

# RECLAMATION

*Managing Water in the West*

## Managing Upgrade Projects

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**MUWG Fall Meeting**  
**November 2007**



U.S. Department of the Interior  
Bureau of Reclamation

# My Background

- **Project Management Professional**
- **IT Project Manager for over 20 years**
- **Manager of Reclamation's CARMA (Maximo) Upgrade Project**
- **Manager of > 25 team members in Hawaii, California, Pennsylvania, Virginia, and Denver**
- **Customers are in 17 Western US States**

# Bureau of Reclamation

- Reclamation is 100+ years old and is an agency of the Department of the Interior which manages, develops, and protects water and related resources in the 17 Western States.
- Largest wholesaler of water in the Nation. 348 reservoirs with a total storage capacity of 245 million acre-feet of water.
- Nation's seventh largest power utility and second largest producer of hydroelectric power.
- 58 hydroelectric power plants, 14,800 MW, annual average generation of 42 billion kilowatthours
- Four National Critical Infrastructure facilities
- 77 percent of the Department of the Interior's constructed assets.

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# The CARMA Project

- **First step to a Department of Interior single Maximo system**
- **New business practices**
- **Consolidation of 17 independent Maximo 4 systems into a single, unified platform in Denver**
- **Over 2,200 users**
- **Estimated to be a \$7 million project over 4 years**
- **Interfaces to Reclamation's time and attendance system and data warehouse**
- **New hardware, network, and web infrastructure**

# Discussion Topics

- **Importance of Project Management**
- **Importance of a designated Project Manager**
- **Importance of Executive Sponsors**
- **Key documents to guide the project**
- **Challenges in Managing a Project**
- **Techniques for managing the project, as well as team members and customers**

# Importance of Project Management

- **Defines and describes how the project will be managed and who makes decisions**
- **Framework for planning, executing, and controlling your project**
- **Techniques for documenting the system**
- **Designates a Project Manager who will be held responsible for the project's success.**

# What does a Project Manager Do?

- The PM is responsible and held accountable for the project's success.
- A PM is the key player to interact with the sponsors and end users.
- The PM defines the project and keeps an eye on the health of the project (budget, meeting objectives, facilitating communications, retaining resources, resolving issues, etc.).
- A PM must be able to make decisions.
- A PM needs to be able to lead people.

# Importance of Executive Sponsors

- **You need executive sponsors to:**
  - **Authorize the budget**
  - **Designate resources for the project**
  - **Define the business goals and objectives**
  - **Provide leadership, particularly in respect to how the change will affect the business and end users.**
- **Without sponsorship, your project will struggle!**

# Key Project Documents

- **Project Charter**
- **Scope Statement**
- **Schedule and Cost Estimate**
- **Quality Assurance Plan**
- **Depending on the size and scope of your project there are many other important documents such as Communication and Acquisition Plans.**

# Project Charter

- **Authorizes the project and states the Project Manager's authority.**
- **Issued by the Executive Sponsor of the Project.**
- **Chartering a project links the project to the work of an organization.**
- **Most often describes the purpose, business need, scope, risks, constraints, requirements, goals and objectives, milestones, preliminary budget, stakeholders, team composition, and resources required.**
- **Signed by key stakeholders and managers**

# Scope Statement

- **Is the definition of the project – what needs to be done**
- **Expands on the Project Charter**
- **More detail about milestones and budget**
- **Describes product approval and acceptance criteria**
- **Describes preliminarily how the product(s) will be implemented**
- **Used to “put a stake in the ground” about what will and will not be in the project**
- **Defines in more detail how the project will be managed**

# Schedule and Cost Estimate

- **First, find out if someone has already set a budget and delivery date for you that you don't know about!**
- **Different approaches to creating the schedule and cost estimate, and various tools can be used**
- **Begin with defining the tasks that need to be done and the interrelationships between the tasks**
- **Think about how you will be doing status reports; align your task breakdown into increments that you can readily obtain actual information about**
- **You will need to know who the resources are and the hourly rates for them**
- **Be sure to state the assumptions, risks, and constraints in the project that affect the schedule and cost estimate**

# Quality Assurance Plan

- All projects (large or small) should define at the start of development how quality will be measured and how the system will be tested.
- Test, test, test – don't deploy without testing.
- The QA Plan lays out the authorities, processes, procedures and criteria for determining quality
- Create test plans for functionality, data migration, system architecture, database; each area brings its own needs to the project that must be tested
- If possible try to plan for and execute a performance and load test for Maximo

# Quality Assurance Plan

- **The Test Plan should include the test case – what is going to be tested such as Work Order Tracking**
- **The Test Plan should also include the test scenarios – if we execute this test case what scenarios do we test such as create a work order**
- **Formal test plans and documentation will prove invaluable after you go live when something goes wrong.**
- **Resources involved in QA and Test should be independent from the technical development team**

# Challenges in the Project

- **A single Project Manager for a large-scale, highly complex project is risky.**
- **Relationships with support organizations; property management, finance, HR are difficult**
- **Doing Project Management work while directing and making decisions on technical activities provokes suicidal tendencies in PM**
- **A PM who is a technical resource – BAD, BAD**
- **Financial management – Do you have a Financial System that is easy to use and provides “actuals” in the same timeframe as your activities are broken down in your schedule?**

# More Challenges

- **Lack of well-specified, documented business requirements**
- **17 independently owned and operated systems consolidated into one system**
- **One-off interfaces to Maximo 4 that are different at each site**
- **Redefining how security and user support will be managed centrally**
- **Closing off access to the backend from the end-users**
- **Department of Interior swarming overhead wanting to divert our funding and resources to their DOI single system**
- **Not enough resources for the size and complexity of our project**
- **“Sticker shock” on the cost of the project**

# More Challenges

- **Controlling Cost**
  - Remember to refer often to the original Scope Statement to control out-of-scope activities – out-of-scope work plagues any project.
  - Engage users in preparing for the implementation by:
    - Reviewing the hierarchies, PMs, assets, and job plans in Maximo while in development – easier to adjust before going live
    - Cleaning up the job plans, removing PMs that are not used – cleaner data is easier to migrate
    - Identifying who will be trained in what programs – last minute decisions on training logistics costs time and money
  - Use a formal change management process to identify what needs to change and why which includes an assessment of the time and cost for a change.

# More Challenges

- **Data Migration**
  - Use a migration tool or script your own. Either way is challenging.
  - Conversion of data from one form to another – plan ahead, create data mapping documents
  - Numerous test runs to validate data migration is correct
  - Testing – need written test plans to validate data migrate to correct tables in the correct form, and plans to validate the functionality of Maximo is correct after the migration
  - Resources for this work need to have background in Maximo, databases, and coding
  - Testers need more skill to test this than to test Maximo functionality
  - We found this work is about 20% of the development time and 50% of the testing time.

# More Challenges

- **User Acceptance**
  - Lack of a formal process for user acceptance of the system will result in no acceptance.
  - Need to define at the start of the project what acceptance criteria will be used to accept the system – too many ideas on this would result in no acceptance.
  - Challenge in how much training someone would need in the system to make a decision on acceptance.
  - Make sure the people making the decision on the system are “management” who have the authority to decide.
  - A Quality Assurance Plan defines the criteria for acceptance.

# Techniques for Managing the Project

- **The Team**

- Create a documented “operating agreement” for the team
- The team needs to know what is expected of them and how the project will be managed; frequency of status meetings, how to present a really good idea; how to raise a technical issue, etc.
- Get the team to sign the agreement – you’ll know they’ve read it and accept their responsibilities
- PM must be flexible and open-minded to the ideas of the team; seek to understand their roles and where they are coming from
- PM needs to know when to make a decision and when to let the Team members work issues out for themselves
- Meet often with the team – communications fall apart first and with great frequency!

# Techniques continued

- **The Political Relationships**
  - To visual the relationships between organizations, sponsors, directors, and users create a **Stakeholder Analysis Drawing**
  - Using Visio, Brainstorming template draw how each organization and “important” person influences another
  - When you know who influences whom you’ll know more about where to go for help and decisions
  - Often you will find the person who thought had all the power is two rungs down on the ol’ political family tree
  - Be sure you’re well rested before you meet with the powerful people, ha ha



# Techniques continued

- **The Users**
  - If possible involve a core team of users early in the project to define requirements, provide input, etc.
  - Involving a “trusted” group of users into the project helps with the acceptance of the system
  - Watch out for who you think you can trust – when the going gets rough one person will tell their friend who will tell their friends and on and on that the system won’t work
  - Define a clear training path for the project that includes hands-on experience with the system before going live
  - Provide processes and procedures for users to report issues and request changes – don’t let this be by email, phone calls, or unexpectedly in a meeting
  - If possible establish a Steering Committee on the business side to represent users

# Techniques continued

- **Contracting and Contractors**
  - **If possible, get a project manager who is trained in contract management**
  - **Define key contract personnel for your project to ensure continuity in contract staffing**
  - **Ask for a Contract Project Manager to assist in managing the contractors – easier to manage through the Contract PM than with each individual contractor**
  - **Get to know the Contracting Officers in your organization and provide them with information about your project; goals, timelines, budget and constraints. If they think they are part of your team, they will make things easier for you.**

# I Could Go On and On and On

- **Bottom line, for a project of any size project the more planning you can do upfront the better off you will be!**

**Questions?**

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