



SALT RIVER PROJECT: WORK AND ASSET MANAGEMENT

Published in March 2007 *T&D World Magazine* as
"Get It Off the Shelf: SRP seeks a comprehensive, automated,
integrated approach to work and asset management."

Salt River Project is undertaking an enterprise-wide work and asset management initiative to standardize and consolidate work processes, data, and information systems across its T&D organization. The project has several distinctive features. First, Salt River Project (SRP, Phoenix, Arizona, U.S.) is committed to implementing an end-to-end commercial off the shelf (COTS) system that spans work/asset management, scheduling, and mobile workforce management. Second, the project is viewed as business improvement focused on streamlining work processes to dramatically reduce cycle times. Third, SRP is managing its implementation to phase in the dramatic changes brought about by the system, balanced with getting the solution out to departments eager to take advantage of its benefits.

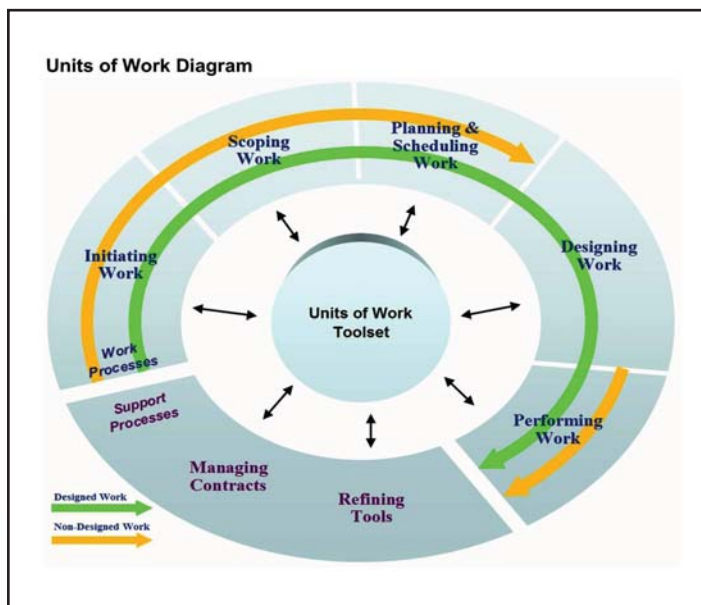
SRP saw the need for a work and asset management system to better support customers, contractors and internal end users. They have extensive design, construction and maintenance activities being handled by multiple departments, dozens of suppliers, numerous databases and applications, and varying procedures. SRP's T&D organizations sought a comprehensive, automated and integrated approach.

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Asset Management Project

SRP commissioned the Asset Management Project (AMP) in 2004 to standardize and consolidate both work processes and information systems across the T&D organization. Specific objectives of AMP included:

- Improve the quality of work and asset management decisions by increasing the availability, accuracy and timeliness of T&D work and asset information.
- Improve work efficiencies by standardizing processes and software, automating workflow, and providing a central view of work schedules and resources across all types of work.
- Reduce the cost to maintain SRP's IT environment, by replacing a large number of complex and stand-alone legacy applications with a small number of highly integrated, best-of-breed, packaged applications



To improve asset work planning and execution, SRP is implementing a standardized "Units-of-Work" hierarchy for all T&D work with a predefined structure for projects, work orders/jobs, tasks, resources, procedures, estimates, standards and performance metrics. This hierarchy will bring consistency and standardization to design, estimating, work closing, and reporting.

The AMP project team is composed of both SRP employees and outside consultants. Team members and roles include management sponsors, business architects, business analysts, IT architect, project manager and issue managers. The team was charged with defining and executing the solution, and began by defining prerequisites for the AMP solution.

Build or Buy

Many of the information systems at SRP have been designed and developed internally. Others have been purchased commercially and then customized substantially. The AMP project team made a recommendation not to build the system in-house, but rather to seek a COTS solution.

Additionally, SRP recognized that AMP's COTS solution would require some customization, but tailoring business processes would minimize this. This recommendation came after careful research and review of work and asset management software packages to begin building SRP's vision of AMP. This recommendation reflected the limited availability of internal resources to develop such a comprehensive system, combined with a desire to hold costs down and make the implementation more manageable.

The project team set out to procure a single solution for T&D work/asset management, scheduling and mobile workforce management. While this remains SRP's vision, it has been challenging to achieve. No one single vendor exists that handles all work and assets, along with scheduling and mobility, per SRP's requirements.

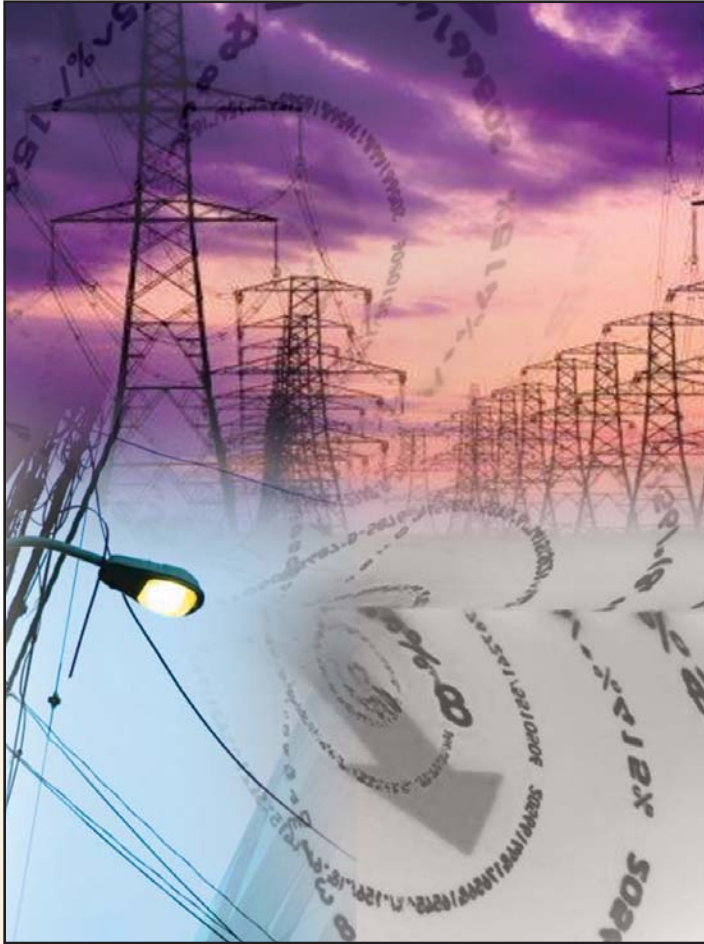
COTS Vendor Selection

SRP issued a request for proposals (RFP) for a single vendor solution. Nine prime vendors responded to the RFP, some were teams of vendors to organize multiple solution components.

The AMP team developed scripted scenarios to help evaluate proposals. Because the team had not yet developed future business practices, these scenarios represented a mixture of current and potential future business practices. As part of the evaluation process, vendors were asked to respond in written form as to how their package(s) would satisfy these scenarios, in addition to a list of functional requirements. All vendors were invited to provide initial demonstrations.

SRP reduced responses down to five for detailed evaluations, and then short-listed to three vendors with their respective partners: Indus (prime) and MRO(prime)/MDSI/Obvient Strategies, and WorkSuite(prime)/Digital Inspections. The three prime vendors and their partners were each invited for an in-depth product demonstration based on SRP scripts. This allowed SRP to better understand the strengths and weaknesses of each package.

The outcome of the short-list demonstrations was unexpected. No single vendor offered the total end-to-end solution that satisfied all of SRP's technical, functionality and usability requirements. The project team regrouped. By pulling components from each short-list vendor, the team was able to create an SRP best-of-breed solution. However, shortly after the scripted demos, WorkSuite announced that it would not be taking any new clients, forcing SRP to drop WorkSuite from consideration. This left Indus and MRO.



Proof of Concept

The AMP team met with MRO, Digital Inspections and Indus, asking them to consider joining together to re-craft the solution based on SRP's desired T&D combination of MRO for work/asset management capabilities, Digital Inspections' Cascade for Substation Maintenance, Substation Control & Monitoring, Communications Construction and Maintenance, and Indus Service Suite for work and resource scheduling. The AMP team challenged the vendors to provide this joint solution using their respective tailored COTS functionality, thus minimizing customization.

Upon agreement of the three-vendor solution, SRP contracted with MRO for a proof of concept, or prototype phase. SRP's construction units needed proof that MRO could handle construction type work and assets, not just the maintenance work for which they are so well known. The prototype proved successful and SRP has since begun its first phase of AMP implementation and deployed to the Distribution Design and Construction business groups. Subsequent incremental releases currently are planned to Operations and Maintenance in 2008 (Phase II) and Transmission and Substations in 2009 (Phase III).

The Solution

Based on the merger and acquisition dynamics and the volatility of the software marketplace, the AMP team continues to evaluate the vendors, their solutions and associated risks. For instance, LogicaCMG acquired Worksuite in February of 2006, IBM acquired MRO in August of 2006, and the parent company of Mobile Data Solutions, Inc. (MDSI) acquired Indus in October of 2006.

At its core, today's AMP solution consists of IBM Maximo Asset Management (MRO Software, an IBM Company) for work and asset management, Indus Service Suite for work scheduling, and Digital Inspections' Cascade for Substation Maintenance, Substation Control & Monitoring, Communications Construction and Maintenance. SRP expects to supplement the AMP solution with additional applications, such as a reporting/digital dashboard and an end-to-end mobile workforce management application.

AMP has been designed to be the central repository and "system of record" to collect and manage all T&D work and asset data; it also will include a centralized data warehouse for querying and reporting. It also will provide a comprehensive work and asset reporting toolset. This requires consolidation of data residing in many applications into the single AMP repository. Another goal is to tightly couple AMP with the existing Smallworld GIS system for spatially enabled asset data.

All work will be managed in Maximo, including work created in Cascade, with Indus Service Suite providing the scheduling arm for most types of work. Since Maximo is the designated asset repository, detailed substation and electronic system assets within Cascade will be synchronized with Maximo to track work and assets. Doing so enables the T&D business to utilize a standardized system solution of three integrated COTS applications for work/asset management and scheduling, but also allows the decommissioning of numerous other databases.

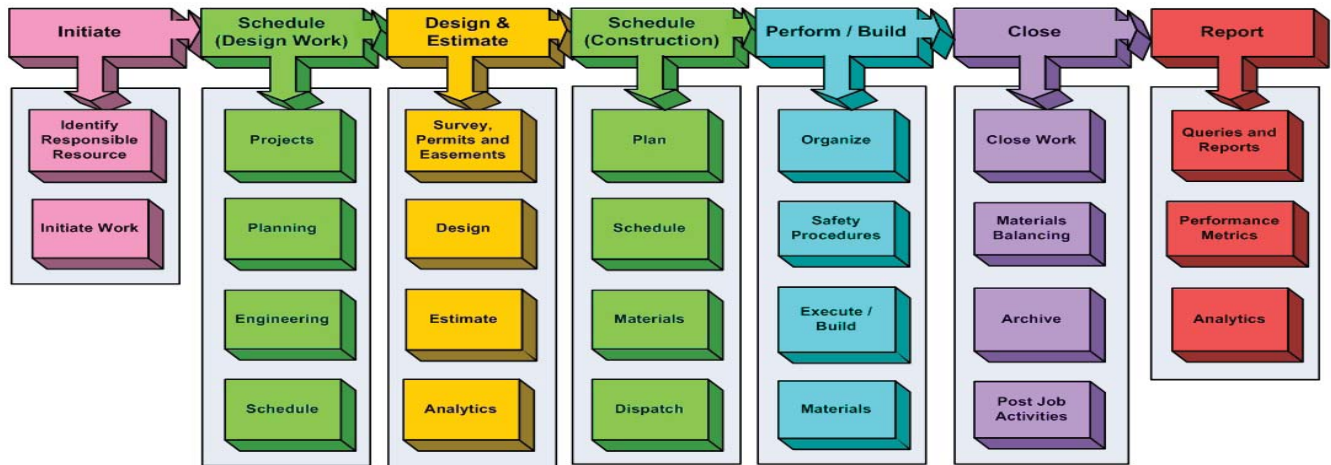
Business Process Improvement

AMP is a business improvement project focused at improving work efficiencies by standardizing processes and automating workflows. Business leadership makes decisions on project scope and approach and change is driven by business value, not IT requirements. Key to implementing AMP workflow is understanding and documenting the SRP work processes complexities and streamlining them to dramatically reduce work and asset cycle times. It is equally important to understand the organizational impact of workflow, the maturity of the workflow management system, and the human interaction and participation intrinsic to make AMP's workflow successful.

To improve asset work planning and execution, the AMP team is establishing a predefined structure for projects, work orders/

Workflow Management Diagram

W O R K F L O W



AMP’s workflow enables the streamlined and automated execution of standardized work/asset management processes together with associated business processes. What is unique, and a departure from tradition work/asset management workflows, is

SRP’s desire to be able to schedule all types of work and resources in two broad areas: “Design Work” and traditional “Construction” work (and their associated task activities).

jobs, tasks, resources, procedures, estimates, standards and performance metrics. A standardized “Units of Work” hierarchy is being implemented for all T&D work (see Units of Work Diagram). The Units of Work Toolset will impact all aspects of both designed and non-designed work, including support processes as shown in the diagram.

Units of Work will allow SRP to track time and materials at the “Task” level to improve estimates and scheduling, implement standardized project and work order templates, automate the supporting processes, and implement a centralized estimating toolset for both designed and non-designed work. Thus, bringing consistency and standardization to the design, estimating, work closing and reporting processes.

Automated design is often an integral IT component of a work/asset management system. As such, a tool that will be integrated with AMP is the spatially enabled Distribution Design Automation (DDA) tool. DDA was developed in-house to automate the distribution design process and recently has been deployed within SRP’s GE Smallworld™ GIS. SRP believes that design is not a stand-alone outside service whose product is a detached deliverable. Instead, design is an early, enabling step in a larger process

whose purpose is to exert control over every aspect of asset life. That controlling process, asset management, has the holistic purpose of facilitating the T&D assets’ life cycle. As part of the holistic purpose, AMP and DDA will reengineer in tandem its compatible unit (CU) structure to support the “Units of Work” hierarchy to be centralized in an estimating tool within Maximo.

Using a structured “Units of Work” approach will provide SRP with the foundation for measuring business aspects that traditionally have not been easily measured. For example, implementing this concept will help our business units improve labor efficiency, contractor costs, and design consistency and accuracy, as well as lower average cost of work orders, improve material forecasting and lower material inventories.

In addition, the T&D organization has recently completed the development of standard process models for approximately 100 T&D work types. These standard process models are now being applied to specific work groups as a means to consolidate all work into these types. By applying these standard process models, system requirements are being documented and validated by the business as well. Through this streamlined and automated execution of standardized work/asset management processes together



with associated business processes, SRP expects additional insight into the applicability and benefits of the technology will emerge as workflow is successfully implemented throughout the organization.

AMP-motivated process changes include moving from a departmental scheduling approach to a global view of work and resources with enterprise-wide scheduling. Enabling users to monitor, predict and effectively manage both the availability and utilization of T&D assets will also maximize overall asset value and improve business performance. And, use of Enhanced Key Performance Indicators will focus on the goals and/or performance areas that are vital for the ongoing and future success of design, construction, operations and maintenance organizations.

Change Management

The extent of business process change associated with AMP brings a variety of change management challenges. As a simple example, new processes will standardize how work is initiated within T&D and will eliminate the numerous disparate processes and database systems that are currently used. AMP also offers the opportunity to have effective metrics and performance indicators based on highly reliable data. The AMP team has created visibility for the project by communicating the rationale and benefits.

The phased implementation schedule reflects controlled management of the change process.

Considerable enthusiasm and buy-in has been created for AMP. In fact, departments are eager to have the solution implemented; some want it sooner than its scheduled release date. SRP's next challenge will be to balance the desire to make AMP available to those who want it while taking the time required to do it right.

About the Authors

Kevin Huff is the manager of Asset Information Technology Services at Salt River Project, and is currently managing the effort to consolidate work and asset management business processes, systems, and data across SRP's T&D organization. He has more than 15 years of experience in implementing large information systems at SRP. He has also managed SRP's IT Project Management Office, GIS Services Department, and has managed multiple large projects including the project to migrate SRP from DFIS to the Smallworld platform. Kevin also provides his service to those in Arizona with Down syndrome by serving as a member of the board of directors for Sharing Down Syndrome Arizona.

Greg Kneuer is a Principal Consultant with Enspira Solutions. He supports utilities in the design, evaluation, and implementation of integrated technology solutions including work and asset management, mobile workforce management, GIS, outage, and other systems. He is a member of the Salt River Project AMP project team. His background includes over 20 years at Public Service Company of Colorado (now Xcel Energy), where he had direct involvement and management in electric and gas: distribution design, commercial & industrial engineering, construction, operations, facilities mapping, supply chain, dispatch, marketing, sales, and customer relationships.

Acknowledgement: David Areghini, Associate General Manager of Power Construction & Engineering Services, was responsible for the 2004 commissioning of the Asset Management Project (AMP).