

North Jersey SPIN Presentation

Just Enough Process Improvement

(or, Confessions of an ex-QA Analyst)

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The Three Points for Tonight

- ◆ On the Job Training can reinforce bad habits
 - Institutionalizing “the way it is done” through word of mouth
- ◆ Smaller organizations often need a different approach to pursuing project maturity than larger ones
 - Something less than a CMM sledgehammer is needed
- ◆ “Just Enough Process Improvement” can help bridge the gap – especially for small organizations
 - Be prepared to throw away the rulebook from time to time

The Build-Up: Part 1

- ◆ You spend most of your career in a large organization with a low level of project management maturity – especially when it comes to software project management
 - Most knowledge transfer is done “by word of mouth.”
 - You pay the price in time and effort by fixing “spaghetti code”
 - You are assigned to too many projects of dubious value

Why do we have such a hard time with software project management?

“From the moment a software product is released, the race against time and aging begins...As the pace of technology development increases, so too does the pace of technology obsolescence”

- Conrad, Plakosh, Lewis, 2003

“Modernizing Legacy Systems”

Manager: “Does anyone know how this whole system works?”

Programmer: “Yeah, but they’re all dead.”

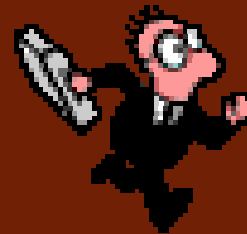
The Build-Up: Part 2

- ◆ You learn about the CMM, and for a time your organization establishes a respectable CMM Level 2 infrastructure
 - You are a believer in project & process improvement practices
 - Improvements made in company software project management despite skepticism of CMM.
 - Several business units pass CMM Level 2 assessments
 - You join SPIN and attend SEPG conferences
- ◆ At about the same time Dot-Coms go up in smoke...
 - Your VP and CMM champion leaves the company
 - Your area is gutted
 - Time for a change of scenery

The Transition:



- ◆ ~80,000 employees (2001)
 - 39,418 (2005)
- ◆ ~20,000 consultants/contractors
- ◆ IT staff: approx. 5000
- ◆ VM Support staff: 12



- ◆ 610 full-time faculty & staff
 - ◆ 250 Adjunct professors
 - ◆ 4700 students
 - ◆ IT staff: approx. 30
 - ◆ WebCampus Staff: 8

The Build-Up: Part 3

- ◆ Your new organization wants someone technically savvy, but....
 - You are no longer a programmer
 - You manage numerous technical & non-technical projects
 - Sales
 - Operations
 - Marketing
 - Customer Support
 - You are now one of “those people” accountable for the results of the entire organization
- ◆ Your division is small, new, and entrepreneurial
 - The only person who did the work you are doing now (your boss) had never head of the CMM
 - The scope of your operations rapidly grew beyond what could be handled informally

Stevens Distinctions



- ◆ First Engineering School in the U.S. (1870)
- ◆ WebCampus Branded and Launched in 2000
- ◆ Faculty
 - Average of 25 years of industry experience
 - Extensive High-Profile Research Projects
- ◆ Recent Accolades
 - USDLA 2005 21st Century Best Practices award
 - Sloan Consortium Award for “Best Online University”
 - Princeton Review Award for “Most Connected Campus”
 - Technology Management program rated 5th in the country
 - Project Management Institute Certification
 - Optimize magazine - one of the five top national business & technology schools for preparing future executives to manage technology – oriented businesses.

Online Learning Division: Our Mission

To provide education and training that is Relevant, Practical, and Engaging

Two Other Points to Consider...

- ◆ Online Learning is Still New to Most People
 - Keep the Technology Adoption Process model in mind
- ◆ A growing problem is to balance tactical and strategic planning
 - Strikingly obvious when you hit 1000 concurrent students
 - At some point, you will be obliged to transition from “pioneer” to “settler” mode



The Build-Up: Part 4

- ◆ After a successful pilot semester, the online learning organization begins to grow...
 - The online learning administrative staff is small
 - Projects and processes completed on ad-hoc basis
 - The online learning program is heavily dependent upon numerous players in other divisions
 - Faculty
 - Finance
 - IT
 - Student Services
 - Registrar
 - Admissions
 - Bookstore
 - Senior Management



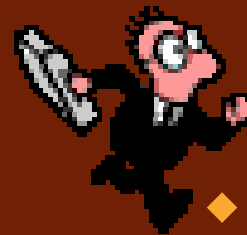
The Build-Up: Part 5

- ◆ More classes are deployed for online delivery
- ◆ More marketing and PR is done to promote the online programs
- ◆ To help manage the demand for online courses, more staff is added
 - You step in at a time of exponential growth
 - You are impressed by the amount of groundwork that has been laid, but...
 - **Your infrastructure still needs work**
- ◆ At about the same time, Senior Management has ambitious plans for the growth of the online learning program
 - Emphasis on finding new students in new markets

Your Role in the Online Learning Unit:

Initially

- ◆ Operations
- ◆ Technical Support
- ◆ Project Management



Later on

- ◆ Sales & Marketing
- ◆ Relationship Management
- ◆ Operations/Collaboration
 - ◆ Technical Support
 - ◆ Strategic Management

The Build-Up: Part 6

- ◆ You are now one of “those people” accountable for the results of the entire organization
 - You manage numerous technical & non-technical projects
- ◆ Your division is still small, still new, and still very dependent on many areas to get things done
 - The only person who did the type of work you are doing now is your boss
 - The scope of your operations rapidly grew beyond what could be handled informally
 - Your staff grows...slowly

WebCampus Infrastructure (part 1)

- ◆ Core staff of eight FTE's
- ◆ Close relationships with numerous areas
 - Registrar, IT, Academic Depts, Finance, OCD, Co-Op
- ◆ Close relationships with vendors
 - Interwise, JK Design, Paradigm...
- ◆ Close relationships with Professional Societies
 - PMI, IEEE, ASCE, ASME, SNAME, GWEC...
- ◆ Close Corp and Government Relationships
 - Boeing, Lockheed, Verizon, FAA, NSA, NECA, ITT, BAE, J&J, Merck, Pfizer, CitiBank, ADP, HP, NGC, Ft. Monmouth, Honeywell, Thomson Learning.....

WebCampus/CPE Staff

Key:

Shaded box

= vacancy

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Corporate Services
Coordinator

The Bigger Picture

General Environmental Influences

State and federal regulations (immigrations, H21 Visas, Homeland Security, funding, etc.)
Local, national, and international economies
Cultural issues

Stevens Institute of Technology

Howe School

Program Directors,
Faculty, and Staff

School of Engineering

Program Directors,
Faculty, and Staff

School of Arts/ Sciences

Program Directors,
Faculty, and Staff

CPE/WebCampus

Program Directors, Faculty
(Internal & External), and Staff

Graduate
Admissions

Undergraduate
Admissions

Registrar

Information
Technology

Public
Relations

**Stevens
Board of
Directors**

Co-Op

Career
Services

Alumni
Association

Development and
External Affairs

**WebCampus
Board of
Directors**

Book Store

SDOE SI Lab
(Multimedia)

Library

International
Student Services

Student Service
Center

Human Resources

Print Shop

Finance

Student Life

Partners, Co-Sponsors, Resources and Vendors

Competition



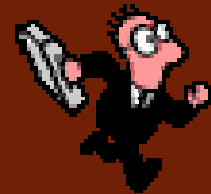
Core Processes

- ◆ Scheduling & Deploying Online Classes
 - Coordinating with academic departments
 - Encouraging new program development as well as re-running current programs.
 - Training of Faculty/Instructional Design
 - Coordinating with IT (SIS, WebCT, Interwise)
- ◆ Sales & Marketing
 - Maintaining the school websites
 - Building & Managing Relationships
 - Distributing materials (catalogs, postcards, emails...)
- ◆ Back Office Processing
 - Maintaining Contracts, Conducting Admin & Tech Support, Paying Royalties/Commissions, Gathering Student Feedback, etc

The Riddle

- ◆ How do you encourage the use of semi-formal project and process management techniques in your organization?
 - ...and be believable (aka – no “flavor of the month” allowed)
 - ...and actually get people performing the practices you think are the most relevant?
 - ...and actually get your work done?

- ◆ How do you manage continued growth when the number of projects and processes require more time and resources than you control or can borrow?





Introducing....

“Just Enough Process Improvement!”

The gradual introduction of project and process management techniques into an organization that is indifferent or hostile towards the CMM/CMMI

Applicable for small organizations that don't have the firepower for large CMM/CMMI implementations

The subversive element – prepare to throw away the rule book from time to time

Solo Process Improvement

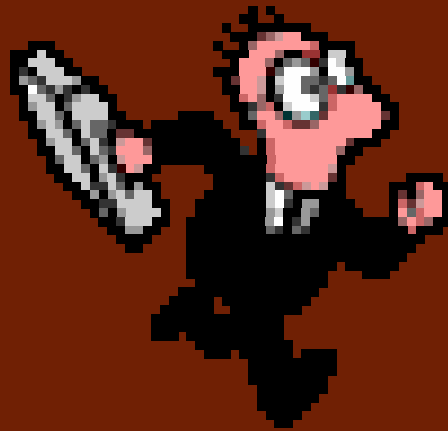
- ◆ Lead by example -- go to meetings with:
 - ...your project plans and schedules
 - ...your process charts
 - ...your lessons learned from previous projects
- ◆ Make project planning and process improvement look irresistible rather than a compliance thing
 - Even modest efforts can seem like a quantum leap



The Paradox

- ◆ Why would you find yourself ignoring some of these very same practices on certain occasions?
 - Answer: the “old” excuses
 - Too much “real work”
 - Not enough time
 - Not enough people

Confessions of an (ex) Quality Analyst



Confessions of an (ex) Quality Analyst

- ◆ I have told my web guy to install web pages before they were fully reviewed
 - Excuse: If we waited until they were fully reviewed, they would never be deployed. We were always able to revise things later without losing too much ground.
- ◆ I have sent teams to do programming projects without formal requirements documentation
 - Excuse: We did have a kickoff meetings and enough follow-up to get us by. The projects were relatively small. Besides, the project team was made up of undergraduates from Dave Klappholtz’s “Database Programming” class and I was only getting them ready for the real world....

Confessions of an (ex) Quality Analyst

- ◆ I did not generate adequate metrics for my program in time for my first budgeting meeting.
 - What a bloodbath...
- ◆ I did not have a Frequently-Asked Questions section added to my website until recently.
 - What I could have done with all that time I spent answering the same questions over and over!
- ◆ I have held or attended meetings without generating an actionable set of next steps
 - Meetings, bloody meetings! I go to too many meetings!

Confessions of an (ex) Quality Analyst

Implementation of web conferencing at Stevens

- ◆ I have deployed a vendor's IT system without conducting 100% of the evaluations that I would have liked to conduct
 - Excuse: I saw six competing systems at a City-SPIN vendor fair and concluded that I knew all I needed to know about web conferencing.
 - The entire project was less than \$50K
 - Results have been very positive
 - (Translation: I got away with it)

Implementation of web conferencing (continued)

Original Plan

- ◆ Write business case/requirements for web conferencing
 - Cite student feedback about wanting more interaction with instructor, classmates
- ◆ Survey faculty about using web conferencing in their online courses...
 - ...for real-time lectures, Q&A sessions, etc.
 - ...for recorded lectures, etc.
- ◆ Recruit 25 or more faculty to participate in pilot tests
 - Have them use the web conferencing tools in actual classes
 - Conduct 3-month pilot test of Interwise, followed by a 3-month test of HorizonLive
- ◆ Work closely with vendors to manage implementation

Implementation of web conferencing (continued)

Actual Rollout

- ◆ The “business case” consisted of a paper I had written in for one of the strategic project management classes
- ◆ Minimal requirements management performed
- ◆ Just 6 instructors participated in the Interwise pilot evaluation, and only 2 of them spent serious time going through the training sessions.
 - One other instructor did have problems utilizing the application. (He is our CyberSecurity program director)
- ◆ The second pilot was never conducted
 - Determination made that Interwise could do the job.

Cornerstones of “Just Enough Process Improvement”

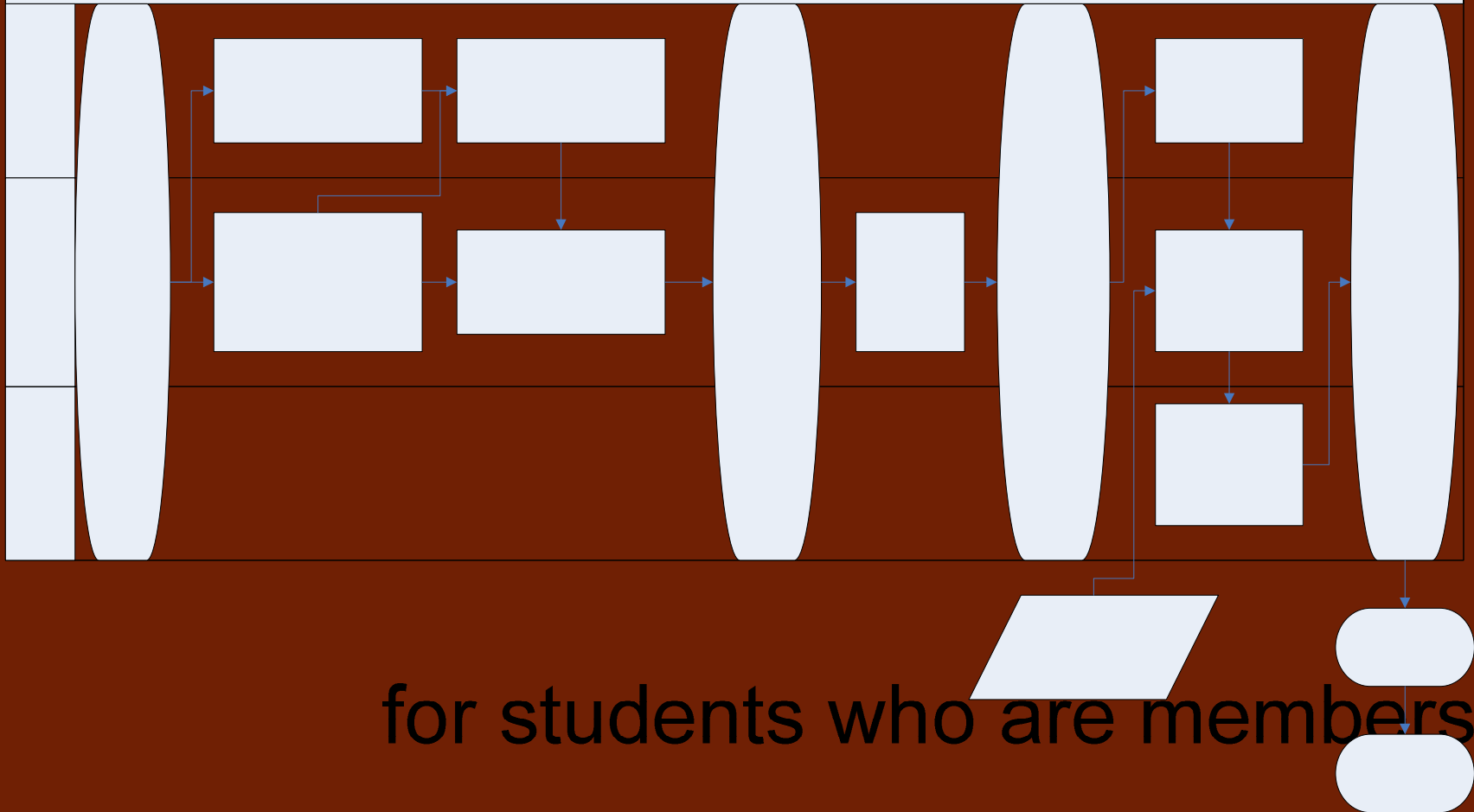
- ◆ Use CMM/CMMI guidelines as practical
 - Ignoring CMM/CMMI guidelines when the situation calls for it is not the same as being ignorant of them
- ◆ Know which rules **MUST** be followed at a minimum
 - Senior management approval still needed
 - Allow sufficient follow-up to pick up the slack
 - Not for mission-critical projects
 - Not for hugely expensive projects
- ◆ Let people know when you are doing as much due diligence as possible but not as much as you would like
 - If you are doing software project management, your level of diligence may be more than what your management is used to anyway.

Charting Your Processes

- ◆ Shows your role and the role of other stakeholders
- ◆ Helps you figure out your operations from top to bottom
- ◆ Encourages more conversation between you and your stakeholders
- ◆ Cuts down drastically the time it takes to get new people involved in the operation

Process Chart Example

Rebate Processing



for students who are members of

Metrics Examples

FY 2005 Stevens-WebCampus Enrollments

Semester	Graduate Enrollments	Undergrad Enrollments	Total Enrollments	Sections	Graduate Enrollments per Section
*Summer A 2004	108	30	138	22	4.91
Summer B 2004	97	0	97	7	13.86
Fall 2004	608	229	837	67	9.07
Winter 2004-05	28	0	28	6	4.67
Spring-1 2005	758	331	1089	80	9.48
Spring-2 2005	164	4	168	20	8.20
**Summer A 2005	246	74	320	36	6.83
Totals	2009	668	2677	238	8.44

Metrics Examples

FY 2006 Stevens-WebCampus Enrollments

Semester	Graduate Enrollment	Undergrad Enrollments	Total Enrollments	Sections	Graduate Enrollment per Section
*Summer A 2005	246	74	320	36	6.83
Summer B 2005	48	2	50	7	6.86
Fall 2005	896	184	1080	90	9.96
Winter 2005-06	7	17	24	9	1.44
Totals	1199	271	1470	142	8.44

What we can (and can't) use from the CMM/CMMI

- ◆ We Can....
 - Formalize some of our processes
 - Monitor our most important processes
 - Improve our core processes
- ◆ We Can't...
 - Go nuts with metrics and analysis
 - Jam this down the throats of others
 - Go through a CMM/CMMI assessment
- ◆ We Would Like To...
 - Find new work for our Pioneers so they don't leave (and take all that they know with them).

Flashback

Manager: “Does anyone know how this whole system works?”

Programmer: “Yeah, but they're all dead.”

Conclusions

- ◆ Keep your own projects and processes tidy
 - At meetings, demonstrate how organized things could be
 - Make your best practices seem irresistible to others
 - Never go to a meeting empty-handed
 - Always have a plan, a chart, or related information about projects likely to come up.
- ◆ You don't always have to follow CMM/CMMI processes to the letter
 - Don't worry about making the perfect project plan or process chart – just get the point across for the current project and refine your approach for the next one.
- ◆ Don't even mention you are doing CMM or CMMI-based work – most people outside the SEPG/SPIN community are skeptical about it anyway



Conclusions

- ◆ Use Documentation that translates well for non-CMM/CMMI-types
 - Process Charts
 - Website Maps
 - Hot-Button Metrics
- ◆ Allows you to explain the big picture in significant detail without overwhelming your audience

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An illustration of five people (three men and two women) sitting around a circular table. Each person is focused on their laptop, representing a collaborative online learning environment. The background is a stylized, colorful pattern.

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