

In-the-SPIN

Newsletter of the Boston  SPIN

Issue 29, September, 1999

Editor: Carol Pilch

Editorial

SPIN Perspectives

In this month's edition of In-the-SPIN Rick Brenner contributes something a little different for our SPIN Perspectives column, in the form of haiku. In addition, I've supplied this month's Feature Article. It's a report on this year's Software Symposium sponsored by the SEI. While I was at the symposium, I got a status update for CMMI. The staged and continuous version of CMMI-SE/SW has been released and it is now available in PDF format. For the model and CMMI status, you can check out the SEI's web site at: <http://www.sei.cmu.edu/cmm/cmmi/public-review/public-review.html>. If you're interested in a mapping of CMMI-SE/SW Version 0.2 to CMM Version 1.1, you can find it at http://www.stsc.hill.af.mil/cmmi/CMMI_Mappings.pdf. The mapping was developed by a team at the Software Technology Support Center, Hill Air Force Base.

This month's SPIN Perspectives feature is contributed by Richard Brenner. Rick is Principal of Chaco Canyon Consulting and is an at-large member of the Boston SPIN Steering Committee.

There's also news about a name change for our longest contributing sponsor. As of September 1, 1999, the GTE Communication Systems Division that has been hosting our Boston SPIN meetings has now become a part of General Dynamic's Information Systems Technology Sector and is known as General Dynamics – Communication Systems.

Consistent with the Boston SPIN charter, *In-the-SPIN* is provided by the Boston SPIN as a means of supporting the free and open exchange of software process improvement experiences and ideas. The steering committee encourages feedback on the newsletter and broader participation in the content and production of the newsletter. If you have an article you would like to publish in this newsletter, send it to carol.pilch@GD-CS.COM.

Ten Project Haiku



I

Our project was late,
so we added more people.
The problem got worse.

II

When requirements changed,
the schedule did not--were we
headed for trouble?

III

We were doing fine,
'til they reduced the budget.
Now we're overspent.

IV

We think about risks.
We have contingency plans.
Oops...but not for that.

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Process
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Network

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V

I gave estimates.
They cut all of them in half.
Next time I'll pad them.

VI

We can't get it right
and still come in on schedule.
Why can't we do both?

VII

We hired consultants
who told us how to fix things.
They don't understand.

VIII

There is no more time,
but the work is unfinished.
Take more time from Test.

IX

The module failed Test,
so first we changed all the Tests.
Now the requirements.

X

If a project fails
but no one reports it has,
Has it really failed?

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Meeting Summary

Notes from the June Meeting

Contributed by Carol Pilch, General Dynamics

Topic: "Writing Better Requirements – The Key to a Successful Project"

Speaker: Kimberly Roberts, Senior Application Engineer, QSS





Writing better requirements is a high leverage activity for the success of your projects. In a nutshell, requirements allow you to improve quality with less effort. This presentation provided us with the basics on good requirements definition and precisely identified User Requirements, System Requirements and Architectural Design Requirements and why we need all three levels of requirements. Kimberly pointed out


that requirements are the mechanism for project communication among: customers, users, developers, management, designers, and manufacturers.


Requirements are the "to-do" list for the project team. They identify what users need, what the system must do to satisfy user needs, what components must be built, what each component must do and how components will interact. In effect, requirements define the quality of the system.

The Four Keys to a Successful Project

 **Key Number 1:** Know where we are going. This involves defining the user/business needs. In other words, capture user requirements to understand what user problems your product will solve. User needs can be generated through interviews with users, working in the user environment, analogous or existing systems, change suggestions and problem reports, innovation work, user group meetings, workshops, studies and descriptive documentation, prototypes, new technology, questionnaires, user modifications. The goals for the user requirements document are small size, structured, navigable, and modular.

 **Key Number 2:** Know what we are doing. This involves defining the system/functional requirements based on the user/business needs. You need to answer the question: "what do we need to know to build this?" The components of system requirements are: descriptive elements, functional or behavioral breakdown, performance, interfaces, non-functional requirements, traceability to user requirements. System requirements define a model of the system to be built, not the system, and are as implementation free as possible. They are owned by systems engineers and should be visible to everyone including customers and designers.

 **Key Number 3:** Know what to build and implement. This involves defining the architectural design requirements. The system needs to be decomposed to detailed design and subsystem components. The components of architectural design include: descriptive elements, component behavior/control, component functionality, component interfaces, component layout, dependencies and resources, test criteria, and traceability to system requirements. The architectural design document defines what is to be built, how it behaves, and how it is laid out. It is created by designers, owned by developers, and visible to all. This level of documentation becomes the basis for all milestones and well defined cost estimates.

 **Key Number 4:** Take command by writing better requirements. Kimberly presented characteristics of good requirements. Individual requirements should be: clear, brief, verifiable, traceable. In addition, each requirement should be annotated with attributes: priority, source, urgency, identity, comments, query/response (i.e., discussions). Characteristics of good requirements documents were also provided. Each collection of requirements should be: complete, balanced, modular, correct, consistent, realistic, identify role/state/mode, and be of a specific type (functional, non-functional, constraints, guidelines).

Boston SPIN Calendar

Information about Upcoming Meetings

by Johanna Rothman, Program Chair

September Meeting Announcement

Topic: Are Five Levels Enough?

Speaker: Tom DeMarco

When: Tuesday, September 21, 1999. 6:30pm-8:30pm
6:30-7:00 Networking
7:00-7:10 Announcements
7:10-8:10 Featured Speaker
8:10-8:30 Questions and Answers

Who: Everyone (Academia, Government, Industry)

Abstract:

We never get to play god, but we can indulge ourselves occasionally and play Watts Humphrey. What would you have put into the CMM? What should be taken out? Tom DeMarco, author of The Deadline and Peopleware: Productive Projects and Teams, tries his hand at what is fast becoming the National Pastime.

About the Speaker:

Tom DeMarco is a Principal of The Atlantic Systems Guild and winner of the J.D. Warnier Prize for "lifetime contribution to the information sciences." He is the author of seven books on software development and management. His newest book is called The Deadline: A Novel About Project Management. It is the story of a veteran software manager who finds, to his dismay, that he has effectively bet his life on a deadline. How does he manage the project with the stakes so high? You'll have to read the book to find out.

Location: General Dynamics, 77 "A" St., Needham MA.

Directions: From Route 128 in Needham, take exit 19A onto Highland Avenue East. Take your first right by the Ground Round and take your second left onto "A" Street. General Dynamics is the last building on the right. Enter the parking lot by the General Dynamics sign and come into the building by the cafeteria entrance, which is located to the left of the main entrance. There will be a security guard at the entrance.

Info: See our web page, <http://www.cs.uml.edu/Boston-SPIN>
For SPIN info, contact Johanna Rothman, 781-641-4046, or jr@jrothman.com

Looking for Interesting Speakers



We are always looking for interesting speakers. If you'd like to speak at Boston SPIN, please review these criteria before sending us an abstract.

Speaker criteria:

1. The topic must be timely, an issue of concern to our membership.
2. We want to hear about real-world topics. If you have an academic topic, we're interested in how it applies to the real world.
3. The topic should either explain how to *do* something, or bend our brains in another direction.
4. The presenter should be intimately involved with the "hows" of the thing that got done.
5. We are not interested in sales pitches.

If you have information you'd like us to hear, please send an abstract to Johanna Rothman, jr@jrothman.com. Or, contact Johanna at 781-641-4046.

We developed a speaker checklist so that none of us would have to rely on our short term memories. Please use the checklist to prepare for your SPIN talk.

Speaker Checklist:

1. Two-paragraph abstract and speaker bio at least 60 days in advance to Johanna.
2. Speaker provides one copy of overheads for our library.
3. If speaker desires, a copy of overheads, paper, etc., for our web page as of the day of the meeting. If possible, provide 50-60 copies of overheads at the SPIN meeting. The attending members really appreciate this.

SPIN '99-'00 Program and Speaker Schedule as of 7/12/99

| Date | Speaker/Topic |
|--|---|
| Sept. 21, 1999 @ General Dynamics | Tom DeMarco "Are Five levels Enough?" |
| Oct. 19, 1999 @ General Dynamics | Michael Mah "Project Estimation" |
| Nov. 16, 1999 @ General Dynamics | James Bach "Good Enough Quality" |
| Dec. 21, 1999 @ General Dynamics | Audience Participation Roundtables |
| Jan. 18, 2000 @ General Dynamics | Johanna Rothman "Using Quality to Drive Project Lifecycles" |
| Feb. 15, 2000 @ General Dynamics | Dolores McCarthy, Carol Pilch, Others TBD Panel: "Getting to Level 2" |
| Mar. 16, 2000 Joint meeting with ASQ | TBD |
| Apr. 18, 2000 @ General Dynamics | TBD |
| May 16, 2000 @ General Dynamics | TBD |
| June 20, 2000 @ General Dynamics | TBD |

Feature Article

This month's Feature Article is contributed by Carol Pilch. Carol is with General Dynamics and specializes in Software Process Improvement.

The 99 Software Engineering Symposium, August 30-September 2, 1999



Every year the Software Engineering Institute hosts the Software Engineering Symposium. The theme for this year's symposium was "Improving the State of Software Engineering: Principles, Practices, and Projections." Unlike the SEPG conferences, which have a major focus on process improvement, the symposium also focuses on other SEI initiatives such as architecture, COTs, security, and product line practices. This year's symposium was held jointly with the 1999 Conference on Software Technology and Engineering Practice (STEP 99).

Agenda/tracts

Several concurrent tutorials were conducted on Monday and Thursday and a total of 10 presentation tracks were offered on Tuesday and Wednesday. Presentation tracks included: Capability Maturity Model Integration, Architecture Tradeoff Analysis, Chief Information Officer, Dependable Systems Upgrade, Product Line Practice, Software Engineering Measurement & Analysis, COTS, and Network Survivable Systems.

Keynotes

There were four keynote speakers: Walker Royce, Vice President Rational Corporation; Bill Joy, Co-founder and Chief Scientist Sun Microsystems; Delores M. Etter, Deputy Under Secretary of Defense Office of the Director, Defense Research and Engineering; and Bruce Summers, Director Federal Reserve Information Technology. Here are some highlights of the keynote addresses:

Walker Royce – "Software Management Renaissance: Top 10 Principles of Modern Software Management"

In 1998, Walker Royce published a book on software project management entitled Software Project Management: A Unified Framework (Addison-Wesley). This presentation provided an overview of the book. The focus of the address was around 10 principles for software project management as they were viewed 20 years ago (reflected the waterfall model) and their evolution to a conventional approach. The key to modern software project management is to get all the product stakeholders to recognize that requirements, plans, and designs evolve.

The Top 10 principles of modern software project management according to Royce are:

1. Architecture first
2. Iterative life cycle
3. Component-based development
4. Change management of all artifacts
5. Round-trip engineering
6. Model-based analysis and design notation
7. Objective quality control
8. Demonstration-based assessment
9. Evolving levels of detail
10. Configurable process

Bill Joy – "Java and Jini: Towards Reliable Distributed Computing"

This talk provided a roadmap of the insight that led to Java as well as the transition from disk-centric to network centric computing. A key driver for the development of Java was the degree of difficulty using C and C++ and the need for more reliable software than software written in C and C++. In reflecting on his experiences since the early seventies, Joy alluded to the people factor and that "small groups can do astonishing things."

Delores M. Etter – Defense Research and Engineering (Science and Technology)

If a theme for the keynote address can be stated it is "Software is everywhere. Software is critical to national security."

Technical challenges – Integration of systems is an extremely difficult problem. Reuse needs to be designed in at the beginning. Contracts need to be funded so products are built for reuse. Simulation and modeling are a very critical capability. In particular, more work needs to be done to simulate human behavior.

With respect to contract award, DOD is looking for contractors with domain experience, successful past performance, mature software development capability and process, and a software measurement process.

Bruce Summers – "Integrity and Trust in Electronic Banking"

This keynote address provided some insight into the information assurance/security issues for banking and in particular, central banking. A general model of the financial system and the role of electronic banking in today's economy was provided. This was followed by a description of the implications of integrity and trust to the support provided by the software industry.

The banking system is a pyramid with thousands of smaller institutions at the base. Twelve Federal Reserve Banks are at the top of the pyramid. This pyramid structure results in a shared responsibility for operational integrity of the nation's

Continued on next page

financial systems. The importance of a smoothly functioning technical apparatus for the integrity of banking means that the software industry is part of the nations financial infrastructure. From the banking perspective, it is necessary to consider the special need of the financial infrastructure and to address those needs in designs, standards, and products that support the requirements for integrity and trust. Great new technologies will not be ready for use in banking until they are proven to be reliable and of "industrial strength."

Stevens Lecture on Software Development Methods

Tom DeMarco – "The Paradox of Architecture and Design"

Tom DeMarco (the featured speaker at the September 1999 meeting of the Boston SPIN) received the Stevens Award. This award has been presented every year since 1995 to recognize outstanding contributions to the literature or practice of methods for software development. DeMarco's lecture described how organizations "talk a good game" about the importance of architecture and design. Frequently only lip service is paid to architecture and design. Instead, architecture and design evolve in conjunction with the existing organizational culture. Three instances of design methods were presented along with the typical outcome when the design methods are used.

To further elaborate on this concept of architecture and design being influenced by culture, DeMarco provided the audience with a description of a system that exists in India that evolved without an architecture and design. It is a non-software system and it clearly evolved as a result of the culture in which it exists. Interestingly, this is a system of lunch box deliveries that is human-labor intensive. (You really have to think about the message here, but I think there's a lot of truth to it.)



The Boston SPIN is a forum for the free and open exchange of software process improvement experiences and ideas. Meetings are usually held on third Tuesdays, September - June. Boston SPIN welcomes volunteers and sponsors. There is no charge to attend the meetings.

For more information about our programs and events contact:

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<http://www.sei.cmu.edu/collaborating/spins/spins.start.html>.

IN THE SPIN is available on our Web page:
<http://www.cs.uml.edu/Boston-SPIN>.

TO RECEIVE NOTIFICATION OF NEW IN-THE-SPIN ISSUES and Boston SPIN specific notices send email addressed to danallen@danallen.com

We have 2 separate email lists: one for this newsletter and one containing announcements that we receive from other process organizations and forward out.

TO ADD YOURSELF TO THE ANNOUNCEMENTS LIST send email to ryan@sei.cmu.edu.

Send letter-to-the-editor, quips, quotes, anecdotes, articles, offers to participate in the newsletter committee, and general correspondence to Carol Pilch, carol.pilch@GD-CS.COM.

Send job postings to heimann@world.std.com

Back issues and other information about Boston SPIN can be found at our WEB HOME PAGE:
<http://www.cs.uml.edu/Boston-SPIN/>