24th Annual CMII Conference

I know CMII, so why won't you change!

Richard Graham
General Technical Manager, Org. 2992
Sandia National Laboratories

Paul Wright
Energy Solutions Performance Strategies
Sandia National Laboratories

I know CMII, so why won't you change!

Abstract

Come and participate in a high energy discussion of real world challenges. The discussion will be led by Sandia National Laboratories, a government owned, contractor operated institution that provides exceptional service in the national interest.

Join us in this interactive discussion of challenges on Leadership, Business Processes, CM Tool Selection and Change Management. Participants will be asked to share their obstacles in implementing these challenges and ideas on "how to" overcome these obstacles. The facilitators will also share their lessons learned and insights gained during their last two years of experience in implementing CMII.

Sandia National Laboratories

Agenda

- **Facts about Sandia National Laboratories**

- **Challenges**
  - **Leadership challenge - Paul**
  - **Business process & requirements - Paul**
  - **CM tool selection - Rich**
  - **Change management – Rich**

- **Summary**

Facts About
Sandia National Laboratories

- **Established in 1947 by President Truman**
- **Government Owned/Operated by Lockheed Martin**
  - **President, 2 Executive VPs, 8 Vice Presidents**
  - **8,285 employees/contractors**
  - **Operating Budget: $2.4 billion**
  - **Approximately 3,600 projects in FY11**
- **Our Mission**
  - **National Security Enterprise (NSE) – Nuclear Weapons**
    - **Share procedures with other national design labs and production agencies**
    - **60+ years of Configuration Management based on Aerospace Standard**
  - **Work for Others (WFO) – DOD, Homeland Security, Satellites, etc.**
    - **Projects define their own CM processes per customer requirements**
    - **National Security Enterprise processes are too formal**

Sandia National Laboratories

The Approach

- **Facilitators will present challenges implementing CMII.**

- **Participants will share obstacles and solutions.**

- **If time permits, the facilitators will share their obstacles and solutions.**

- **Facilitators will collect and distribute ideas, including CMII recommendations.**

- **Ground Rules**
  - **Do not judge comments**
  - **"Spilling" doesn't count**
  - **Share ideas – an unspoken idea is a wasted idea**

Sandia
National
Laboratories

Implementing CMII Model
Across the Enterprise

Did you encounter any obstacles when you returned to your company to implement the CMII enterprise model?

- **Participants' Obstacles:**

- **SNL Obstacles:**
  - **Diversity of work at Sandia**
    - **NSE stockpile management**
    - **WFO**
  - **Diversity of projects, requirements and project environment**
  - **Overcome the traditional mindset**
 - **"NIH - Not Invented Here" Syndrome**

Implementing CMII Model Across the Enterprise

How did or would you overcome these obstacles?

- Participants' approach / recommendations:

- SNL approach / recommendations:
  - Increase Awareness
    - Developed and issued a Corporate CM procedure document
    - Organized and started a CM Community of Practice for CM practitioners
    - CMII Certification classes held on-site
    - CMII Boot Camp for Managers classes for the Managers of CMII-C graduates

- CMII approach
  - Prepare plan for leadership to approve

CMII Training
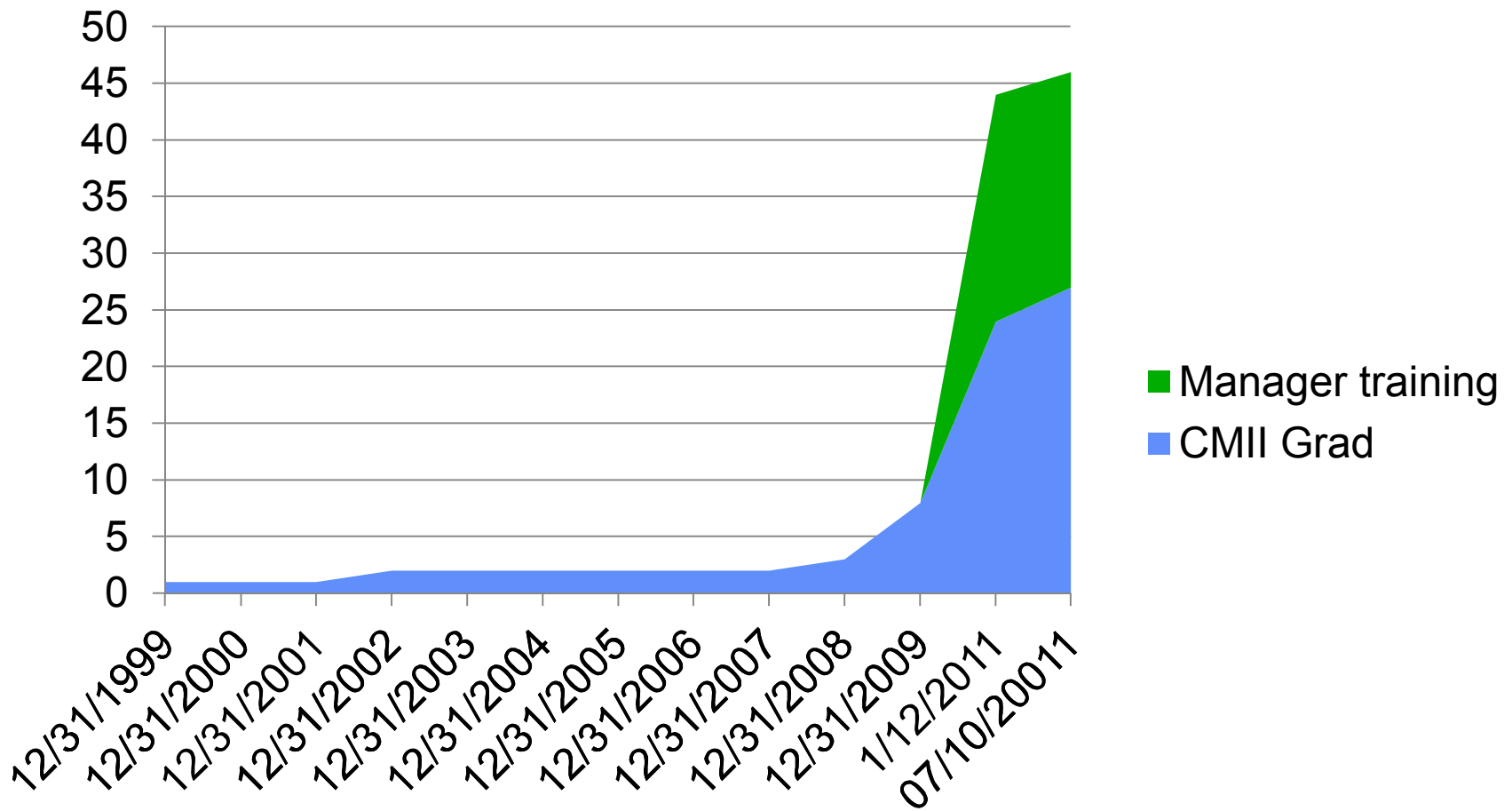
Business Processes & Requirements Challenge

Core business processes are being treated independently by projects and are being driven by end user requirements.

How did you go about implementing core business processes?

- **Participants Obstacles:**

- **SNL Obstacles:**
- **Change**
  - **Change present business model (policies, processes and procedures)**
  - **Change alignment of business units to adopt CM Core Business Processes**
- **CMII graduates are affecting change based on their understanding of the CMII model, but not necessarily with an enterprise approach**
- **In the absence of enterprise business processes, practitioners of CM implement parts of CM that they can control - at the project level**
  - **Every organization believes they are unique (customer requirements)**
  - **CM management of Product vs. Documents vs. Software**
  - **Gathering detailed requirements for development of information systems and software is the conventional approach which results in paralysis by analysis**

Sandia National Laboratories

Business Processes & Requirements Challenge

How did or would you overcome these obstacles?

• **Participants' approach / recommendation:**

• **SNL approach / recommendation:**
  – Wrote Corporate Procedure and lower level Operation procedures
  – Continue to focus on a bottom up approach and awareness

• CMII approach
  – Focus first on high-level plan. High-level plan ensures that selected technology is compatible with all other aspects of the development objectives
  – Develop cross-functional team to specify what the system must do (functionality requirements) [Ops Standards]; then define how users use the system [Administrative Procedures]
  – User involvement validates the administrative procedures

Implementing an Enterprise CM Tool

At least one of every CM, authoring and document tool exists at SNL.

Were you able to establish an Enterprise CM tool? How did you down select? Or what was implemented at your company?

- Participants' Obstacles:

- SNL Obstacles:
  – A perception exists that authoring tools (Mechanical Design, Electrical Design, Documents) need their own CM tool.
  – The user experience has a very high priority (tool must be easy).
  – Users are not willing to give up their tool (features / benefits) for fear of learning a new tool.
  – Project desires vs. Corporate desires

Sandia National Laboratories

Implementing an Enterprise CM Tool

How did or would you overcome these obstacles?

- **Participants' approach / recommendation:**

- **SNL approach / recommendation:**
  - Assessed processes and CM tools based on CMII criteria
  - Completed Decision Analysis of Record (DAR) to down select acceptable tools
  - Settled on 3-4 core CM tools
    - PTC WindChill, Aras, and eB
    - Projects will need to select a core CM tool for a master hierarchy. (Change management and where used could be an issue.)
- **CMII recommendation**
  - ICM tool requirements and selected 4-5 star ranked tools.

Implement Closed Loop Change Process

Sounds easy - one process that is lean and mean.

Have you implemented the Closed Loop Change Process (CLCP)?

- **Participants' Obstacles:**

- **SNL Obstacles:**
  - We start new design documents with the closed loop change process?
  - What about our Legacy systems and data?
  - Our work is different, the CLCP will not work for us!
  - We need a "release process".
  - Our process requires additional approvers.
  - The CLCP will interfere with my ability to make different design options.

Sandia National Laboratories

Implement Closed Loop Change Process

How did or would you overcome these obstacles?

Or what part of the closed loop did you implement or find beneficial?

- Participants' approach / recommendation:

- SNL approach / recommendation:
  - Wrote Change Management Procedure w/ forms.
  - Created guidance documents based on CMII CLCP for tools to follow.
  - NSE Pilot program – PTC PDMLink
  - eB by Bentley implemented for Nuclear Facilities
  - Aras Innovator implemented for Security project
- CMII approach (Vol. 3 & 4)

Sandia National Laboratories

Summary

- **A lot of good examples; we will share these comments with the group via email.**

- **Don't try to eat the elephant all at once. Focus on what you can do.**

- **Refer often to CMII guiding principles to stay the course.**

- **Thank you for your participation**

Sandia National Laboratories

Richard Graham's Bio

As manager of the ECAD & MCAD Design Department for Sandia National Laboratories, Richard Graham's career with the labs spans 33 years. More than 20 years of his extensive experience has been in the requirements group. Richard has worked on product definition for various applications throughout the labs as well as serving as a member of the implementation team for Matrix One and Engineering Authorizations. He is a 2009 graduate of CMII.

Richard is providing leadership toward redefining and expanding configuration management at SNL using CMII as a guiding principle.

Paul Wright's Bio

- **Paul has more than 30 years of experience working for the Department of Energy (DOE), private industry, and the U.S. Navy. He is an accomplished professional with extensive experience in management assurance, quality management, project management (PM), and configuration management (CM). He is a results-oriented team player that effectively analyzes procedures, processes, and corporate culture to successfully implement measures designed to exceed corporate objectives.**

- **Paul received his CMII-C in February 2010 and his CMII-A in May 2011**

Sandia
National
Laboratories

Backup Challenges

– **Part Centric or Document Centric**

– **Physical Hierarchy vs. CAD Model Hierarchy**

– **Impact of technology on document types**

Sandia National Laboratories