Deploying GIS to the Field

With Emphasis on Water Utility

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Project Life Cycle

1. Initiation
2. Planning
3. Execution
4. Closure
5. Expansion
Initiation

- Develop Business Case:
  - Paper Maps
  - Work Order Forms
  - Document Archiving and Retrieval
  - Summary Report
Initiation Cont.

- Feasibility Study: GIS Solution
  - Interactive Map
  - Forms with Validation
  - Spatially Aware Work Orders
  - Offline Capabilities
  - Reporting Service / Dashboard
Initiation Cont.

- Assemble Project Team
  - Project Sponsor
  - Project Manager
  - Project Lead
  - **Project Team**
    - Involve Crew Supervisors
  - Vendor
Planning

- Development Path
  - Esri Toolsets
    - Explorer / Collector
    - AppStudio *(Beta 2)*
    - Web AppBuilder
    - ArcGIS Runtime
  - Alternative Toolsets
    - Xamarin, PhoneGap
    - MapBox, CloudMade, OSMSharp
Planning

- System Design.
  - Software Requirement
    - *Performance*
    - Task Flow
    - User Interface (Large Icons)
  - Data Flow
    - Information pull and push
    - Integration
    - Security
Planning

- System Design Cont.
  - Hardware requirements
    - Ruggedized/Laptop/Tablet
    - OS
    - GPS Receiver
    - Vehicle Mount and Power Supply
Planning

- Progressive Deployment Phases
  - Pilot (iterative improvement)
  - Full Software Deployment
  - Hardware Delivery and Installation.
Planning Cont.

Resource Plan
- During Pilot Study expect to duplicate work
- Dedicated IT for hand holding and ride along
- Additional labor for data scrubbing
Financial Plan
- IT pool or Engineering pool
- Hardware Replacement
- Additional Software License or ELA
- Wireless Connectivity
- Truck Mounts (Can Be Expensive)
Execution

- **Time Management**
  - Typical Deployment 3–9 month
  - Do Tasks in Parallel
  - Long term pilot and iterative enhancements
  - Internal and External Staff Availability.

- **Cost Management**
  - Extraordinary expenses (change of scope)
Execution

- Change Management
  - Configuration Change
  - Workflow Change
  - Bug Fixes
  - Future Software Enhancement
  - Change of Scope (Change Management)
Execution

- Quality Control
  - Data refresh
  - Domains and subtypes
  - Related Documents
  - Functionality in disconnected mode
  - Functionality of peripheral devices

```c
int getRandNumber()
{
    return 4; // chosen by a fair dice roll.
    // guaranteed to be random.
}
```
Execution

- Procurement
  - Truck Mount RFB
  - Proper insurance and waivers
  - Ensure deliverables are fit for purpose.
Closure

- Outstanding activities or deliverables
- Rollout Plan for software updates
- Offer refresher training
- Document success story
Expansion

- Build upon Lessons Learned
- Expand Foundation
  - Users
  - Extensions
  - Workflow
  - Training
  - Change Management
QA and DEMO

When a user takes a photo, the app should check whether they’re in a national park...

Sure, easy GIS lookup.
Gimme a few hours.

...And check whether the photo is of a bird.

I’ll need a research team and five years.

In CS, it can be hard to explain the difference between the easy and the virtually impossible.