



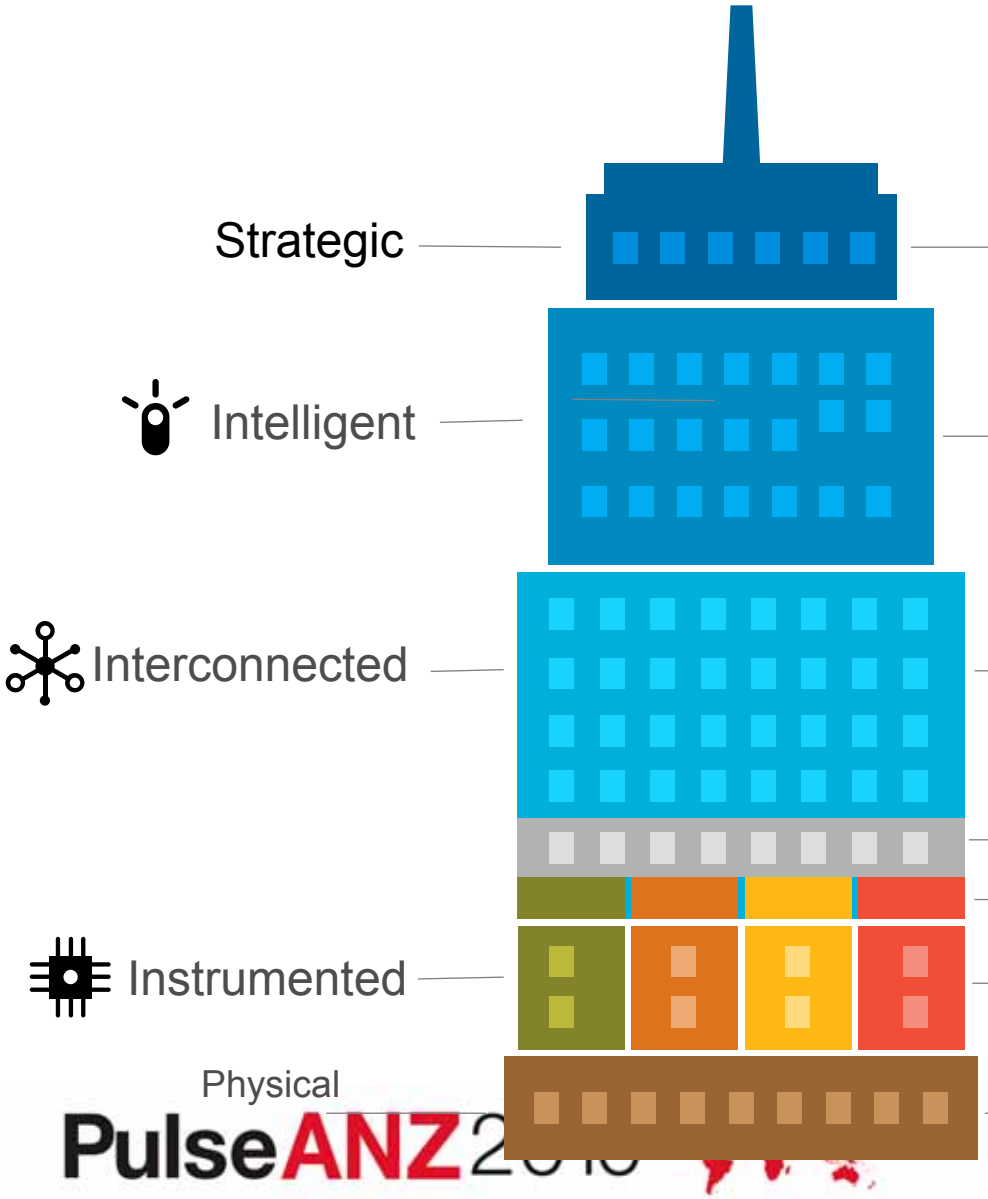
Rack Information



Moving a Component



Our Integrated Solution for Smarter Buildings



IBM Smart Building Appliance

- Executive and role-based decision making via personalized dashboards
- Portfolio view of building performance

- **Analytic** comparison of historical data with newly collected data
- **Analytic** comparison across similar assets, against targets / benchmarks
- Business and Operational Analytics using **Cognos**, **SPSS**
- Building performance management and response to faults via **Maximo** Work Orders

- Data aggregation across domains (HVAC, lighting, etc), business systems (finance, energy, EAM)
- **Maximo PPMS**, Tivoli Data Warehouse, **Tivoli Monitoring for Energy**

- Open standards

- Vendor Building Management Systems — BMS
- Data aggregation – single building

Sensors and Meters

Bricks and Mortar, Hardware

JCI and IBM provide complementary assets and capabilities…

Johnson Controls

Smart Buildings

IBM

Instrumented/ Interconnected Systems

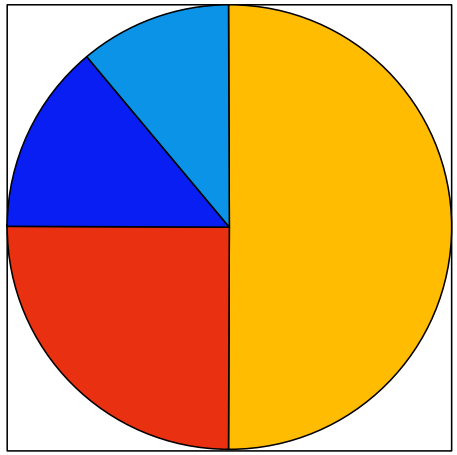
- **Technology**
  - Manufactured and installed HVAC/BAS equipment, sensors, monitors, controls, etc.
  - Metasys BAS
  - Have integrated over 1,000 products
  - Enterprise energy view
- **Services**
  - Perform energy retrofits and Performance Contracting
  - Building System Integration
  - Technology Contracting
- **Capabilities**
  - Manage 1.4B sq. ft. of building space
  - $5B of performance energy guarantees
  - Recognized leader in energy solutions

Interconnected/ Intelligent Buildings

- **Technology**
  - Enterprise asset and service management
  - Business Intelligence, Collaboration and Presentation of Analytics
- **Services**
  - Upfront Consulting & Solution Selling
    - Change Management
    - Business analytics and optimization
    - Corporate social responsibility
  - Enterprise Systems Integration
    - Established SW integration frameworks

How can this impact building lifecycle costs?

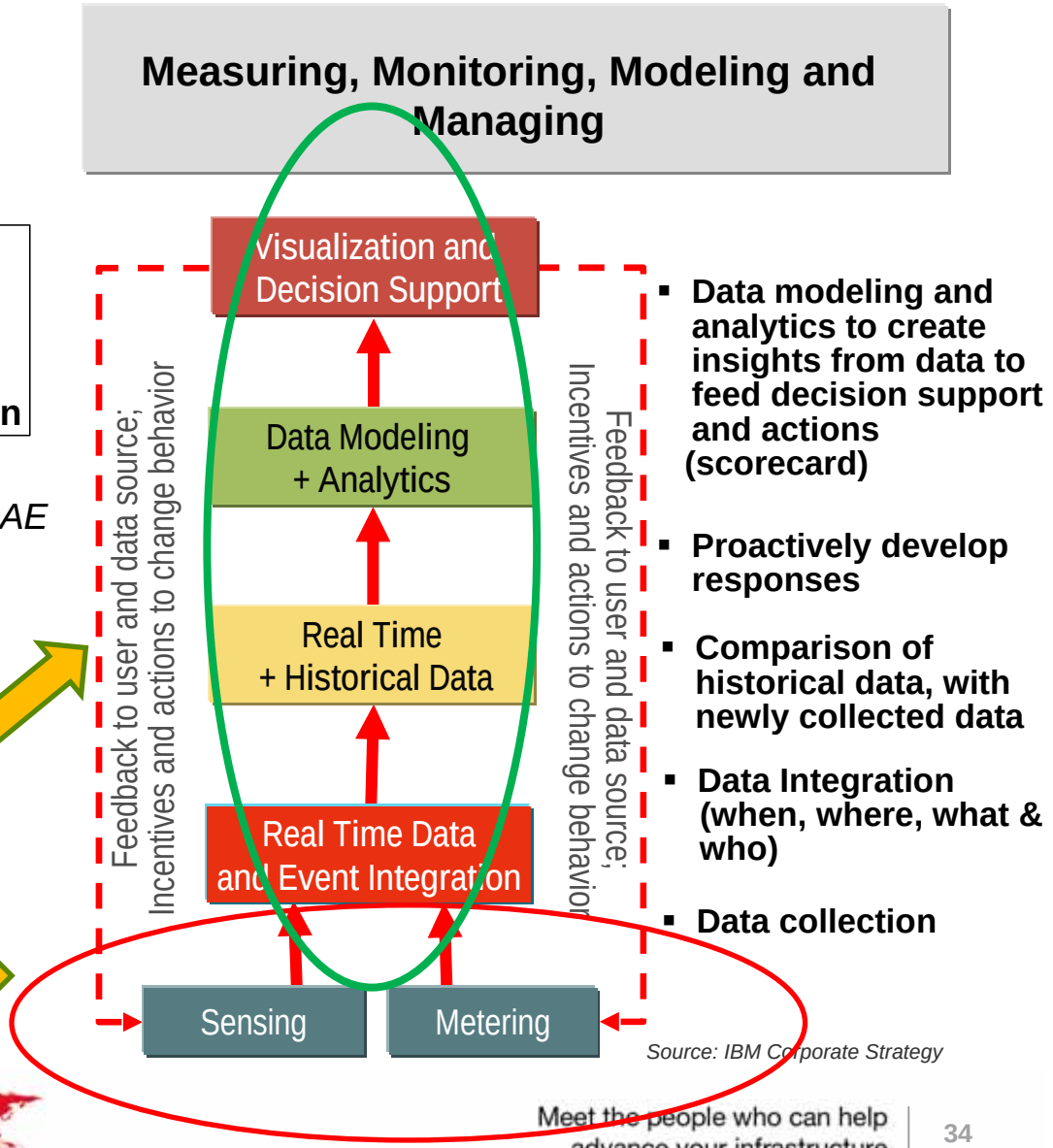
Building Lifecycle Cost



Source: ASHRAE

Migration to a holistic system will significantly impact building costs…

Historical focus has been here



- **Data modeling and analytics to create insights from data to feed decision support and actions (scorecard)**
- **Proactively develop responses**
- **Comparison of historical data, with newly collected data**
- **Data Integration (when, where, what & who)**
- **Data collection**

Source: IBM Corporate Strategy

Smart Building Architecture Footprint

External Integration

Dashboard / Portal

Secure Access, ID Management and Single Sign on (TIM, TAM)

Optimization

Business Policy and Rules

Resource Usage Optimization

Analytics

Operational Analytics/Actions

Business Analytics

Data Acquisition

Aggregation, Warehousing

Event Management

Asset, Condition and Work Order Management

Portfolio Management (Maximo / PPMS)

Service Bus Interface with Data Model awareness (WESB and Model)

BMS/BAS Integration

EATON CISCO SIEMENS Honeywell Johnson Controls Schneider Electric

Basic Enhanced

Marketing Activities

- Now Available
  - Facilities Management Industry website is now live
    http://www-01.ibm.com/software/tivoli/solutions/facilities-management/
  - Press Release on Drawbase Source Code License
  - Video of Facilities Overview
  - Datasheet on General FM
  - 2 case studies, Brookhaven National Labs, Calgary Catholic School District

- Tradeshows
  - FM Expo (5/16-20: http://www.fm-expo.com/?id=127)
  - BOMA (June 27-29)
  - IFMA (10/27-29, Atlanta: http://www.worldworkplace.org

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QUESTIONS?

AND THANK YOU!

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