What I learned at SQAS
&
Trilinos Life Cycle Model Discussion
TUG 2006

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NNSA
National Nuclear Security Administration

Sandia National Laboratories

Department of Energy Quality Managers
Software Quality Assurance Subcommittee
SQAS

SQAS is chartered by NNSA. (DOE is an interested party)

It includes all NWC facilities (including AWE in the U.K.)

It meets twice a year, this was meeting #38

This time Sandia was the host for the 2.5 day meeting

It seems to create "white papers" on topics of interest to the software
community within the NWC for NNSA

The meeting time is mostly active work on the current "tasks" and "working
groups"

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My Concerns

Sandia's active representatives at SQAS are almost exactly the same folks:

- performing the ASC assessments,
- heading the ASC "quality" training and committees,
- are members or regular attendees to the AQMC meetings.

Could the SQAS "white papers" become ASC "guidelines"?

Another concern:

When the NNSA representative was asked what NNSA wanted of the SQAS/NWC, he stated that the answer was one word – "**compliance**."

(Not good software, on-time software, etc.)

3 of the 4 current SQAS working groups

Applying Agile Methods to Weapons/Weapons Related Software

  Should be completed by the next meeting

Software Process Improvement for Research Codes

  Newly created working group (previously a "task")

Benchmarking for Value for Money Analysis

  Newly created working group (previously a "task")

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Agile Methods

Current text is a general description of Agile methods – mostly taken from books and web sites. Mostly OK.

New and final section is called "Barriers to Using Agile …."
* There was evidence at the SQAS meeting that the representatives didn't really understand Agile methods or philosophy (Agile Manifesto)
* Sandia's representatives were publicly pro CMMI® and anti Agile. (One proudly proclaiming to be a "CMM® bigot".)
* Some barriers were true of any software methodology (such as software developers need to have deep knowledge of the NWC environment before they can program in it), but being listed in this document could fool the reader into thinking this was another Agile problem.

I attended both meetings and my comments were somewhat accepted

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Research Code Software

I attended the first meeting and they were very receptive to my comments:

- I talked about the Trilinos 3 phase life-cycle model and in particular about its research phase.
- They are interested in how research get promoted into the next phase
- They are interested in how we select a subset of the ASC quality practices for research.

Unfortunately, I missed the second meeting (they changed the schedule!)

They are very interested in practical information that we could provide. They specifically asked if working group members could ask their projects:

<div align="center">"What is an ideal software research environment?"</div>

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Benchmarking

I attend the benchmarking meeting and again this group was quite willing to listen to our input.

The head of this working group (Mike Elliott from U.K.) shared an interesting paper with me. It showed the economic benefit (as R.O.I) of various methods. CMM® scored very low (although CMMI® was better.)

Economic benefit could be a good strategy to proving Agile methods superior to CMMI® methods.

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SQAS Conclusion

Dave Womble kindly "chartered me" to attend SQAS by providing a project & task for it. I have not yet discussed with him any benefits for the center or ASC algorithms program for continuing with this effort or attending future meetings.

I was asked by all 3 working group chairs to submit information and review the draft documents before the next meeting (next spring in Los Alamos.)

I will accept any comments about these issues and forward them to the appropriate working group.

Related note: I was invited to speak to the next AQMC meeting to share the Zoltan/Trilinos/EPA success stories. This can be a chance to "enlighten" ASC management about effective, high quality software research & development.

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Immediate Trilinos Action

I recommend that Trilinos (and Zoltan) adopt the ANSI/ASQ Z1.13-1999 standard: *Quality Guidelines for Research*.

This is a very short standard (5 pages excluding boilerplate) for which we are already very close to complete **compliance**.

I suggested a few minor statements for Mike to add the appropriate Trilinos level documentation. (For example, a statement about quality improvement goals consistent with §5.5.2.)

I will create a checklist for content in (or supplement to) the package's research proposal. (To avoid terminology issues.)

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Life Cycle Model Discussion

This is the time for an open discussion of any issues/concerns/modifications to the Trilinos Life Cycle model.