

Title	<i>Information Systems Infrastructure</i>		
Project Requestor	«GreetingLine»		
Date	March 26, 2008		
Group Leader(s)	«GreetingLine»		
Machine or Sector Manager	John Maclean		
Category	Infrastructure		
Content ID*	APS_1255124	Rev.	4
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*This row is filled in automatically on check in to ICMS. See Note ¹

Description:

Start Year (FY)	2010	Duration (Yr)	2012
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Objectives:

The objective of this project is to completely overhaul, redesign and redeploy the “user facing” suite of applications as an integrated suite of service oriented applications that will manage experimental activity at APS from inception to publication. The set of applications considered to be under the scope of this project include the APS proposal systems, review and allocation systems, the user registration system, the experimental safety assessment system, Beamline usage and publications systems. There may be new applications developed as the need arises.

Not only will the existing applications be rewritten and redeployed, the underlying technology will be modernized. The current suite of applications is based upon a server centric architecture. Virtually all application code resides inside of a commercial database system. While this architecture served SUF well over the years, the information systems landscape has changed drastically. We are now in the era of service oriented architectures and “Web 2.0”.

Benefit:

The benefits of developing and implementing an experimental management system are difficult to quantify. Successfully developed and deployed, the system will ease the task of submitting a proposal for, evaluating, scheduling and conducting an experiment.

The information systems that SUF users utilize to manage the process are often the first experience a user has with SUF. First impressions go a long way. Potential SUF users should feel they are coming to a world class facility that has not only world class tools but also information systems.

Several major facilities around the world are active in the development and deployment of “scientific management systems” or “experimental management systems”, “laboratory management systems,” , etc. Users of facilities within the BES-SUF complex are increasingly expecting to be able to submit a proposal cutting across several facilities within the complex. Implementing a services oriented architecture would help facilitate

this goal as APS's systems would be exposed as a service any organization could utilize.

Risks of Project: See Note ²

None

Consequences of Not Doing Project: See Note ³

APS cannot afford to continue using outdated information systems. The systems must either be kept up-to-date or ultimately abandoned in favor of other ways of acquiring management data on experimental activity.

Cost/Benefit Analysis: See Note ⁴

Description:

APS will rewrite the following systems:

1. GUP
2. ESAF
3. User registration
4. Publications
5. Beamline directory
6. Proposal review and beamtime allocation systems
7. Experimental metadata collection (aka Experiments)
8. Scheduling

Other new applications may come under the scope of the project.

The systems will be rewritten, given a new presentation layer and data model. Most applications will be redeployed as a service allowing beamlines and external organizations to utilize the services.

APS will acquire and implement the software infrastructure needed to support web services. In 2007 AES established a SOA committee. The committee concluded that implementing SOA at APS was desirable but could not proceed given the current

financial constraints.

Funding Details

Cost: (\$K)

Use FY08 dollars.

Estimated Expenses:

Year	AIP	Contingency
1.	677,000	0
2.	156,000	156,000
Total	833,000	156,000

Effort: (FTE)

The effort portion need not be filled out in detail by March 28

Year	Mechanical Engineer	Electrical Engineer	Physicist	Software Engineer	Tech	Designer	Post Doc	Total
1								0
2								0
3								0
4								0
5								0
6								0
7								0
8								0
9								0

Notes:

¹ **ICMS.** Check in first revision to ICMS as a *New Check In*. Subsequent revisions should be checked in as revisions to that document i.e. *Check Out* the previous version and *Check In* the new version. Be sure to complete the *Document Date* field on the check in screen.

² **Risk Assessment.** Advise of the potential impact to the facility or operations that may result as a consequence of performing the proposed activity. Example: If the proposed project is undertaken then other systems impacted by the work include ... (If no assessment is appropriate then enter NA.)

³ **Consequence Assessment.** Advise of the potential consequences to the facility or to operations if the proposal is not executed. Example: If the proposed project is not undertaken then ____ may happen to the

facility. (If no assessment is appropriate then enter NA.)

⁴ **Cost Benefit Analysis.** Describe cost efficiencies or value of the risk mitigated by the expenditure. Example: Failure to complete this maintenance project will result in increased total costs to the APS for emergency repairs and this investment of ____ will also result in improved reliability of _____. (If no assessment is appropriate then enter NA.)