Establishing a Water Information Model Dashboard (IMD) for GIS Modernization

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WML Organization Overview

• NV Waterleiding Maatschappij Limburg
  • Not for profit
  • Province of Limburg and all 31 Municipalities
  • 385 Employees
  • Investments € 40Mln

• Drinking Water Supplier for
  • 530,802 households
  • 14,617 business customers

• GIS Implementation
  • Smallworld since 1995
  • NRM since 2003
  • +200 indirect users
  • 304 Features in the Database
  • Interfaced to SAP, KLIC, Infoworks, …

Water production per year: 71,996,399 m³

• 21 groundwater pumping stations
• 8,805 Kilometers of Main
• 1 surface water production company (Heel)
• 1 river bank groundwater extraction company (Roosteren)
• 4 softening companies (Heerlen, Hunsel, Maastricht, Ospel)
Avineon Company Overview

Multinational technology company, active in CAD/GIS, IT and Engineering
Founded 1992
Active in US, India, Middle East, NL, BE, FR, UK, IRL, CH and ES

Mission: assist complex organizations in becoming future proof by optimizing their data usage.

Be the reference for enabling integrated data management, by ensuring that the data quality, the software environments and the business processes are aligned.

We work for Utilities, Telecoms, Ports, Public Transportation, Government Agencies, Large cities, Large industrial companies
Trends in Utility GIS

- Data driven organizations
- Footprint is expanding
  - More users
  - More interfaces
- More Operationally Focused
  - Real Time
- New technologies
  - Web, Mobile
- Breakthrough of Artificial Intelligence
- Increased model complexity
- Need to demonstrate continuous value
Currently using GE Smallworld / NRM as system of record

Investigating current use of GIS (optimization of processes, how to increase the value of the system, TCO, complexity, …)

Exploring ArcGIS Utility Network Management

Need to understand the impact and level of effort of a migration

Minimize risk to the business / remove uncertainties

**GIS Journey**

- What is used / not used in Smallworld / NRM?
- How / where is it used?
- What is in scope for a migration?
- What should the ESRI UN Water data model look like?
Planning for Migration

Suggested Activities

1. Ensure Existing Data Quality
2. Document Integrations with other business
3. Document Configurations and Customizations Specific to Network Data
4. Evaluate Attribute Assistant Methods
5. Start Using ArcGIS Pro
6. Implement Current Version of ArcGIS
7. Deploy the ArcGIS Utility Network Configurations
8. Determine the Level of Effort to Migrate your Data
9. Leverage Esri Resources
Work Started with Avineon

- Partner for many years (368,000 house connections for WML, almost 8 Mln in total)
- **Begin** establishing a water information model dashboard (IMD)
- **Begin** documenting data model utilization across various business use cases
  - KLIC responses, SAP, Reports and Analysis, hydraulic calculations, etc.
- Understand effort required for migration to Esri Utility Network

- Many business and technical decisions are undocumented, decentralized, hidden within the system’s code
- Institutional knowledge not documented creating risk for the organization
- Difficulty in creating impact analysis, planning, scoping and communication, leads to inefficiencies and additional costs
5 Step Process for GIS Modernization Planning

Current State

1. What is used/not used?
2. How is GIS setup and used today?
3. How will the GIS be setup and used?
4. What to adapt and extend?
5. What to migrate?

Future State

Business Strategy
Digital Strategy
Architecture & Performance
Testing & Acceptance
Governance
Change Management
Testing & Acceptance
Change Management

Data Model
- Classes
- Asset Groups
- Asset Types
- Fields
- Relationships
- Rules

Use Cases
- Process
- Data
- Apps
- Integrations

Migration Plan

Baselining

Model Manager Add-In for ArcGIS Pro

Architect
Administrator
Developer
Analyst
End Users

What is used/not used?
How is GIS setup and used today?
How will the GIS be setup and used?
What to adapt and extend?
What to migrate?
Workflow Used by Avineon

Model Manager Add-In for ArcGIS Pro

1. Import Data Model
   - GE Smallworld Data model
   - ArcGIS data model
Workflow Used by Avineon

1. Import Data Model
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2. Document Current State
   - Select:
     - Object
     - Field
     - Relationship
   - Checkbox “In Use = Yes”
   - Select Use Case
   - Click Apply

3. Results Displayed In Dashboard

Information Model Dashboard
Web Browser
Resulting Information Model Dashboard

Objects, Fields, Relationships
How are they setup and used?

Use Cases
Maps Apps
Reports
Interfaces
Exports

Objects, Fields, Relationships
Not Used
Next Steps

- **Document current state**
  - Continue working with WML’s Business and IT Teams
  - Review results of current use, and whether to expand it
  - Finalize scope for a possible migration

- **Document the future state**
  - What’s needed from the ESRI’s Water Industry Package, what is additional
  - Which interfaces will be required
  - Help WML gain a better understanding of migration effort
  - May serve as good input for Esri’s Dutch Water Model Initiative