A GIS manager’s dialogue:
Is your business semi-integrated or fully system integrated?

Enterprise GIS System Integration
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• We the GIS Manager:
  • Statement - Enterprise GIS is required to integrate across the business needs of the organization and our clients.

• Questions:
  • Why integrate
  • Who integrates
  • What to integrate
  • How to integrate
  • When to integrate
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• System Integration Defined:
  • “The process of creating a complex information system that may include designing or building a customized architecture or application, integrating it with new or existing hardware, packaged and custom software, and communications.” - Gartner.

• GIS System Integration
  • The utilization of Geographic Information Systems and its technologies in conjunction with the ability to integrate within various applications, systems and hardware throughout an organization; which allows the management of assets and infrastructure.
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Why Integrate:
• Users don’t consume an Enterprise GIS they consume what’s relative to their business needs.
• We have to understand, leverage and integrate within their business processes to deliver the needed Geospatial services.
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• Fundamental aspects of System Integration and it’s implementation:
  • System design requirements and assessments
  • User workflows
  • Peak workflow performance
  • Implementation strategy that outlines project acceptance
  • Planning for business continuity
  • Scalability
  • ROI
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- Fundamental Components of System Integration:
  - Software or Applications
  - Hardware
  - Database
  - Testing
  - Training
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• How integrated is integrated:
  • How integrated is you’re organization’s Enterprise GIS
  • Is it possible to measure that level of systems integration
  • Is it defined by a set of metrics
  • Is it defined as the aggregate of past integrations
  • Is it defined by feedback
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- City of Wilson’s Enterprise GIS Architecture:
  - City of 50,000
  - Mature Enterprise GIS using a mixture of GIS-Centric software solutions
  - GIS efforts began in the early 90’s
  - In part to maintain cost and provide more efficient asset management of our Utilities and more recently Fiber to the Home (Greenlight) broadband
  - Centralized model of Enterprise GIS with embedded GIS personnel throughout the organization
  - 100+ deployments of GIS desktop software solutions
  - Numerous web-mapping applications
  - Fosters an “Enterprise Culture of GIS”
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• City of Wilson Enterprise GIS Supports:
  • Finance and Accounting
  • Public Safety
  • Environmental Services
  • Planning
  • Engineering
  • Transit
  • Utilities
  • Broadband
  • Public Services
  • Community Develop
  • City of Wilson external clients
  • And many more…
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Service Model:
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• Who Integrates Vendor or Internal Staff:
  • How specialized are the requirements
  • What are the IT resources needed to perform the Integration(s)
  • Budgetary limitations
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- Integrated technologies:
  - iSeries (AS400)
  - Informix
  - SCADA environments(s)
  - SunGard products
  - ETI
  - DataVoice (Outage Management)
  - Windmill
  - CAD
  - AutoCAD
  - Smart Devices
  - AVL
  - ConectCTY (Reverse 911)
  - Microsoft Suite
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- What to integrate
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- GIS Integration as an archiving strategy
  - Archive data from legacy system in which the data has to remain in perpetuity.
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• The Challenge:
  • Fully integrate our GIS Services into existing Land Based Records System and other pertinent relational databases which will allow end-users to instantly view geospatially enabled data and incorporate the data into everyday workflows.
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• Land based record system:
  • **Within the iSeries each address is given a unique identification number, which allows the use of the identification number in various integrated systems throughout the organization.**

• Cadastral Mapping:
  • **Parcel PIN**
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• Approach as a Project:
  • Scope:
    • Successfully integrate GIS throughout the organization in a way that business customers can effortlessly access geospatial data derived from relevant backend technologies.
    • Define standards
  • Planning:
    • Series of departmental meetings to understand business needs, workflows and requirements.
    • Required organizational changes to GIS that resulted in a centralized GIS.
    • Procedures and documentation
  • Communication:
    • Constant relaying of information to all involved parties.
    • Ensured custodian’s of the data that their data remained intact.
  • Execution:
    • Created mechanisms for extracting data and its conversion to geospatial data
    • Created GIS-Data repository
    • Standardized Symbology
• Close Out:
  • Training, training and more training.
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- Communication is vital, don’t “SpeakGIS”
  - We need to integrate the SCADA and ArcGIS with the AS400, while data-warehousing that data using SSIS into to SQL for viewing with Crystal Reports which should make all the data viewable from one source and provide a nice map.

- Here is what we would like to accomplish with this GIS integration. Let’s combine all of the data that is maintained in various databases throughout the organization into one central repository. In this way we can Geospatially enable and manage all of our assets and infrastructure throughout the enterprise. The integration will paint a more detailed picture of where we stand in terms of asset management and will aid in more effective decision making, the sharing of data across the enterprise and data validation. This will allow our organization to be more efficient, provide better responses to problems in our infrastructure as they become apparent and reduce the cost of the response time to those problems.
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• How did we start:
  • Set realistic expectations
  • Established defined roles
  • Clearly defined the project scope
  • Defined measureable aspects of the integration
  • Understood both the Cost and ROI
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- Organizational obstacles impeding full system integration:
  - “Not my Data”
  - Interoperability
  - Organizational awareness
  - Reluctance of key organizational personnel
  - Priority
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• The Outcome of the Integration:
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• The Outcome of the Integration:
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- The Outcome of the Integration:
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- Other examples of the City’s GIS Integrated Systems:
  - Broadband Integration
  - Utility Integration
  - AVL Integration
  - Mobile Integration
  - e911
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• When to integrate
  • ?
  • Meet demand
  • Stay in the forefront of business needs
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• In Closing:
  • The relevancy of your organizations Enterprise GIS can be directly tied to those set of questions discussed. As managers we must examine these questions on a routinely basis to continually meet the business needs of our organization and business customers.
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• Questions:
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• References:

• Interesting Reads:
  • http://www.gartner.com/it-glossary/system-integration/.
  • http://www.esri.com/news/arcuser/0103/gasb34.html