# Special Intelligence from the Women In Black

**Kim Caputo, Delta Business Solutions**

**Cora Carmody, SAIC**

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**SEPG 2004**

**Orlando, Florida**

**8 March 2004**

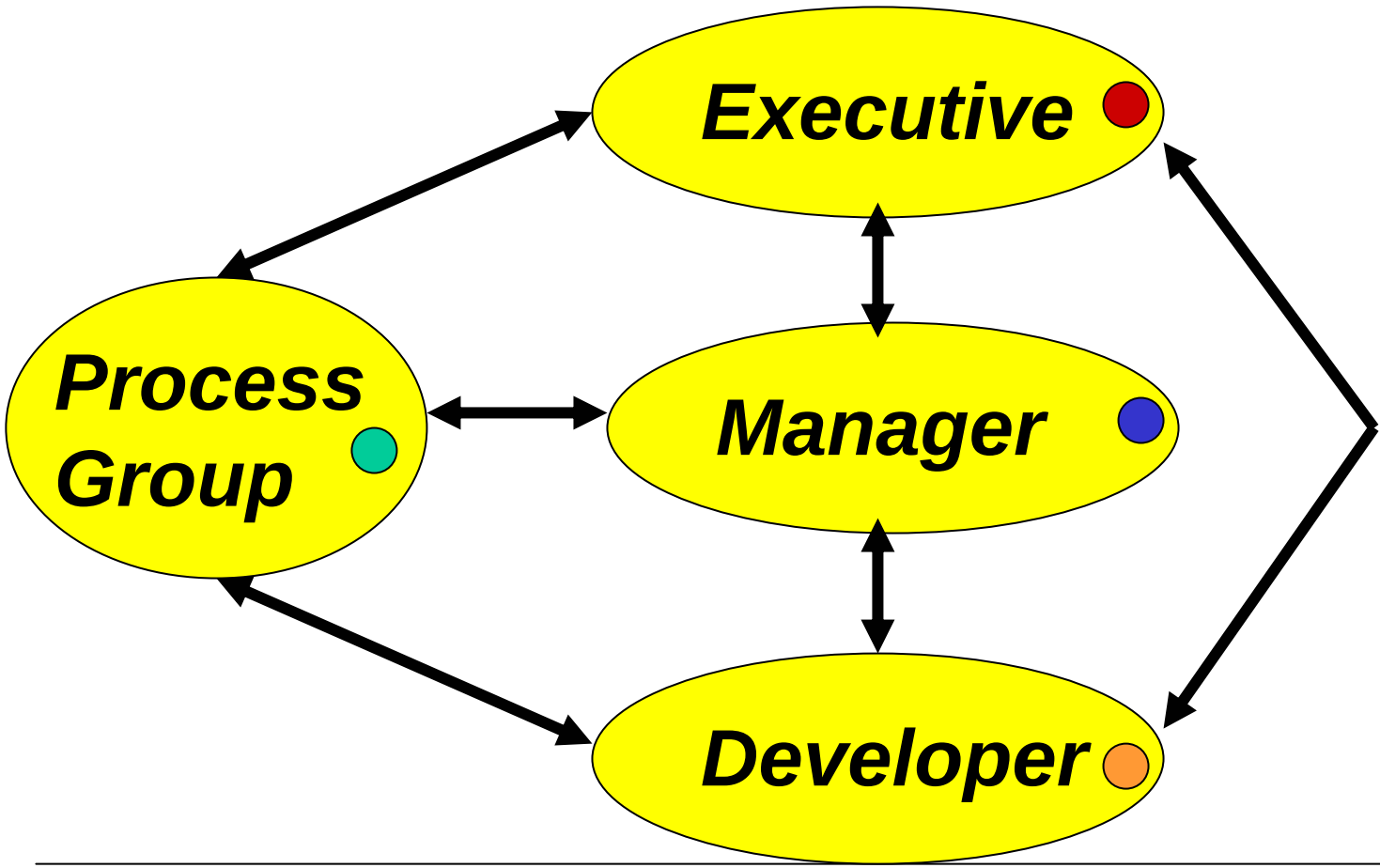
# Agenda

- **Introduction**
  ***by Kim Caputo***
- **The Executive Perspective**
  ***by Joan Weszka***
- **The Manager Perspective**
  ***by Rose Whitney***
- **The Developer Perspective**
  ***by Kim Caputo***
- **The Process Group Perspective**
  ***by Cora Carmody***

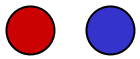
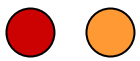
# Introduction

- What's the Secret to…
  - Achieving the SPI Mission
  - Getting past "The Wall"
  - Obtaining (and Retaining) Sponsorship
  - Being heard

# Roles and Relationships



# Key Relationships

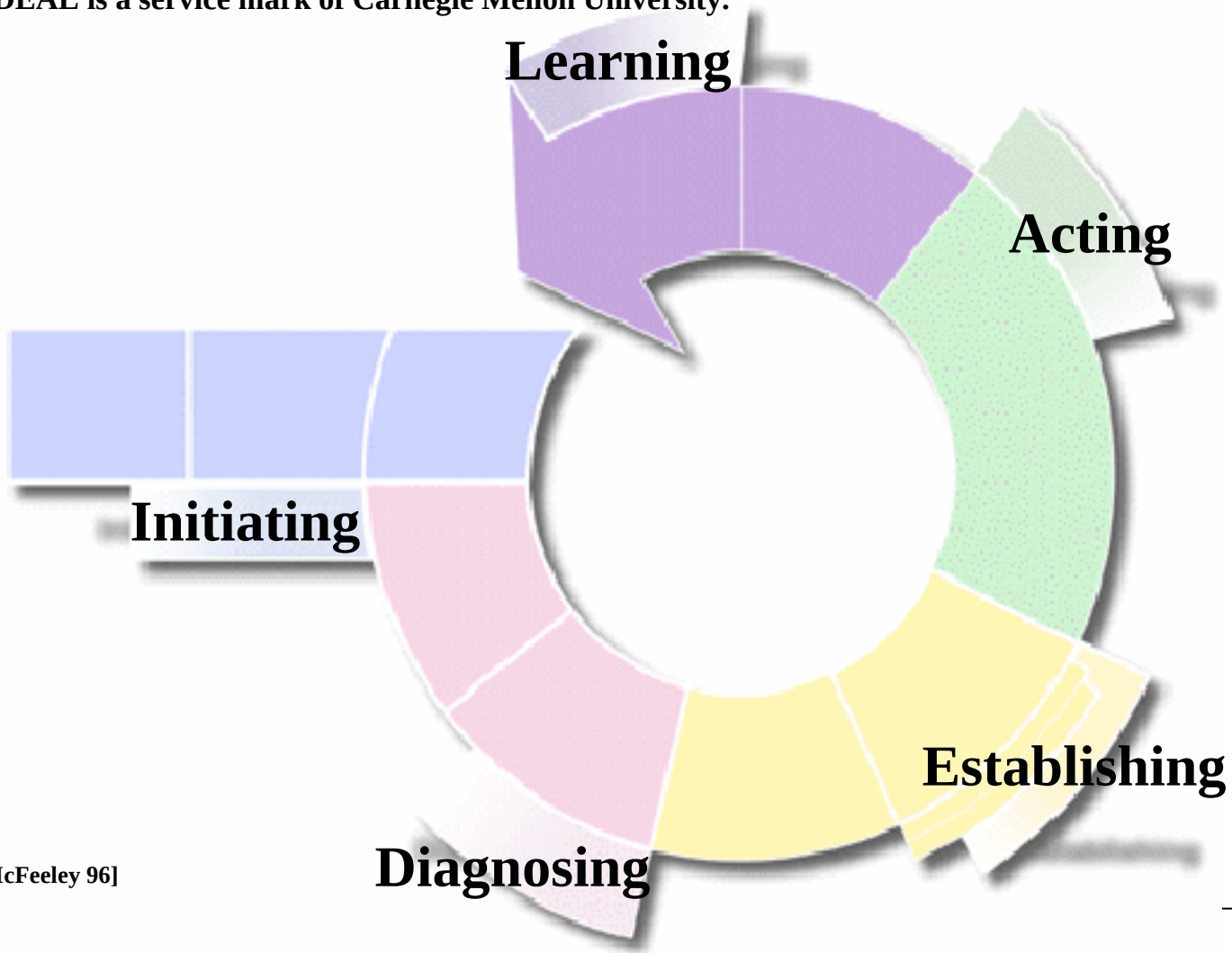
| Setting Expectations | Providing Support |
| --- | --- |
| 1 Executive & Managers  | 4 Process Group & Executive  |
| 2 Executive & Developers  | 5 Process Group & Managers  |
| 3 Managers & Developers  | 6 Process Group & Developers  |

# Models and Maps

- The IDEAL Model tells you what your mission is…
  …but it's not that easy
- The NORMAL Model shows you how things get off track
- The SECRET Map shows you how to get back on track to success

# The IDEAL[SM] Model

[SM] IDEAL is a service mark of Carnegie Mellon University.

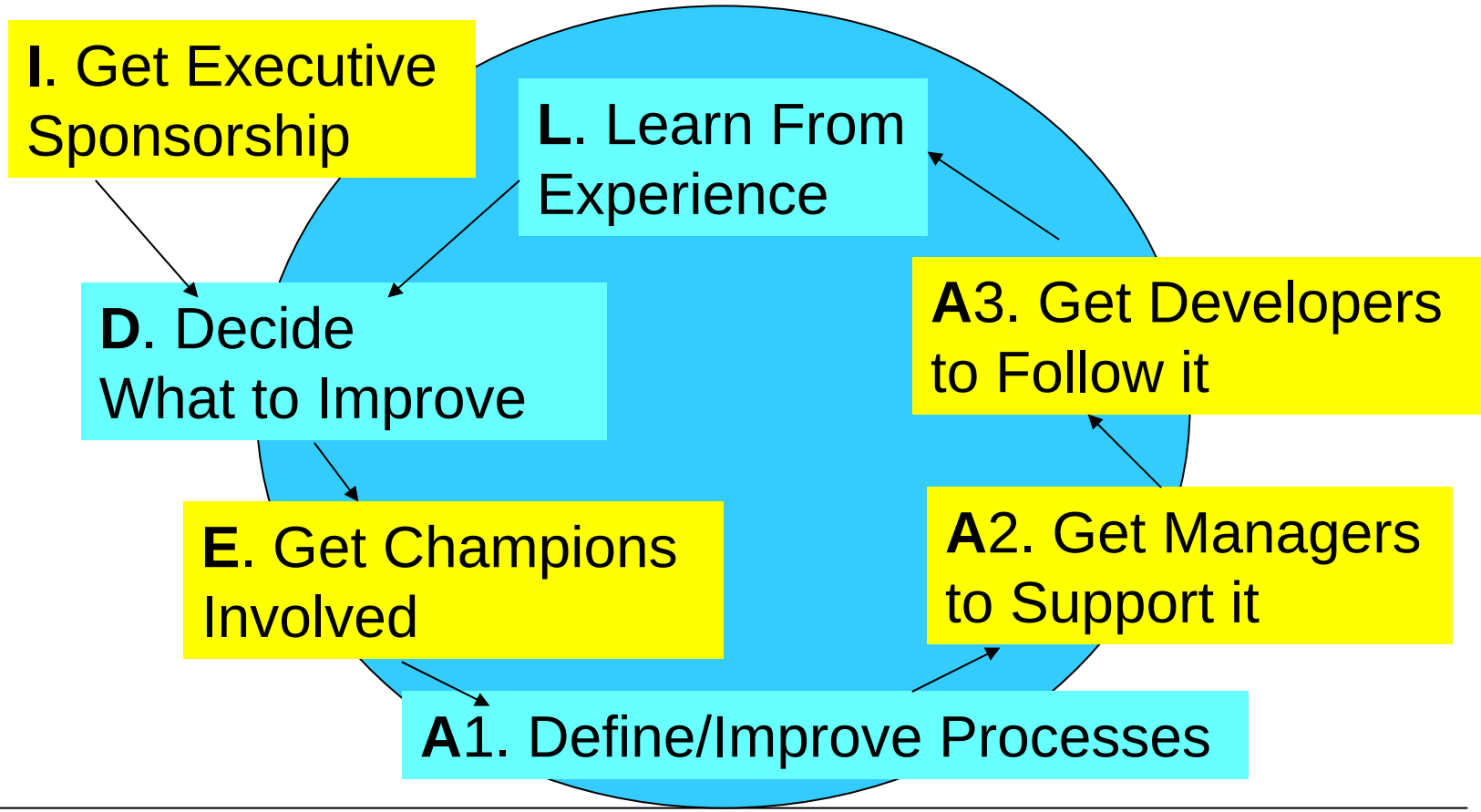



[McFeeley 96]

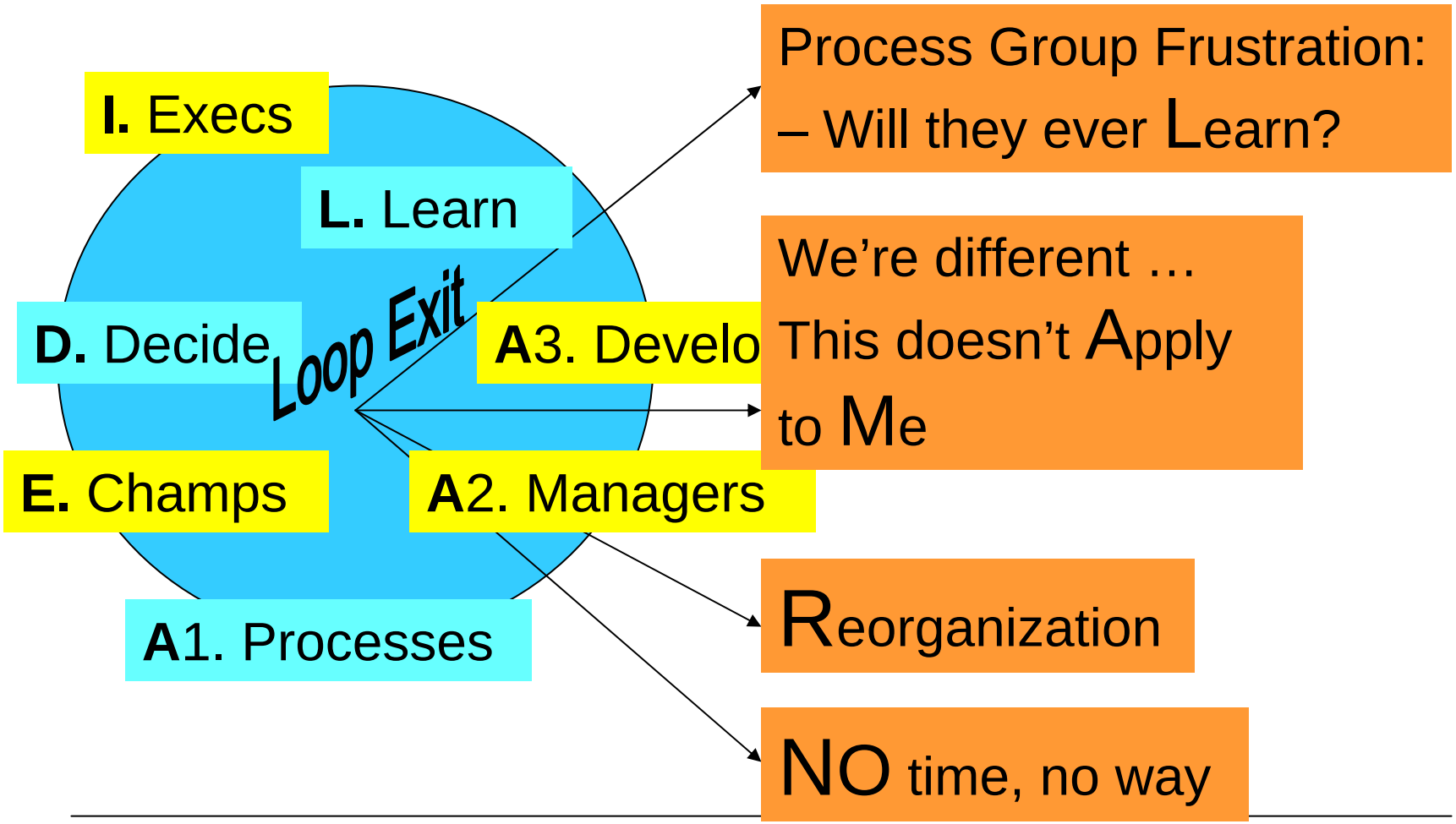
# IDEAL℠ Model Involvement

| | |
|---|---|
| Initiating | • **Get** Executive Sponsorship |
| Diagnosing | • Decide What to Improve |
| Establishing | • **Get** Champions Involved |
| Acting | • Define/Improve Processes<br>• **Get** Managers to Support it<br>• **Get** Developers to Follow it |
| Learning | • Learn From Experience |

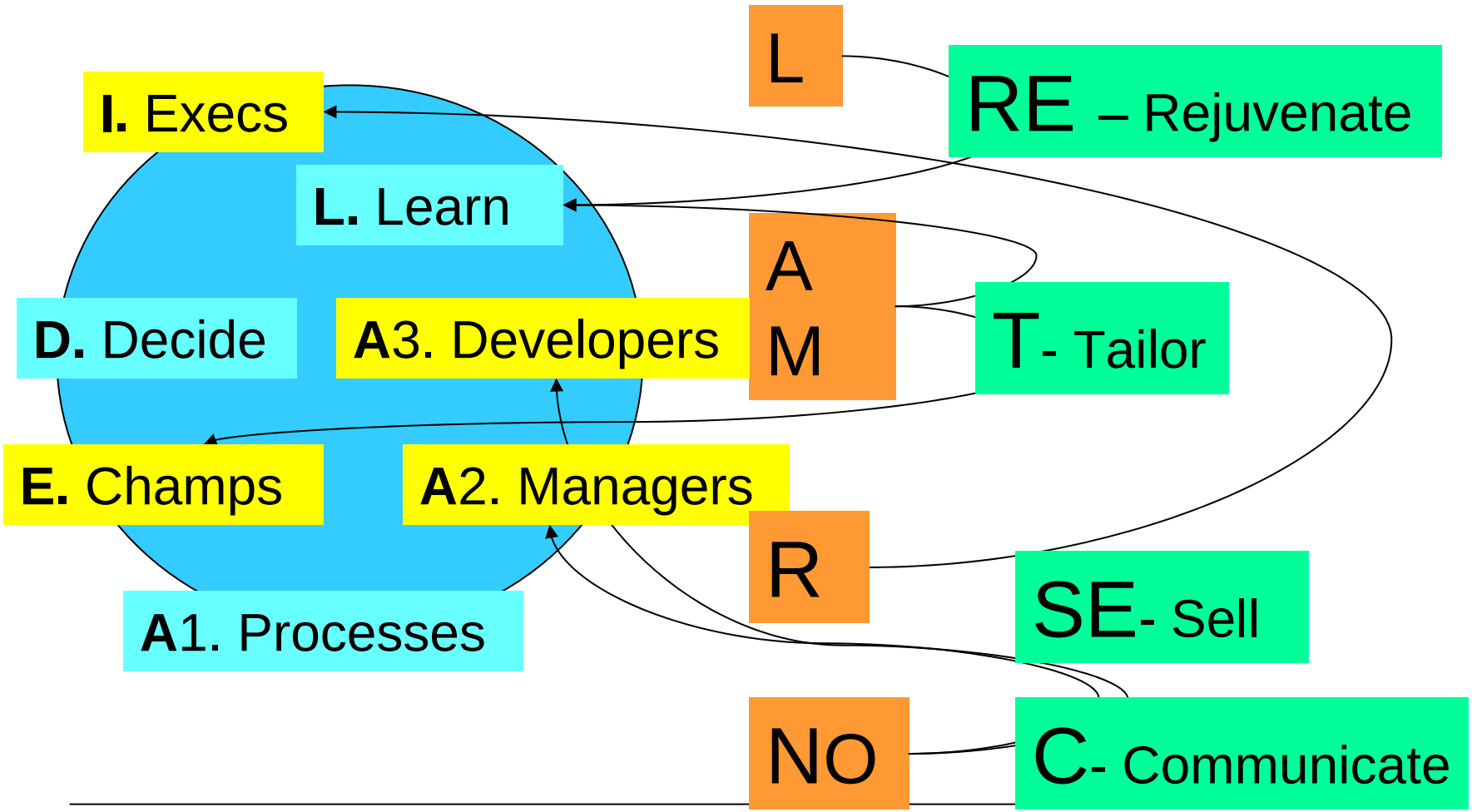
# The IDEAL$^{SM}$ Model Map



# The NORMAL Model



# The SECRET Map



# Decoding Chart

NO – NO time, no way

SE – Sell & Enlighten

C – Communicate Expectations Often

R – Reorganization

SE – Sell & Enlighten

MA – This doesn't Apply to Me

T – Tailor things to fit new situations

L – Will they ever Learn?

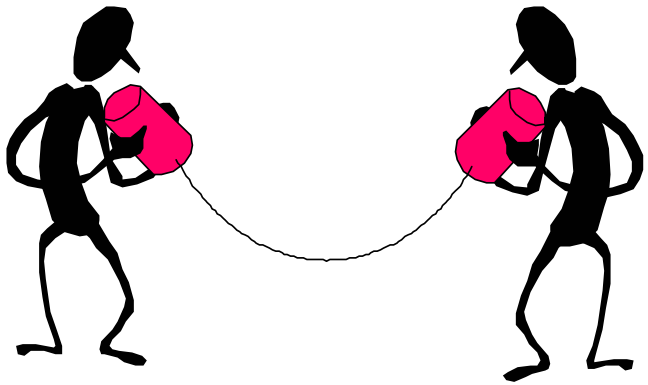
RE – Rejuvenate & Encourage

***Loop Re-Entry Points***

- Get Managers to Support it
- Get Developers to Follow it
- Get Executive Sponsorship
- Get Champions Involved
- Learn From Experience
- Learn From Experience

# What's the Secret to…

…getting people to listen to you?

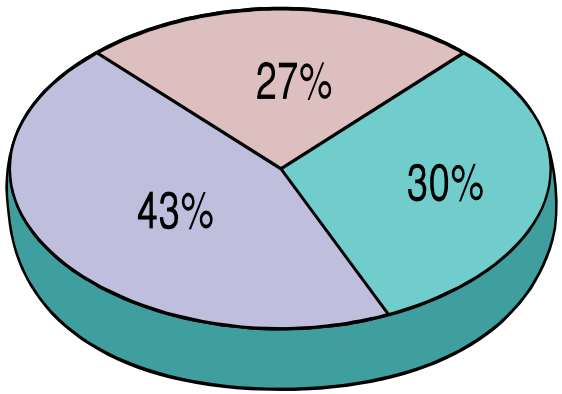


*"If you don't talk the way people listen, it doesn't matter what you say"*

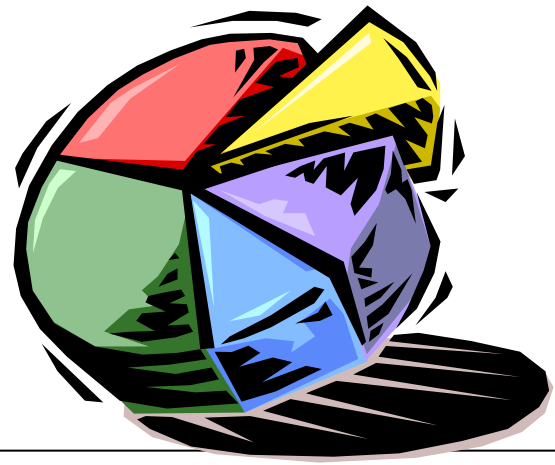
# Know Yourself and Your Audience

- **What style are you?**
  **What style is your audience?**
- **What role does your audience play?**

**Sensor:**
**Results, Pragmatic,**
**Executive Summary**




**iNtuitive:**
**Ideas, Creative,**
**Pictures and Drawings**

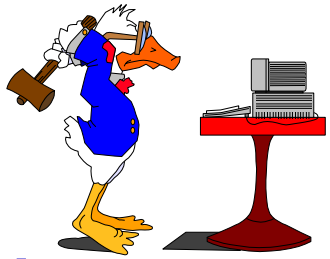


# Customize Communication to Your Audience

| *Sensing Types – Prefer to see Data and Facts* | *iNtuitive Types – Prefer to see Ideas and Concepts* |
|---|---|
| ***66% of managers,*** | ***33% of managers,*** |
| ***50% engineers,*** | ***50% engineers,*** |
| ***29% change agents*** | ***71% change agents*** |
| ***are Sensing*** | ***are iNtuitive*** |

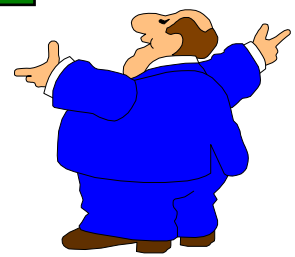
*- West & Sullivan*

# iNtuitive Example: Why SPI?

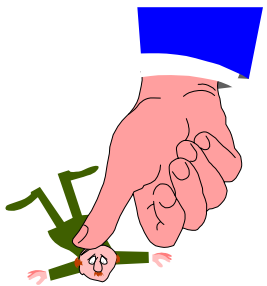


Less stress.

Happy customers.

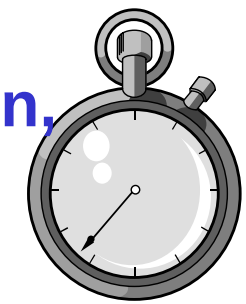



Engineers won't have to perform magic anymore.



Fewer interruptions from management.

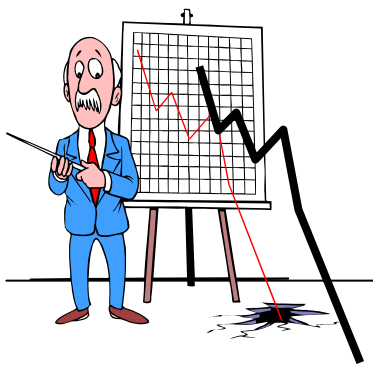
More time for fun, exciting work.



*- West & Sullivan*

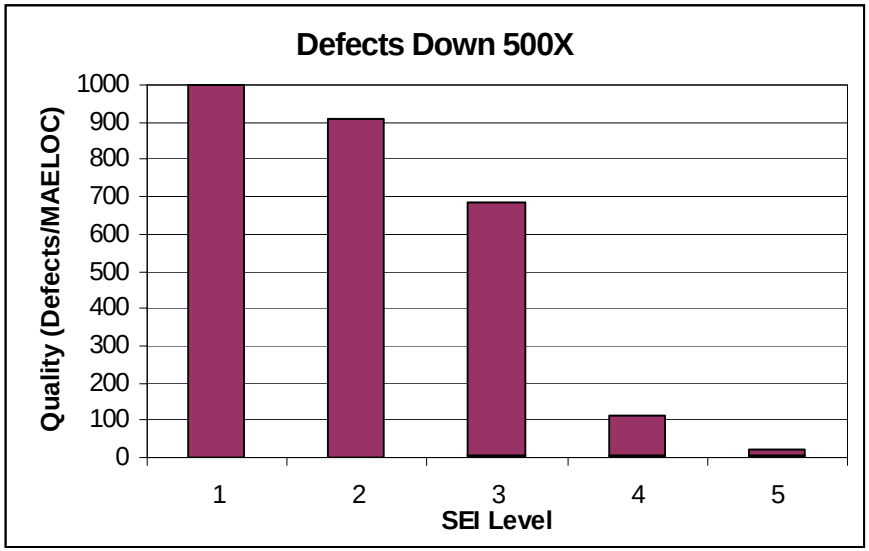
# Sensing Example: Why SPI?

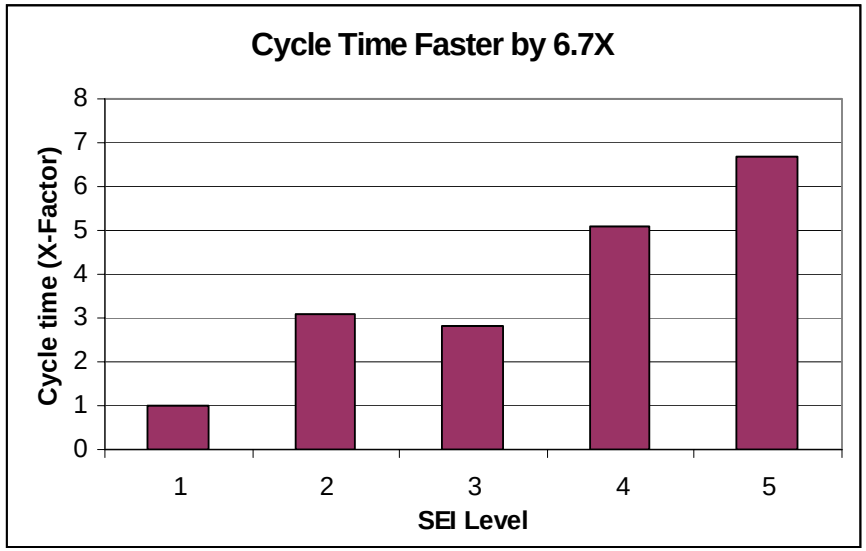
- **Nearly 1/3 of information technology projects were cancelled before completion**
- **Only 16% (1of 6) software projects were completed on time, on budget**
- **Delivered products contained on average only 61% of the originally-specified features**
- **Average budget overrun was 189%**
- **Average schedule overrun for projects that were in difficulty was 222%**

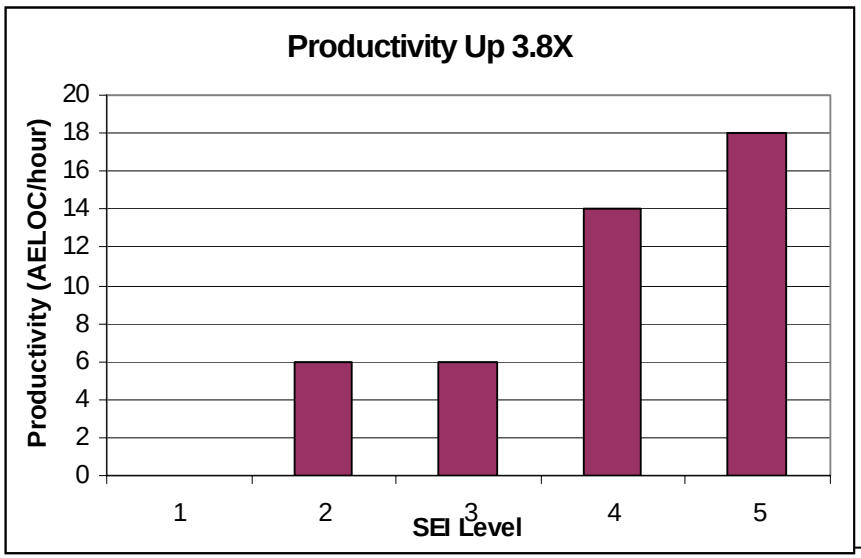


**"Charting the Seas of Technology: The CHAOS Study"**
**The Standish Group, January 1995**
**- Report of the Defense Science Board Task Force of Defense Software, November 2000**

# Bar Charts: Defects, Cycle Time, Productivity



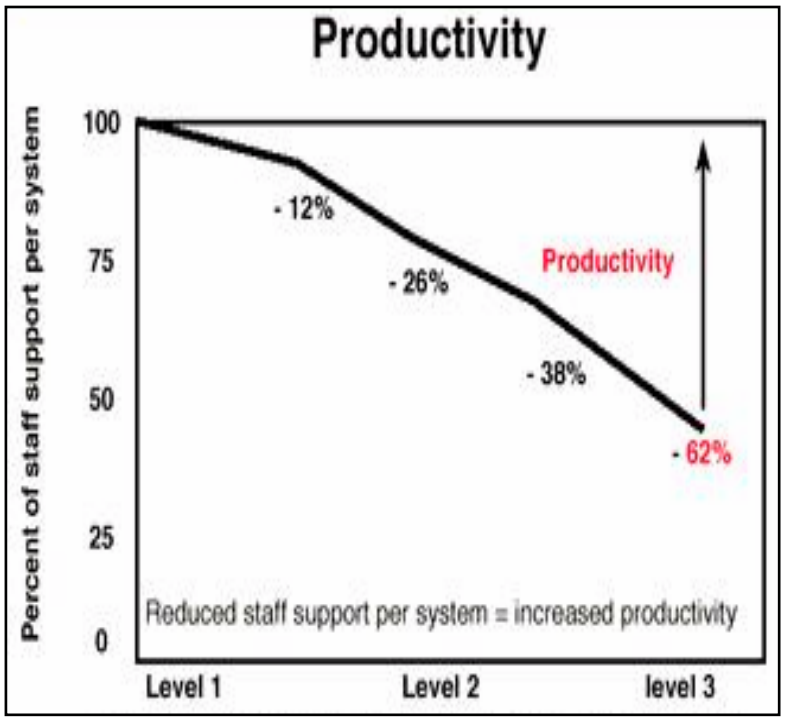



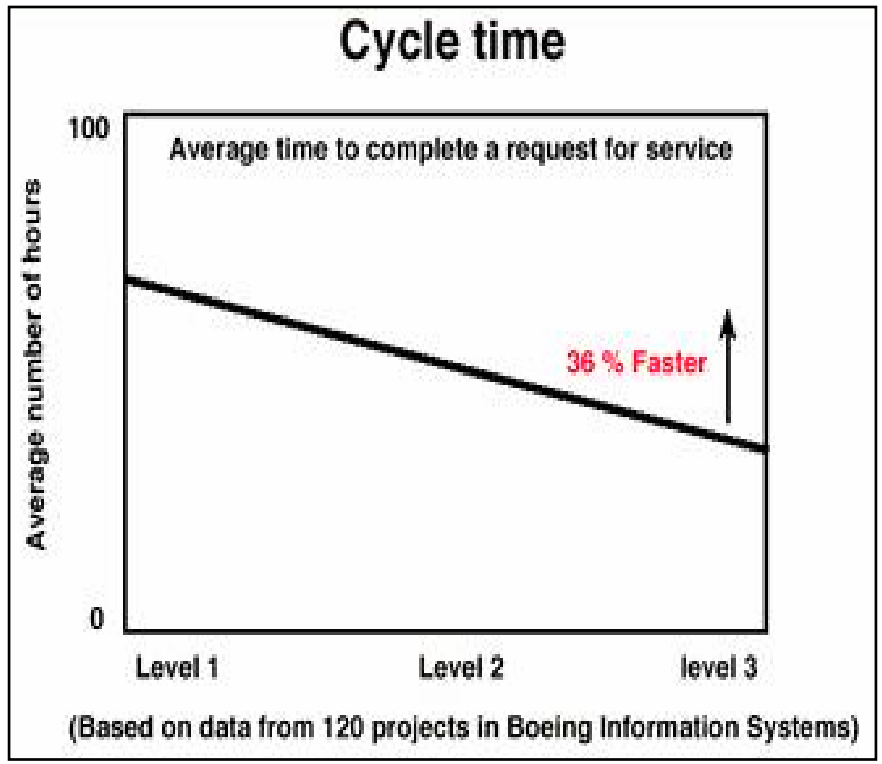

| | 1996 | 1997 | 1998 |
|---|---|---|---|
| SEI CMM Level | 2 | 3 | 4 |
| Inspection Efficiency | 1 | 1.68 | 2.00 |
| Defect Density, per KSLOC | 1 | .54 | .47 |
| Build Cycle Time | NA | 1 | .19 |
| Test Rate, KLOC/Days | 1 | 4.7 | 20 |
| Test Rate, reqts/week | 1 | 1 | 2.7 |
| Test Productivity, LOC/Stf Wk | 1 | 1.66 | 3.07 |

***- Motorola, Systems Solutions Group, SPIN 9/98***

# Graphs: Cycle Time, Productivity




**Projects operating at Maturity Level 3 increased productivity by 62% ...**

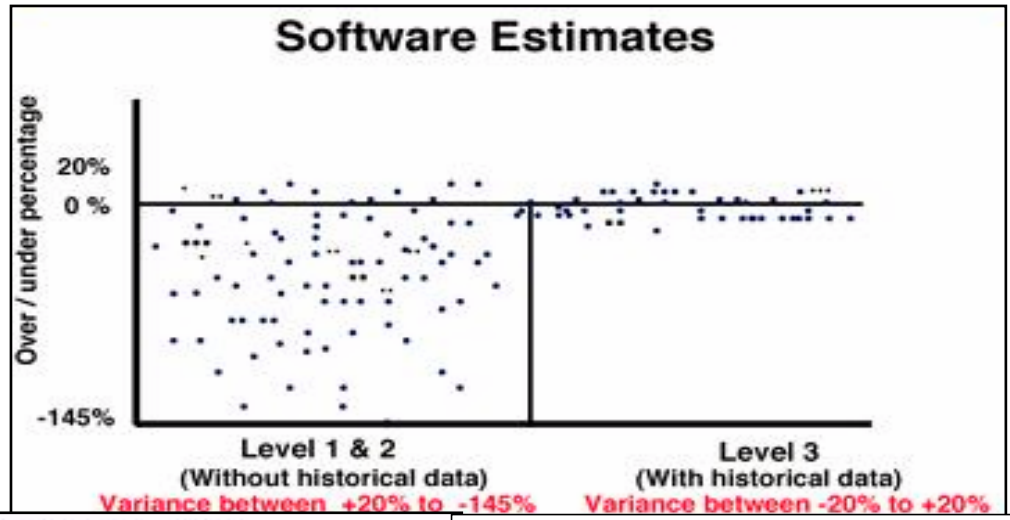



**While cycle times improved 36%.**

Reference: Scott Griffin, Boeing CIO, SEPG Conference 2000

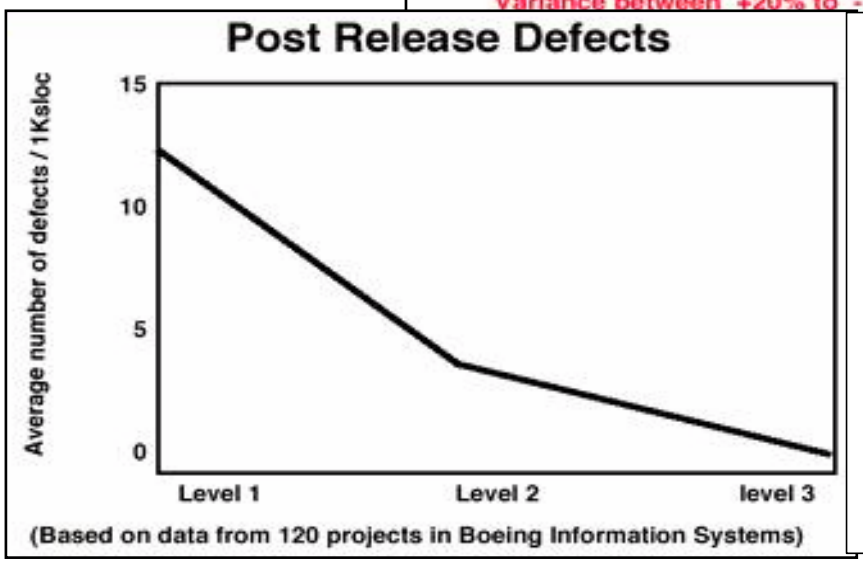
# Plots, Lines, Bars: Estimation, Defect Prevention

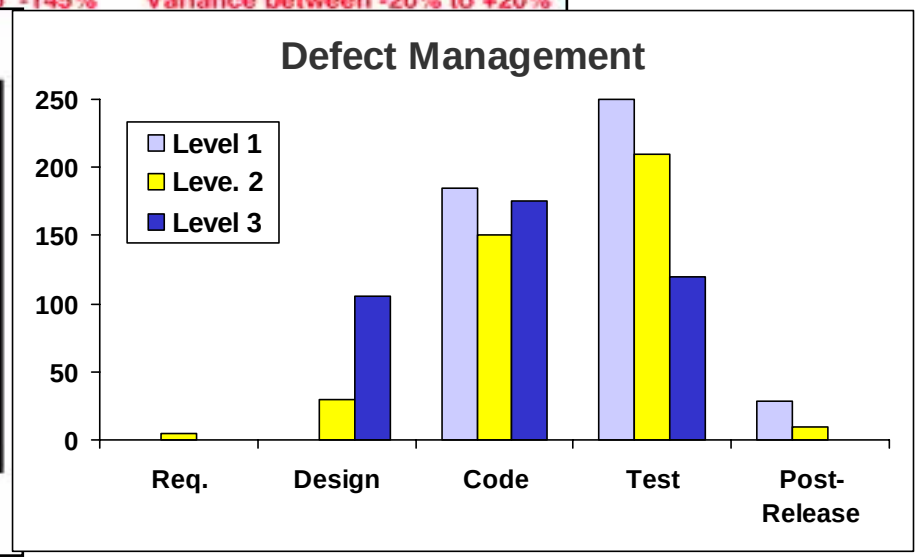
**Improved estimation accuracy.**



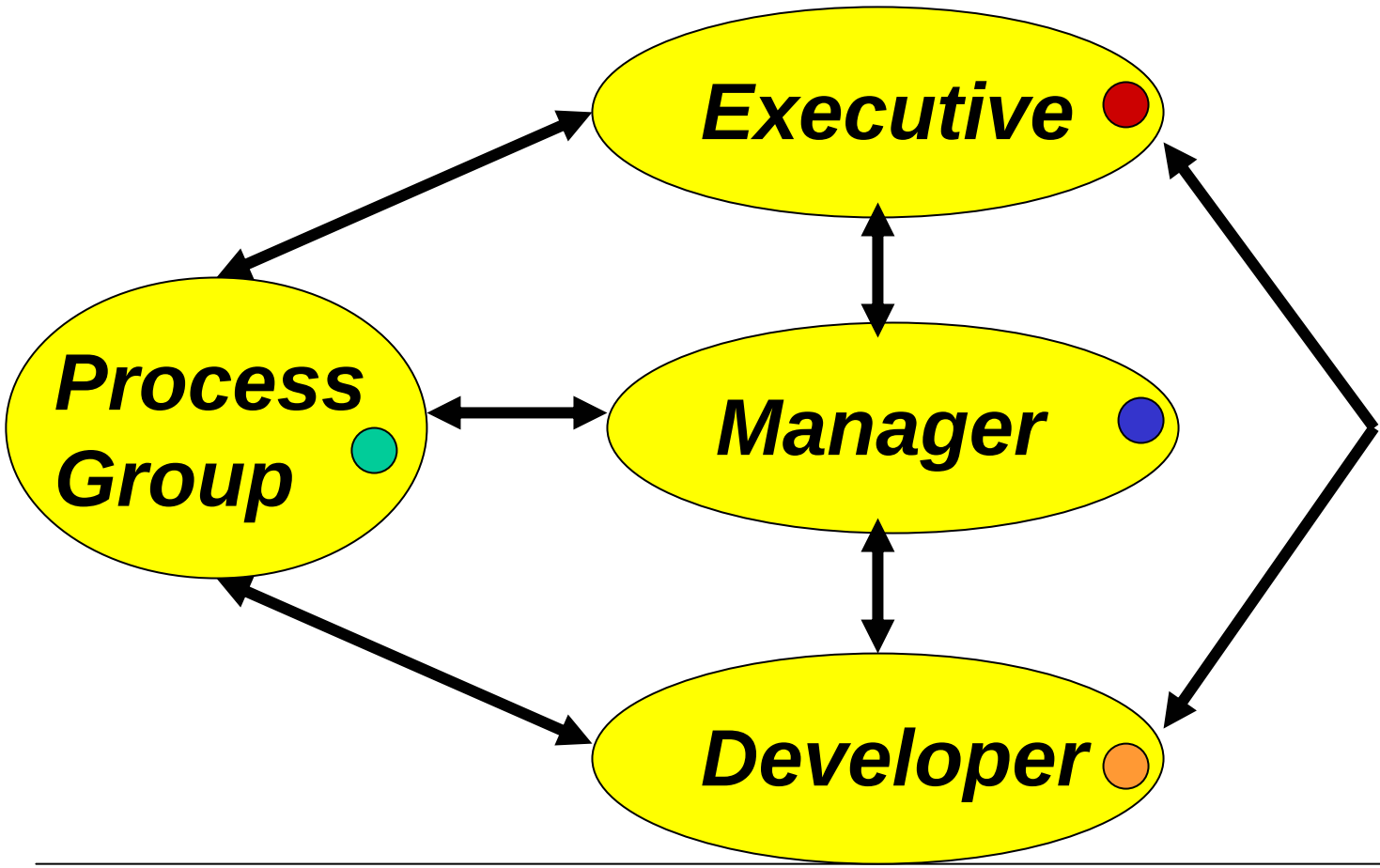

**Product quality increased.**

**Defects detected earlier.**



# Four Perspectives



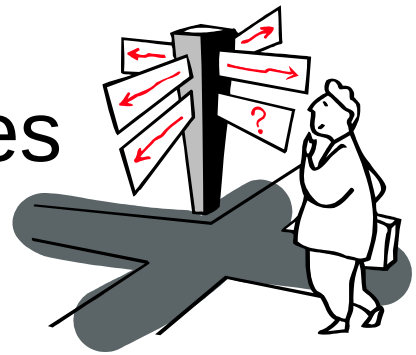
# The Executive Perspective

***Executive***

- **Special Concerns**
- **Crucial Questions**
- **Secret Answers**

# Special Concerns of the Executive

- Business & strategic objectives



- Quantitative results

***5X Productivity improvement***
***70 % fewer defects***
***50% less cycle time***

- Return-on-investment

***10?***
***7?***
***2.3?***

# Executive Sponsorship

Executive sponsorship includes…

- funding
- resources
- visible support
- setting priorities and expectations
- motivating organizational behavior
- “walking the talk”

# What's the Secret to…

- …obtaining sponsorship?
  ***Before*** embarking on a process improvement program

- …retaining sponsorship?
  ***After*** a cycle has begun

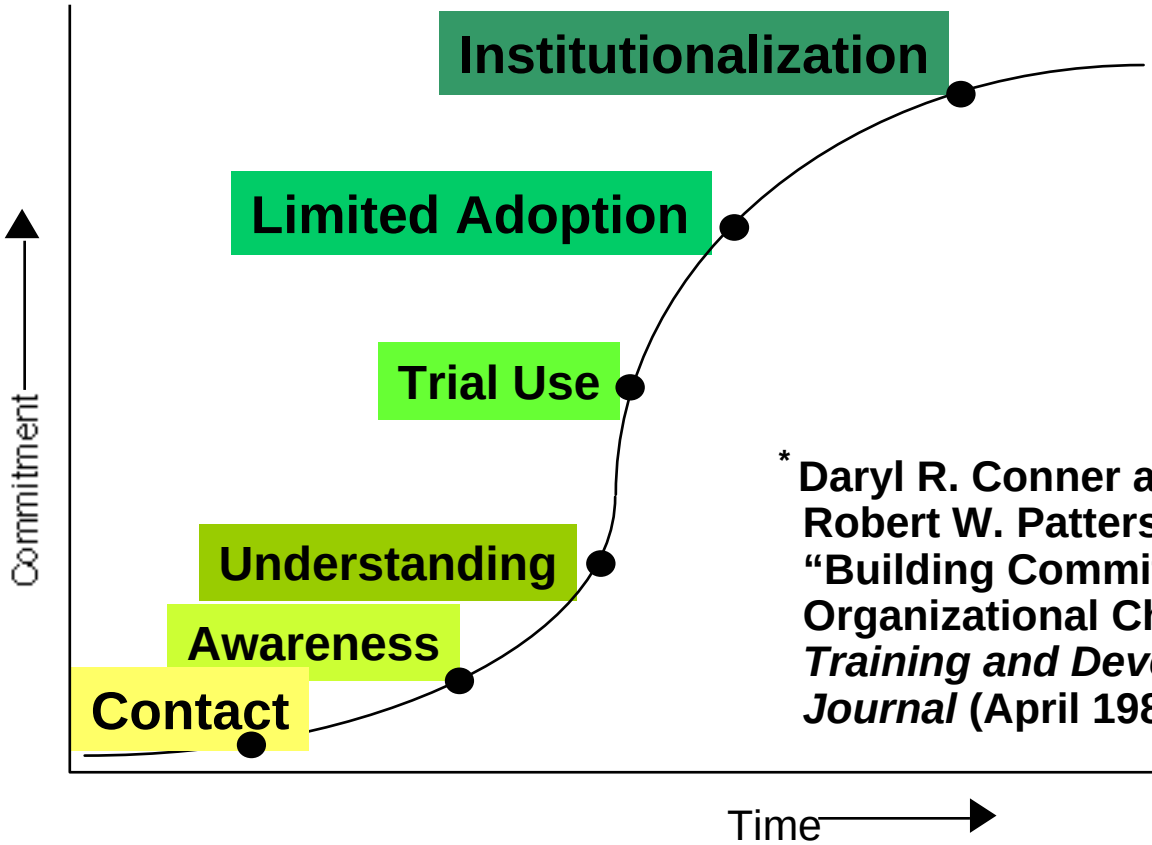
*It's a continuous process!*

# Before… Prepare Yourself

- Obtain training on technology change management
  - Applies equally to process improvement as it does to technology adoption
- Understand the business objectives of your executive
- Have an "elevator speech" ready
  - Don't lose an opportunity to reinforce the message

*Your **competence** and **credibility** are key*

# Technology Change Management*




* Daryl R. Conner and Robert W. Patterson. "Building Commitment to Organizational Change," *Training and Development Journal* (April 1983):18-30.

# Business Objectives

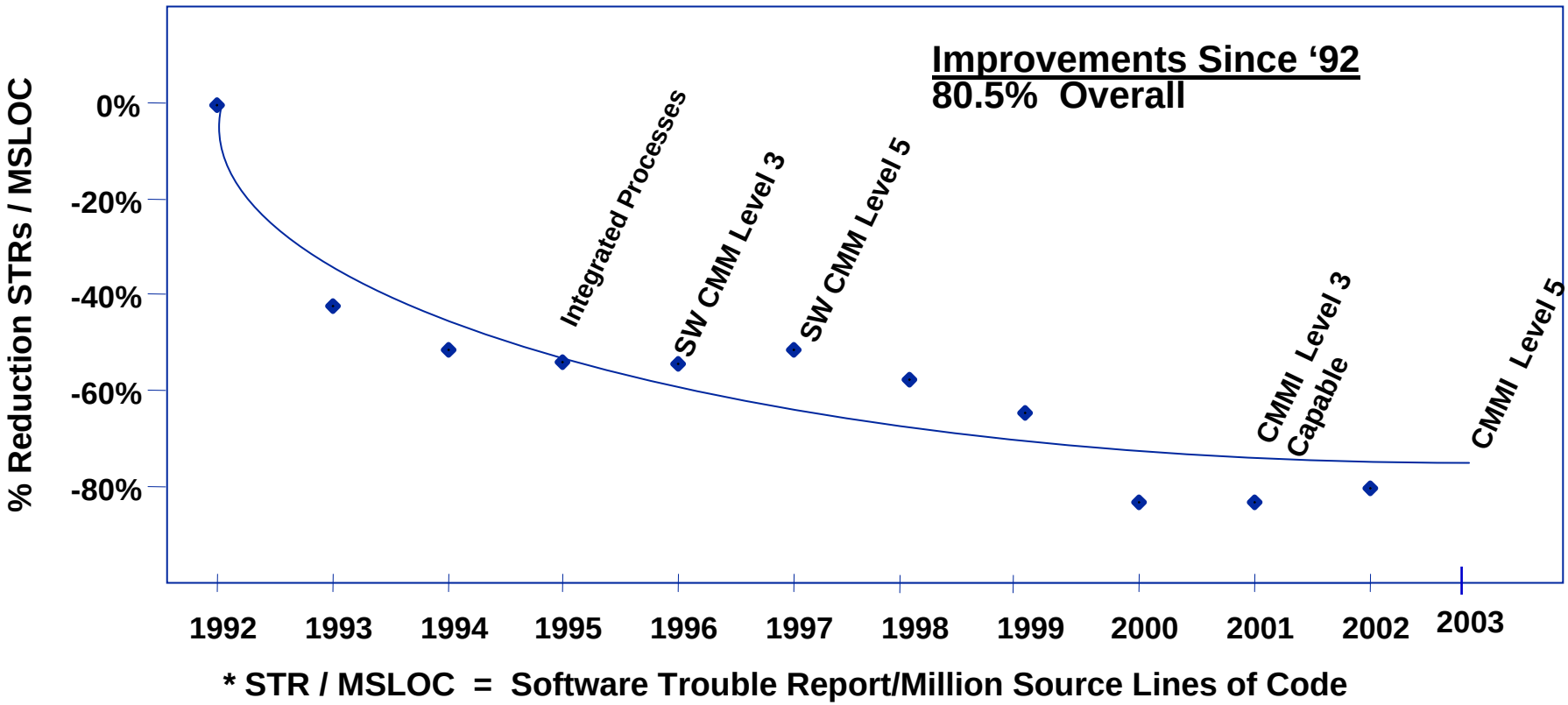
- Explain how process improvement can ***support business performance***
  - **Higher productivity**
  - **Better quality**
  - **Reduced cycle time**
  - **More satisfied customers**
  - **Competitive benchmarks**

***Higher Award Fees***

*Bottom-line: improved **profitability***

# Software Quality
# Lockheed Martin Systems Integration - Owego

## Software Defects per Million Delivered Source Lines of Code

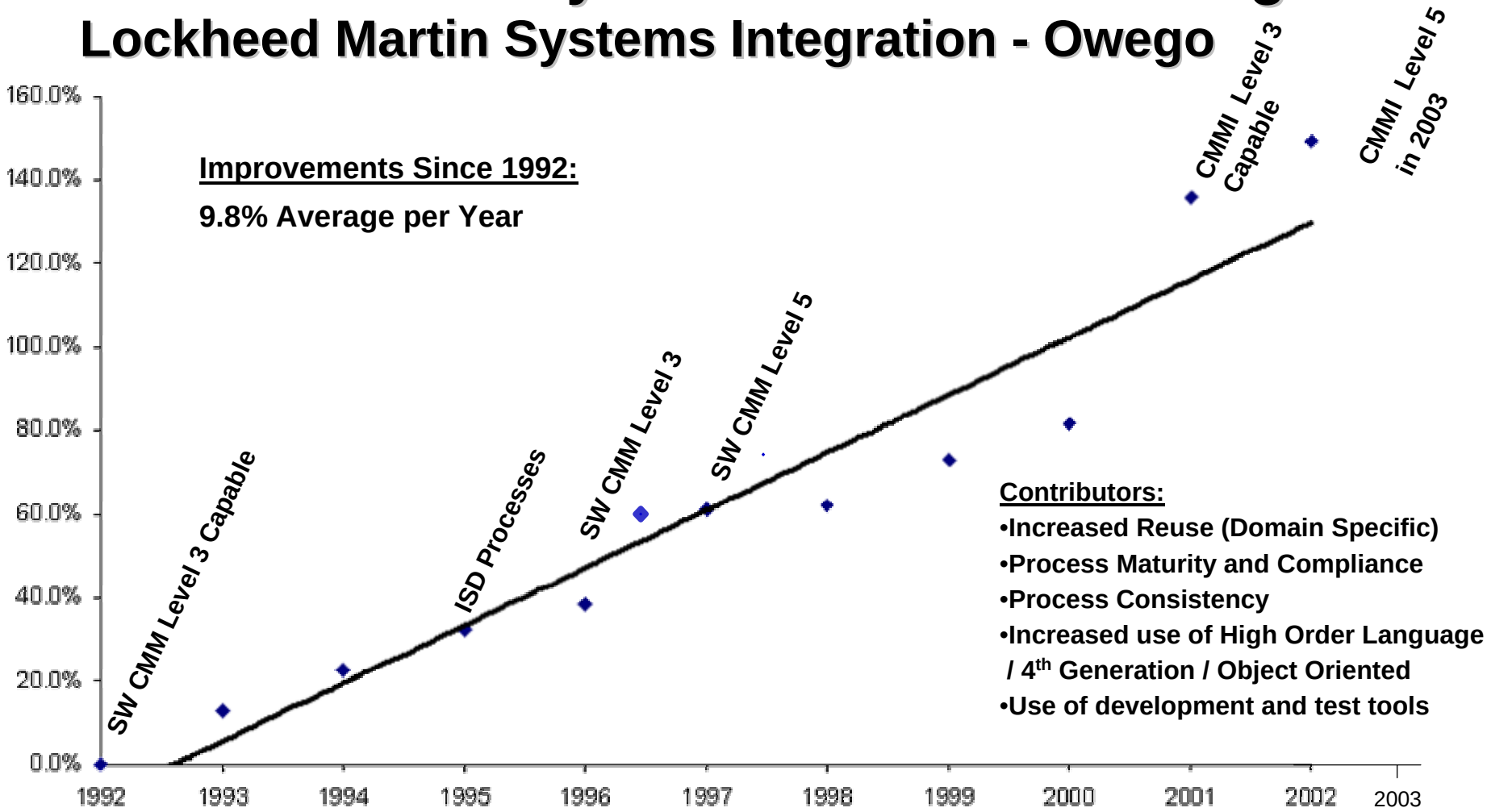



*** STR / MSLOC = Software Trouble Report/Million Source Lines of Code**

® CMMI and CMM are registered in the U.S. Patent and Trademark Office by Carnegie Mellon University.

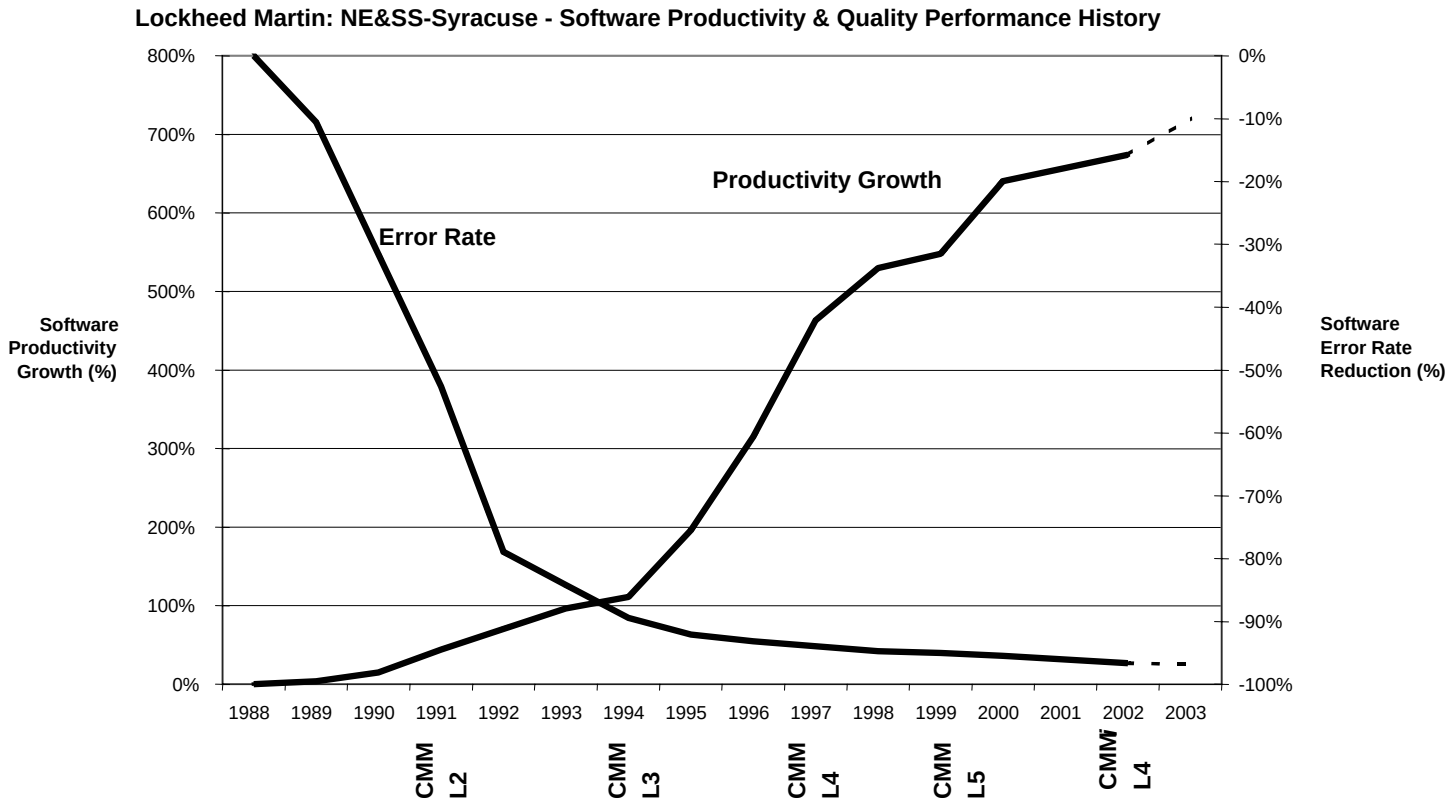
# Software Productivity - All Software Including Reuse

## Lockheed Martin Systems Integration - Owego



# Software Productivity and Quality

## Lockheed Martin Maritime Systems & Sensors – Radar Systems

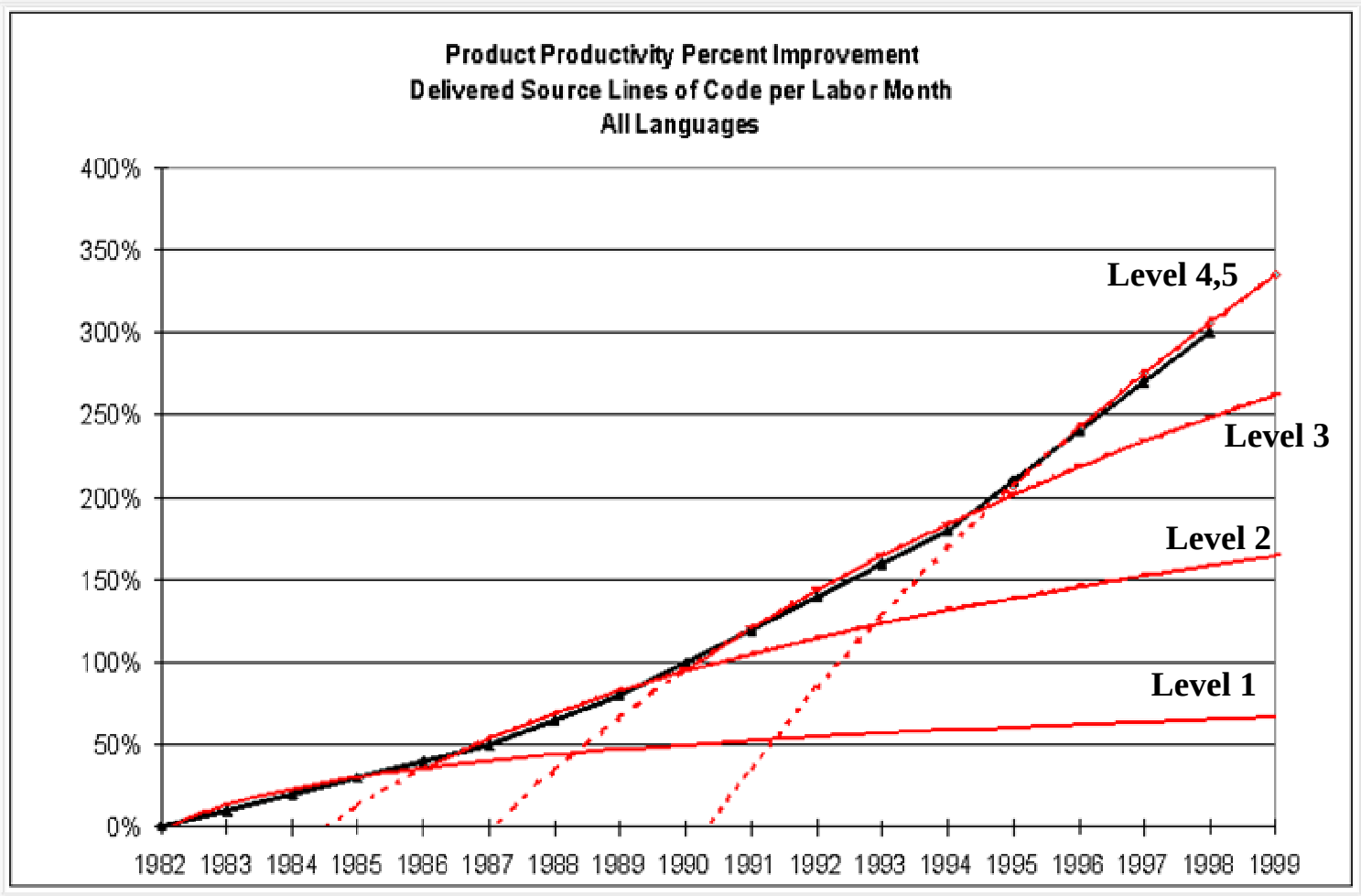



**Software Productivity and Quality Performance Application of Best Practices and Investment Has Resulted in Significant Improvements in Quality and Cost. As error rates declined, productivity increased by 80+%.**

**Note: Appraisal method used for CMMI® was the Lockheed Martin Continuous Appraisal Method (CAM).**

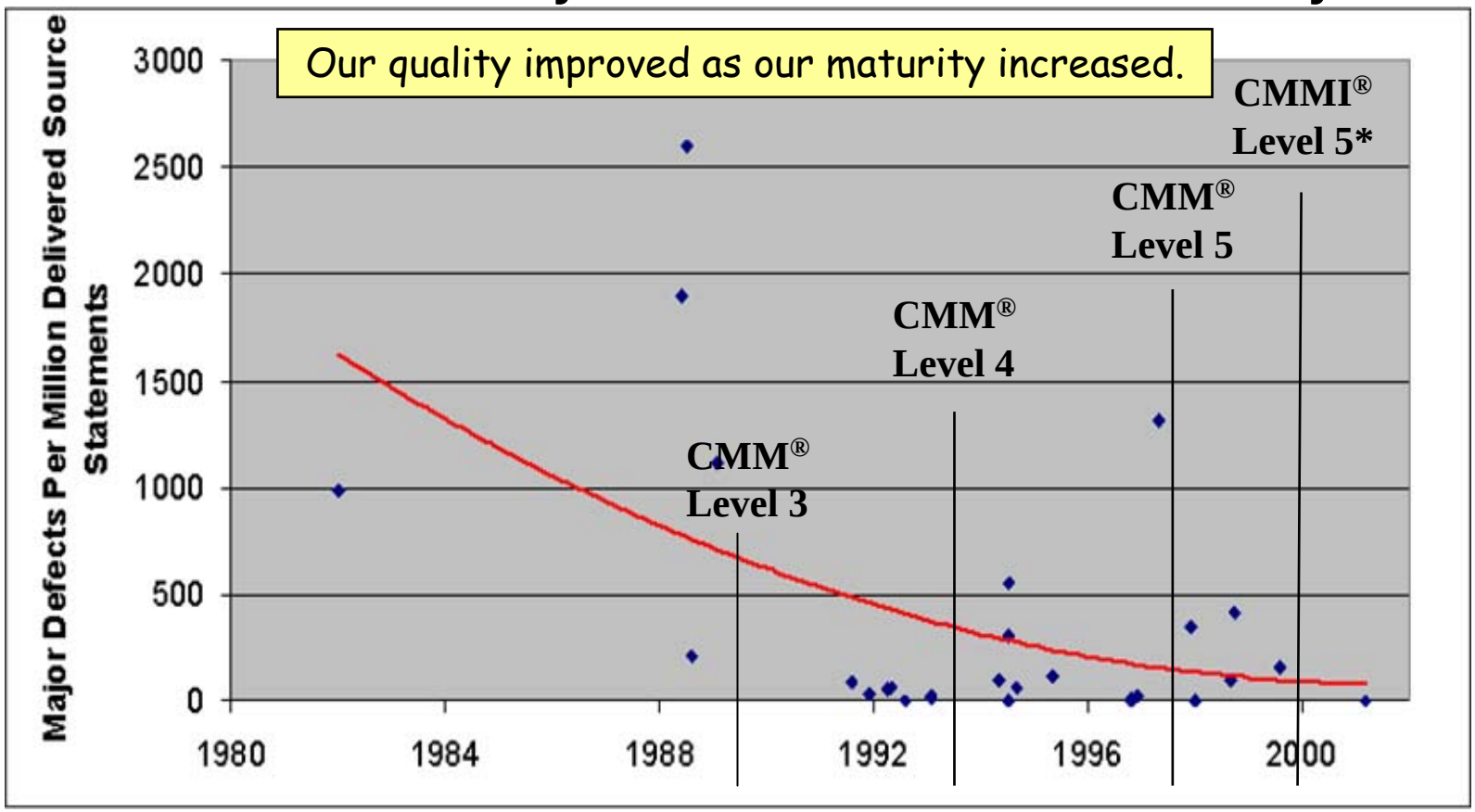
# Software Productivity vs. CMM® Maturity Level

## Lockheed Martin Maritime Systems & Sensors – Undersea Systems



# Software Product Quality

## Lockheed Martin Maritime Systems & Sensors – Undersea Systems




*** Appraisal method used was the Lockheed Martin Continuous Appraisal Method (CAM).**

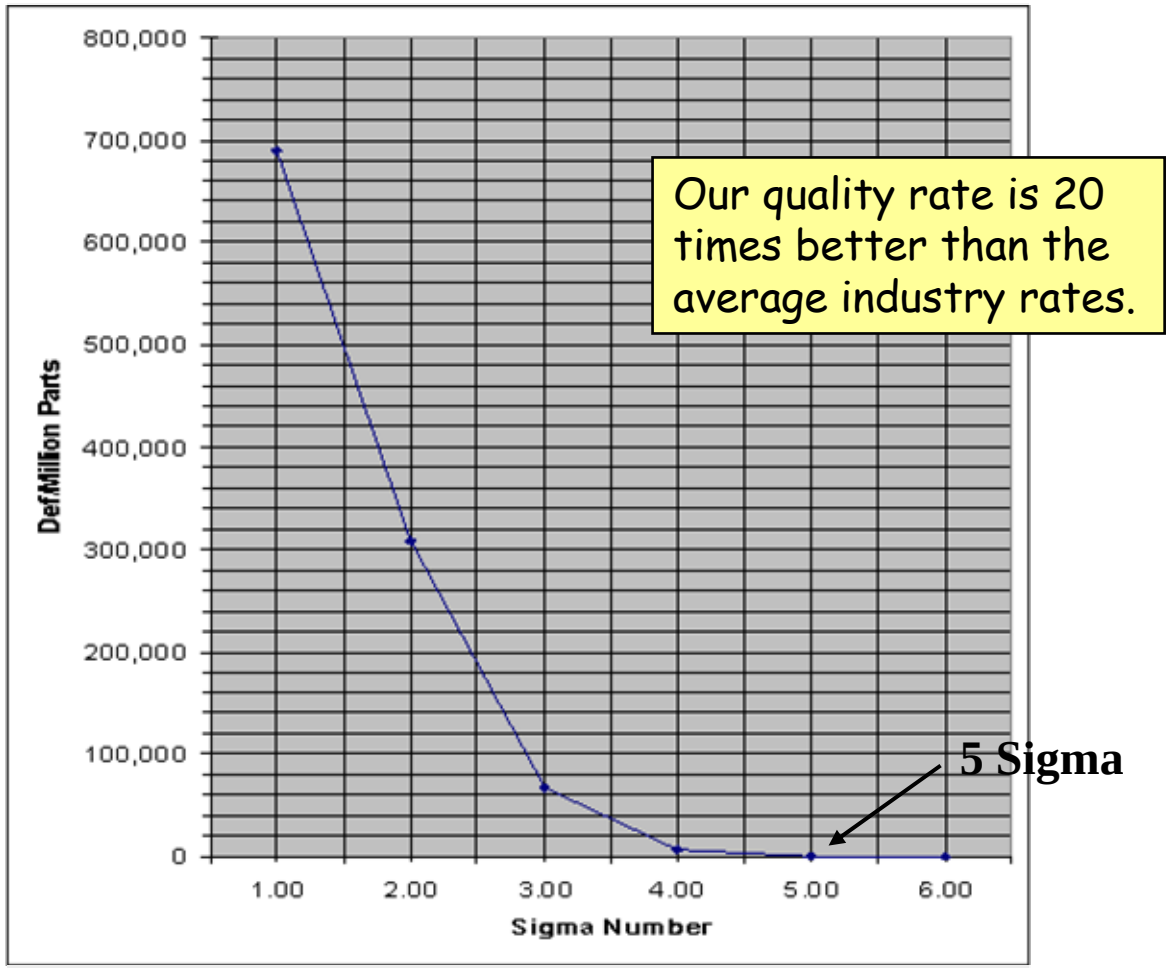
# Software Quality

## Lockheed Martin Maritime Systems & Sensors – Undersea Systems

| Sigma | Defects/MS |
|---|---|
| 1 | 690,000.0 |
| 2 | 308,537.0 |
| 3 | 66,807.0 |
| 4 | 6,210.0 |
| 5 | 233.0 |
| 6 | 3.4 |

MS = Million Source Statements

**Product Quality Level is in Five Sigma Range**



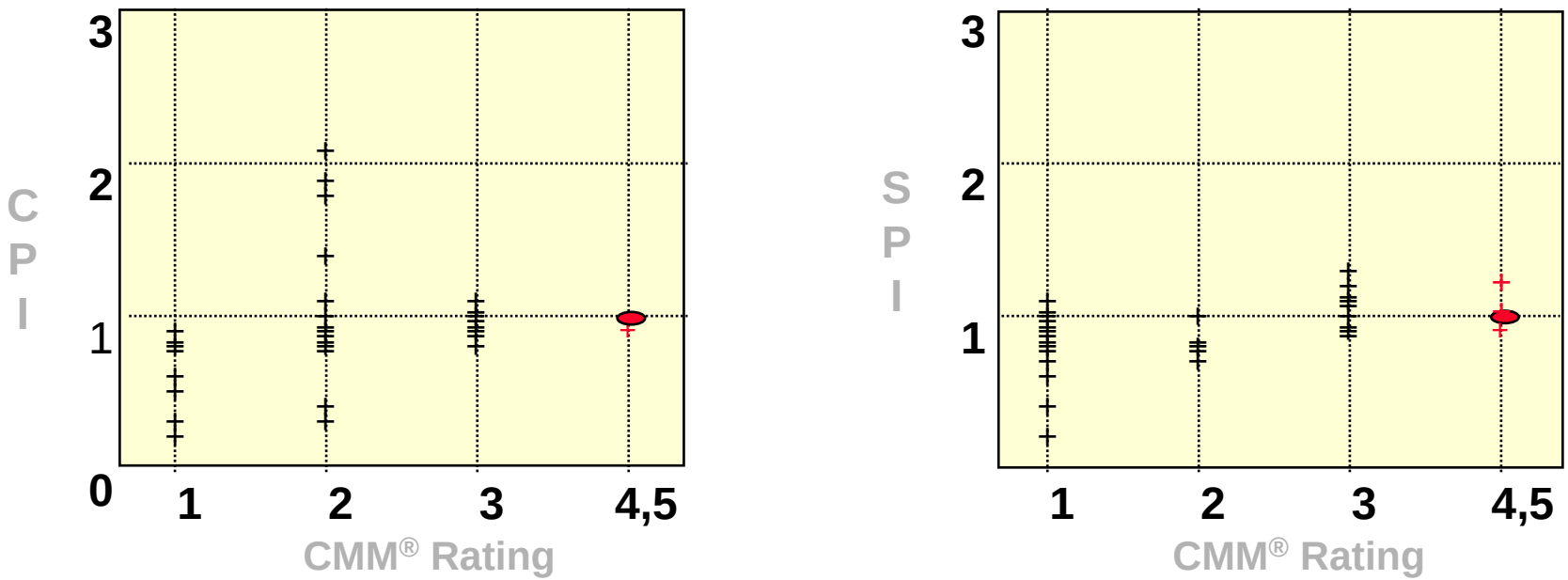
# Predictability at CMM® Maturity Level 5

## Lockheed Martin Maritime Systems & Sensors – Undersea Systems

Cost Performance Index (CPI) & Schedule Performance Index (SPI)

SCATTER PLOTS BETWEEN "1" AND "3" RATINGS ARE INDUSTRY SAMPLES.
LOCKHEED MARTIN DATA HAS BEEN ADDED IN RED.

DATA FROM 8 PROGRAMS IN 2Q 2003




**Reference: "A Correlational Study of the CMM® and Software Development Performance"**
**Lawlis, Flowe & Thordahl, CROSSTALK, September 1995**

# Process Improvement Return-on-Investment

## Lockheed Martin Maritime Systems & Sensors – Undersea Systems

| | | SW-CMM® Level 3 | SW-CMM® Level 4 | SW-CMM® Level 5 | CMMI® Level 5* |
|---|---|---|---|---|---|
| **Improvement** | **Metric** | **1990** | **1995** | **1999** | **2002** |
| **Quality** | Defects/MDSS** | 600 | 300 | 150 | 51 |
| **Productivity** | ESS***/Labor Month | 220 | 280 | 340 | 379 |
| **Cost & Schedule** | +- Variance | 15% | 10% | 8% | 8% |
| **Rework** | expressed as a % of industry average | 6% | 3% | 2% | 2% |
| **Reuse** | Percent | 68% | 75% | 82% | 82% |

Other initiatives underway during this period included

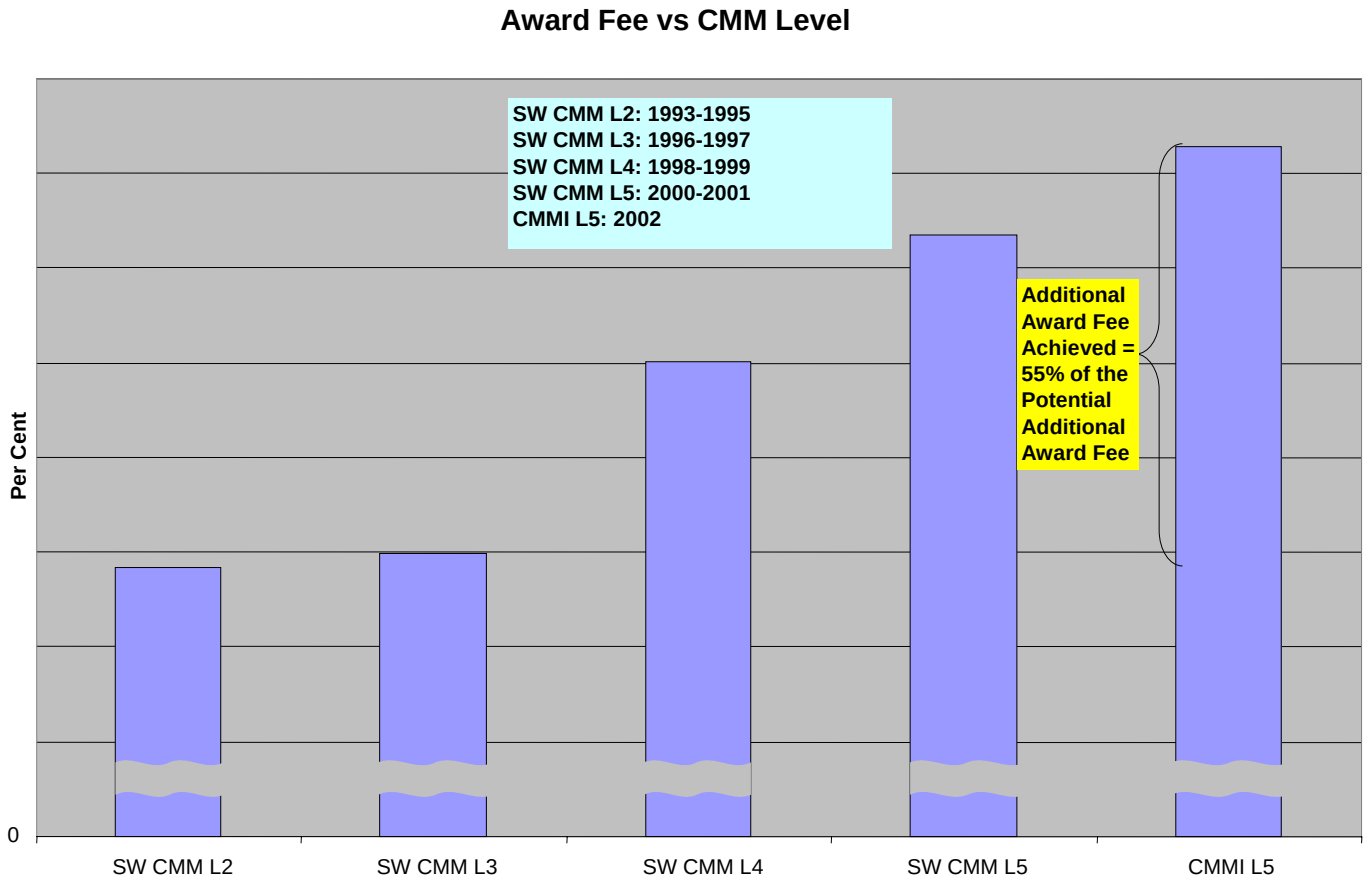
- ISO 9001 registration, followed by AS9000
- Integrated Teaming, and creation of an Integrated Process Library
- Integration of Systems Engineering and SW Engineering

* Appraisal method used was the Lockheed Martin Continuous Appraisal Method (CAM).

** MDSS = Million Delivered Source Statements *** ESS = Equivalent Source Statements

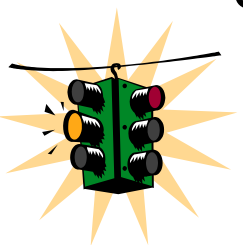
# Award Fee

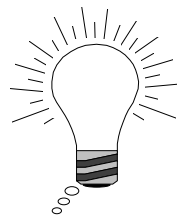
## Lockheed Martin Integrated Systems & Solutions

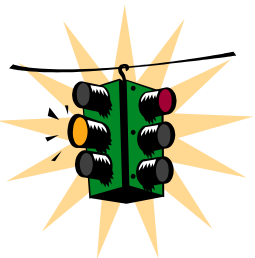


# "Elevator Speech" (Mistakes vs. Proven Winners)

- Selling maturity levels instead of business results
  - ***"Getting to level 4 will put us one level above our competition"*** ***versus***
    ***"Fewer product defects will reduce cost and improve customer satisfaction"***
- Setting unrealistic expectations
  - ***"We can make Maturity Level 3 in three months"*** ***versus***
    ***"Let's conduct an informal benchmark appraisal and use the results to formulate our improvement plan"***

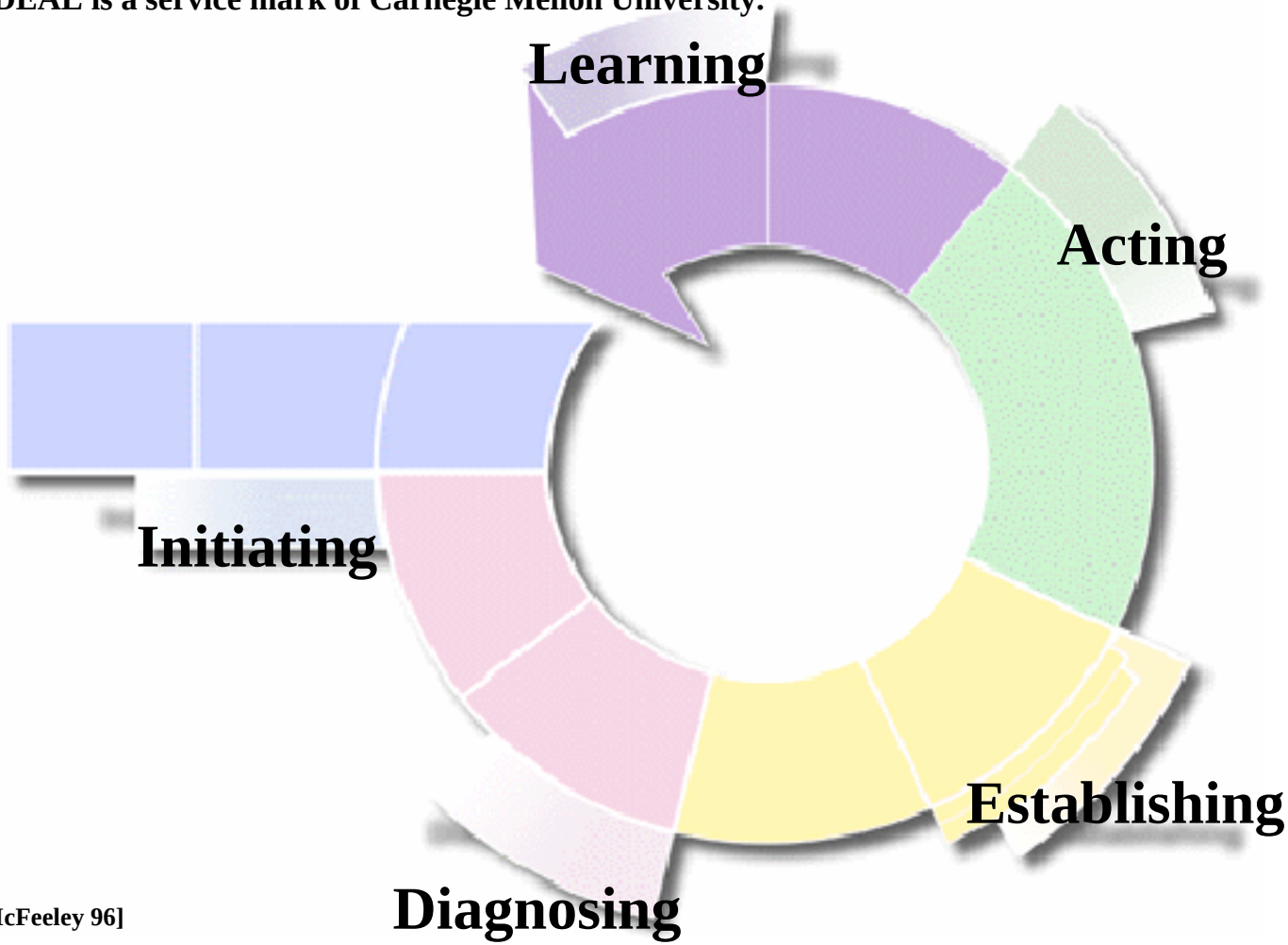






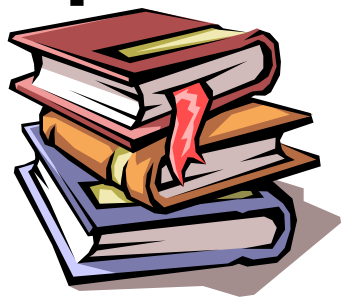
# The IDEAL[SM] Model

[SM] IDEAL is a service mark of Carnegie Mellon University.




[McFeeley 96]

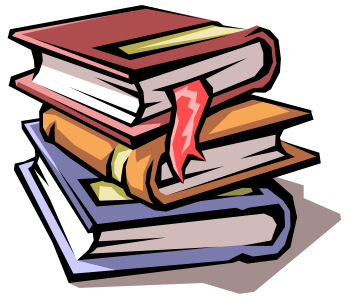
# Initiating Phase - Sponsorship



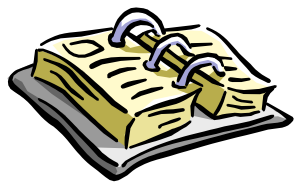
- ***Educate*** on SPI
  - Fundamentals, including the model, life cycle and principles of managing technology change
- ***Align*** process improvement objectives ***with business objectives***
- Obtain ***long-term funding*** commitment

2003 2004 2005 2006 2007

# Diagnosing Phase - Appraisal



- ***Educate*** on the appraisal
  - Method, likely results (especially for initial appraisals), schedule template
- Clearly ***identify sponsor actions***
  - Appraisal plan approval, including project selection
  - Active participation in appraisal (sponsor kickoff, interview, out-brief, action planning)



# Establishing Phase - Plans

- Ensure plans include intermediate, ***measurable milestones***
- Establish top level ***"one chart" plans***
- Identify ***key resource dependencies***
  - Key people are always in high demand
- Plan to ***run process improvement as a project***
  - Identify WBS, cost/schedule, risks, etc.

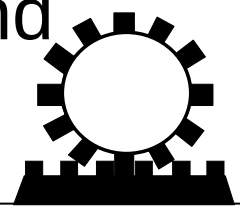
# Acting Phase – Actions and Status

- ***Provide* quantitative** process improvement progress status ***regularly*** to the sponsor
  - Monthly meetings recommended
- ***Refresh/remind*** regarding required sponsor actions
  - Communications
  - Briefings
  - Recognition
  - Progress assessment

# Learning Phase – What's Next?

- Communicate quantitatively ***what will be improved*** on the next cycle
  - Leverage lessons learned from our successes/failures and factor improvements into the next cycle

  - Advertise completion of a "cycle" and what happens next



# The Executive Perspective - Summary

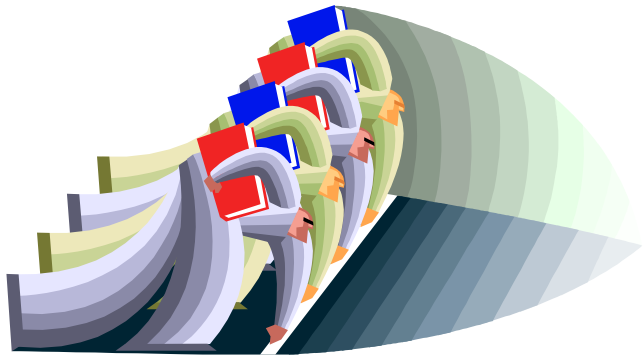

- Educate
- Communicate quantitatively
- Know and relate to business objectives
- Plan for ongoing, continued engagement
  - Status reviews
  - Continued executive involvement

# The Manager Perspective

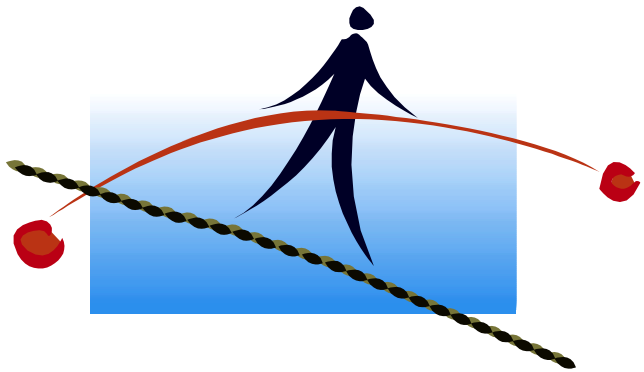

- **Special Concerns**
- **Crucial Questions**
- **Secret Answers**

# Special Concerns of the Manager

- Fast Action

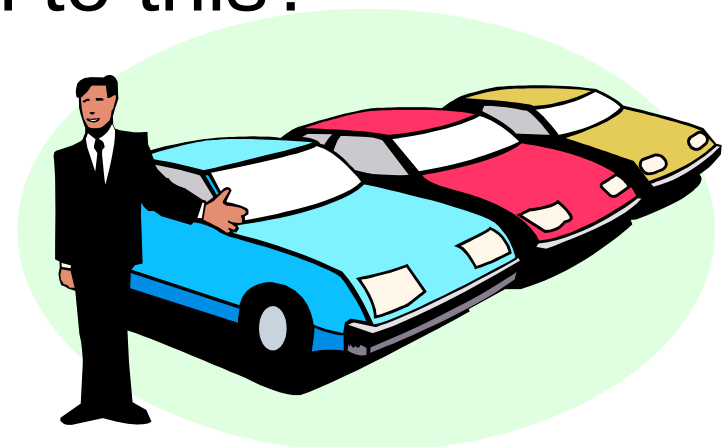


- The Balancing Act (Needs, Resources)
- Looking Competent



# What's the Secret to…

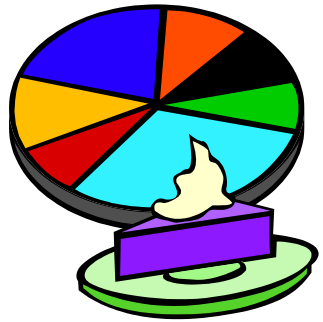
- …selling managers on committing to SPI?
- …getting people to pay attention to this?



# Expanding the Scope of the SPI Job

- Recognize that you are marketing and selling SPI as a “product” and also acting as a collaborative internal consultant
- Use established methods
  - Marketing
  - Sales
  - Internal Consulting

# Marketing



- Market Segmentation
  - Develop your organizational market
- Market Research
  - Research the “needs” of each market
- Marketing Channels
  - Develop appropriate communication channels and delivery methods to appeal to the market

# Market Segmentation

1. Make a list of every single possible group, subgroup, informal group you can think of in your organization
2. Look for similarities between groups, such as responsibilities, actual work, client groups, demographics, etc.. Group together where it makes sense (Remember, nothing is set in concrete)
3. List groups and capture work responsibilities, concerns, and communication channels (see matrix on next slide)
4. Research SPI needs of each group

# SPI Market Segmentation Example

| Group | Primary Work Responsibilities | Primary SPI Concerns | Preferred Communication Channels |
|---|---|---|---|
| Senior / Middle Management | Fiscal Health<br>Customer Satisfaction<br>Future Business Opportunities | Cost to implement<br>Capability of internal implementation staff<br>Actual “level” of the organization<br>Impact on organizational morale. | Email<br>Paper report/memo<br>Weekly staff briefing |

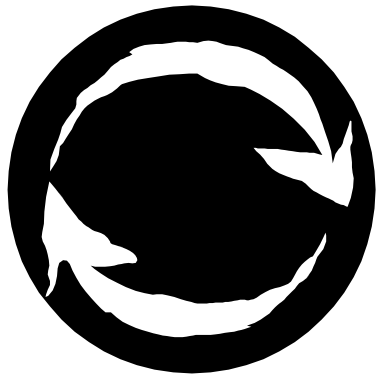
# SPI Market Segmentation Example

| Group | Primary Work Responsibilities | Primary SPI Concerns | Preferred Communication Channels |
|---|---|---|---|
| Project Managers | Deliver product<br>Manage development staff | Cost to implement<br>Impact on delivery schedule<br>Impact on group morale<br>Impact on “position” in the organization<br>Capability of internal implementation staff | Email<br>Face-to-face<br>Weekly staff briefing |

# Sales

- Customer Identification
  - Building person-to-person relationships
- Needs Analysis
  - Finding out the individual clients' wants and needs and helping to fill them
- Recommendations, Benefits, Commitments
  - The engagement involves not just price, but also value

# Sales Life Cycle



- Customer Identification
  - Clients, Needs
  - Decision Makers and Influencers
- Needs Analysis
  - Collect Requirements, Information & Sources
  - Preferences/ Dislikes
  - Questions to Ask
- Recommendations, Commitment
  - Problem and Solution Sets
  - Proposal with Benefits and Reason to Buy
  - Packaging and Closing the Sale

# Developing the Message

- Who's the client? (Manager)
- What is the action you want them to take when you get done selling? (Commit to SPI)
- Why would they want to do this? (Benefits)
- How do they do it? (Solution steps)
- What is the best channel? (Communication Plan)
- What language do they speak? (Big picture, bottom line first, or benefits first)
- What additional information do you need to sell? (Industry  ROI, internal ROI, Competitive benchmarking data, hero information, etc. )

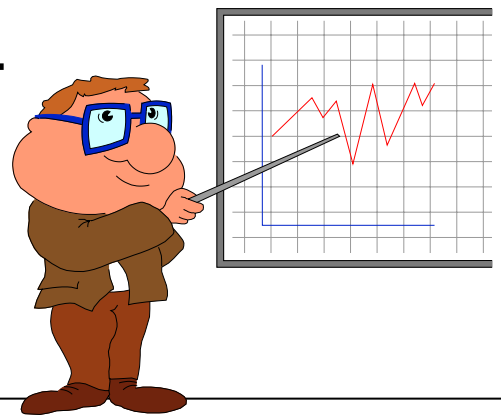
# The Business Case for SPI

**A report by DoD Data & Analysis Center for Software (DACS) found that application of SPI to an "Example organization with example projects":**

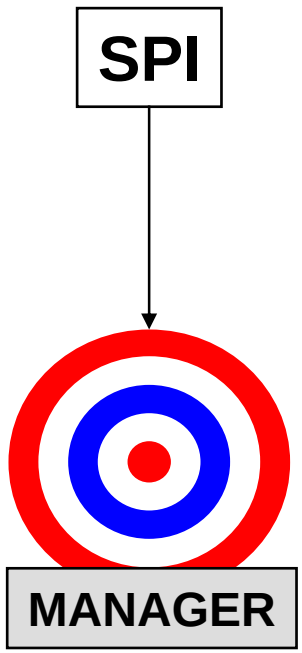
| | |
|---|---|
| **Development costs** | **Reduced 73%** |
| **Rework costs** | **Reduced 96%** |
| **Average schedule length** | **Reduced 37%** |
| **Post-release defects** | **Reduced 80%** |
| **Weighted risk likelihood** | **Reduced 92%** |
| **Return on Investment** | **21:1** |

- *A Business Case for SPI Revised – Measuring ROI from Software Engineering and Management*. DACS, September 1999

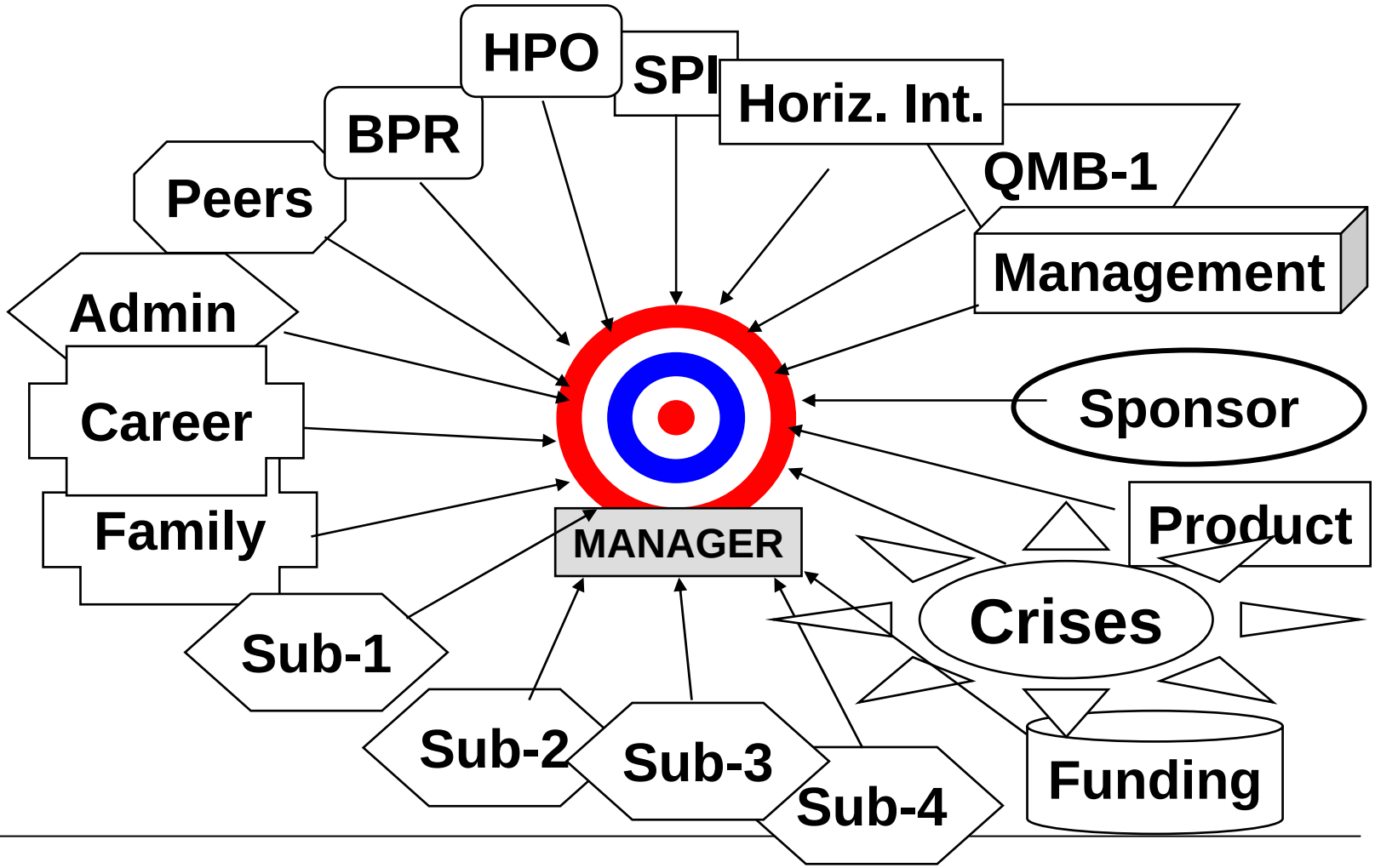
see http://www.dacs.dtic.mil/techs/roispi2/



# Process Group View of Communication with Managers



# But this is the Manager's view…



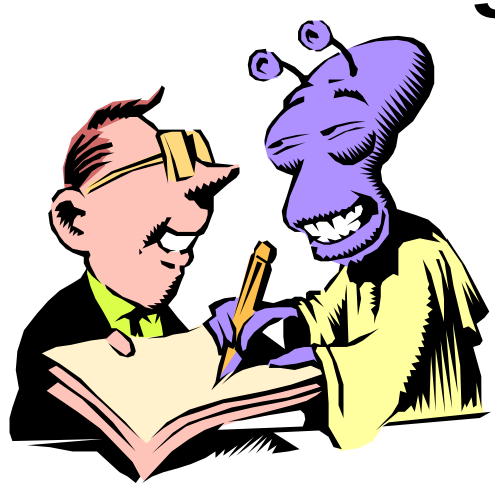
# Internal Consulting Roadblocks

| Inside the Organization: | Inside of You |
| --- | --- |
| • Politics & the Hierarchy<br>• Boss-Subordinate Relationship<br>• Negotiating Confidentiality<br>• Walking out is not an option<br>• Lack of Authority | • Anxiety & Self-Doubt<br>• Delivering unpopular messages<br>• Setting Parameters & saying “NO”<br>• Juggling Clients & Workload |

# Internal Consultant Roles to Play

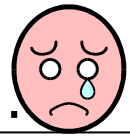
| | |
|---|---|
| • Change Leader | Offers strong facilitation & organizational influence |
| • Committed Partner | Serves the client with collaborative orientation |
| • Business Driver | Emphasizes performance management and results |
| • Trusted Advisor | Serves as a confidant for authentic communication |
| • Grounded Expert | Has specific performance improvement expertise |
| • Insightful Observer | Applies systems thinking & rigorous inquiry |

# Ground Rules for Contracting



1. Write down contracts. Most are broken out of neglect, not intent.
2. Contracts require specific time deadlines or durations.
3. Good contracts require good faith (and often accidental good fortune). 50/50 Responsibility
4. Social contracts are always renegotiable. If someone wants to renegotiate a contract in midstream, be grateful they are telling you & not just doing it without a word.

# Contracting Expectations

| You can …  | You can't…  |
|---|---|
| …contract for behavior, but not for the other person to change their feelings | …get something for nothing. There must be consideration on both sides |
| …say no – even to clients | …ask for something the other person doesn't have, or promise something you don't have |
| …negotiate for what you want | …contract with someone who's not in the room |
| All wants are legitimate – it is a birthright | |

# The Manager Perspective - Summary


- See Managers as Clients and Customers
- Understand Managers Needs
- Use Market Segmentation and Sales Cycles
- Develop Consulting Skills
- Know the Ground Rules for Contracting

# Special Intelligence from the Women In Black

**BREAK**

# The Developer Perspective

***Developer***

- **Special Concerns**
- **Crucial Questions**
- **Secret Answers**

# Special Concerns of the Developer

- Improving Personal Competence


- Goal Achievement

- Schedule Pressure

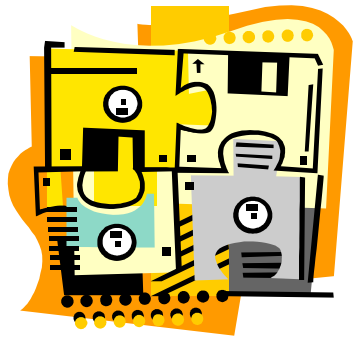
# What's the Secret to…

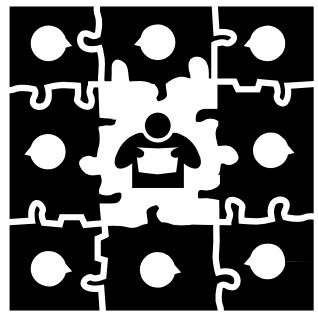
- …getting developers to invest time in SPI?
- …getting people to adopt changes?

(Remember who they are, what they like, and what the need…)

# Problems and Why

- **Analysis Paralysis:**
  Developers get caught
  in their own mental loop



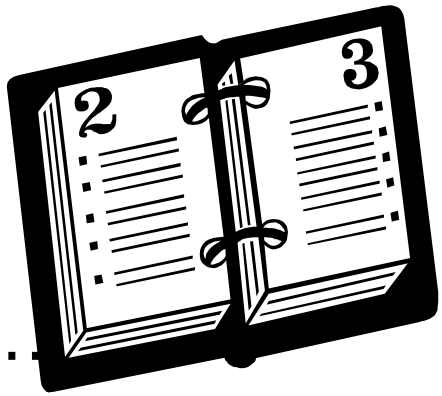


- **No time for this SPI stuff:**
  Developers are
  Very Very Busy

- **The Waiting Game:**
  Developers Play Follow the Leader

# Simple Situation Analysis

Use a checklist or questionnaire with areas to focus discussion…




| Today | Tomorrow |
| --- | --- |
| What do you do in this area today? | What do you want to be doing in this area in the future? |

# Define Results, Needs, Activities

| Results | Needs | Activities |
|---|---|---|
| What desired results do we want to achieve?<br><br>How much improvement can we expect? | What do we need to change to affect this result?<br><br>How soon do we need this result to improve? | What tasks do we expect to be done to effect the needed change?<br><br>Can this be done on time, to get the desired results? |
| Prioritize by Impact | Prioritize by Urgency | Prioritize by Feasibility |

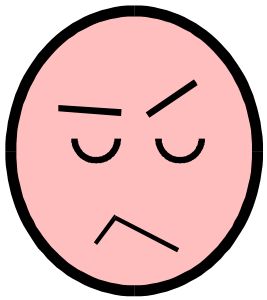
*- Caputo*

# Sample Worksheet

| Results | Needs | Activities |
|---|---|---|
| Produce quality software | Need to meet all requirements<br><br>Need to reduce defects delivered | - Manage requirements<br>- Manage changes<br>- Hold peer reviews<br>- Conduct testing<br>- Manage configurations<br>- Perform SQA |
| Deliver to customer on time | Need to schedule activities and track status | - Plan activities<br>- Develop schedule<br>- Track actual progress<br>- React to deviations |
| Deliver within budget | Need to budget our activities, track progress | - Plan activities<br>- Identify resource needs<br>- Develop budget<br>- Track actual costs<br>- React to deviations |

# Insight about Buy-in

**To get buy-in for improvement activities, sell results to executives, and sell needs to managers and developers.**



**If you talk to executives about needs, you'll sound like you're complaining.**

**If you talk to managers and developers about results, you'll sound like you're out of touch with reality.**

# The 10-hour rule

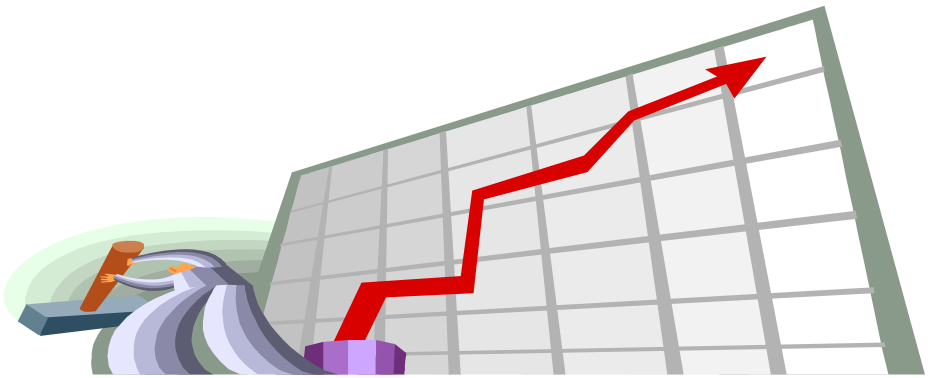
1 hour in inspection can catch bugs,

where if the same bugs escape to test, it takes 10 hours to find and fix,

where if the same bugs escape to customers, it takes 100 hours or more to find and fix.

# Bottom-line

2 hours in inspection in one week



Saves *at least* 20 hours of rework downstream

That is a savings of *½ a week* of work for every inspection

# Defect Detection and Cost Changes as Process Maturity Increases

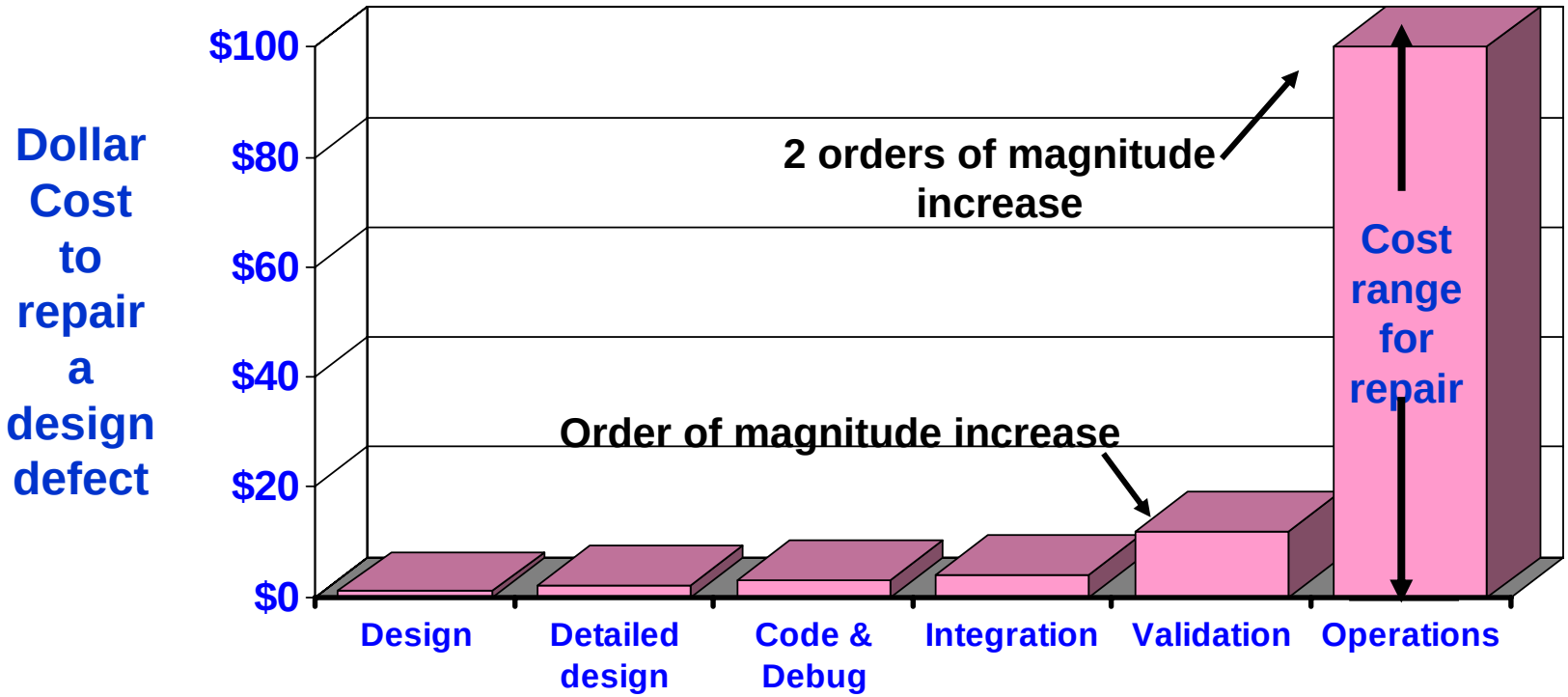
| | | Req'ts. | Design | Code | Functional Test | System Test | Field Use | Relative Cost for 100 Fixes |
|---|---|---|---|---|---|---|---|---|
| Where Defects are Introduced | | 10% | 40% | 50% | | | | |
| Relative Cost to Fix | | $1 | $1 | $1 | $6 | $12 | $100 | |
| Where Defects Are Detected | Level 1 | 0% | 0% | 2% | 15% | 50% | 33% | $4,000 |
| | Level 2 | 0% | 0% | 3% | 30% | 50% | 17% | $2,500 |
| | Level 3 | 0% | 2% | 20% | 38% | 32% | 8% | $1,400 |
| | Level 4 | 3% | 12% | 30% | 30% | 20% | 5% | $1,000 |
| | Level 5 | 5% | 20% | 40% | 20% | 10% | <5% | $800 |



*Source: CMI/SEI-96-HB-002*

# Example of How SPI Can Save Money:

## Cost to Repair Design Defects

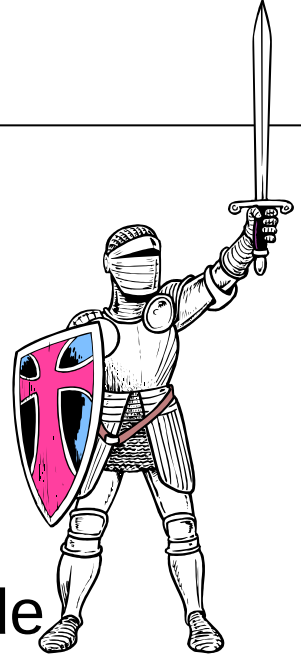



*Source: SEPG Conference, 1999*

**SEI found:**
- **Rework is 40% - 50% of project costs**
- **High-maturity organizations can get rework to <10% of costs**

**(Paulk, 1999)**

# Find the Leaders



- Developers follow other Developers
  - Credibility of the Process Group Lead
  - Should be someone who developed code
  - Should be someone developers will not ignore
- Critical Mass of Thoughtshare is only 18%
  - Credibility of Development Champions
  - Select Champions out of the Development Pool from opinion leaders with respected opinions
  - Give them the knowledge; let them evangelize

# How to Prevent Backsliding

Meeting Agenda for Process Improvement

- Get the right people at the meeting and ask…
  - One thing the process Must Include
  - One thing the process Should NOT Include
- Ask for clarification, and edit
  - What did you mean by that?
  - Does everyone agree, or what should it be?
  - If agreed, adopt it, if no agreement, drop it

- Write the process using these points exactly

# The Developer Perspective - Summary

***Developer***

- Keep it simple… They are busy
- Simple Techniques:
  - Today/ Tomorrow
  - Results/Needs/Activities
- Save them time
- Find the Leaders

# The Process Group Perspective

***Process Group***

- **Special Concerns**
- **Crucial Questions**
- **Secret Answers**

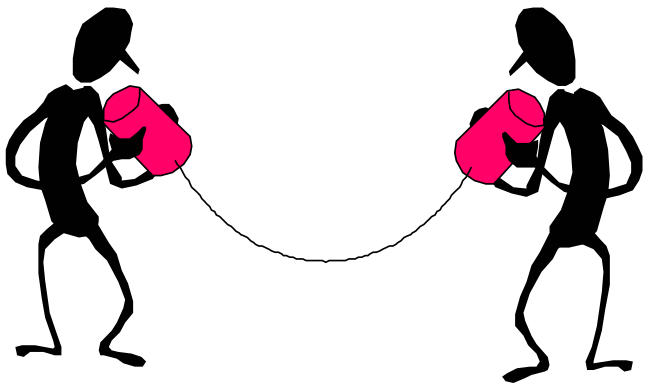
# Special Concerns of the Process Group

- Improving Organizational Capability
- Energy and Motivation
- The Human Element

# What's the Secret to…

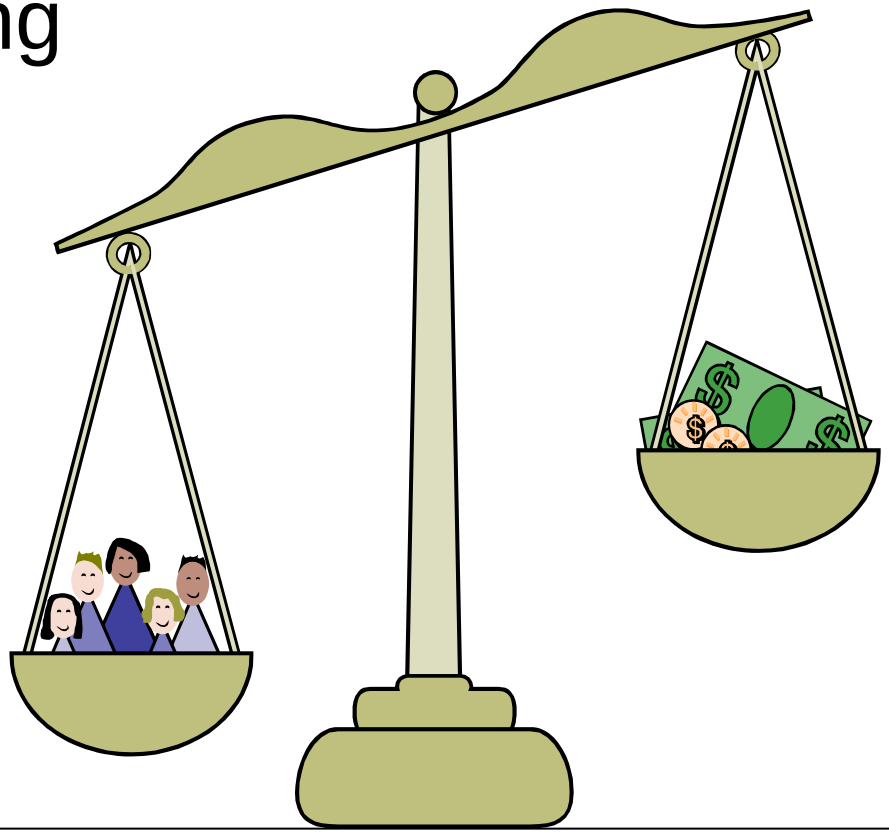
- …dealing with the human element?

- …getting people to listen to you?



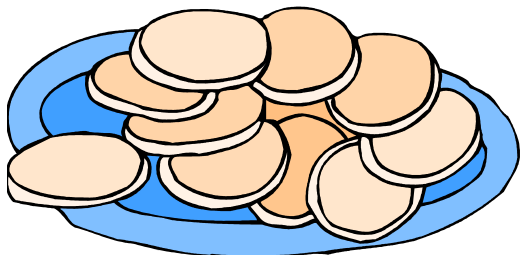
# Dealing with the Human Element

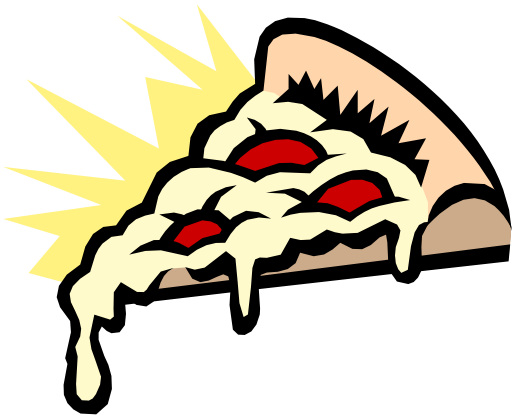
- Care and Feeding
- Peer Pressure
- Time Pressure
- Spirit



# Care and Feeding

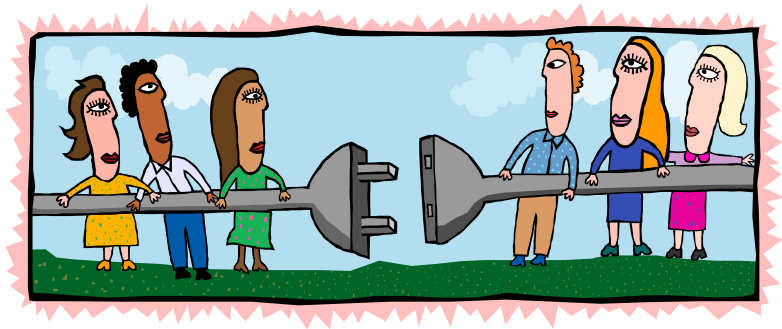
- Literally, “feeding” …





# The Social Side…

- Rejuvenate people
- Interact as people

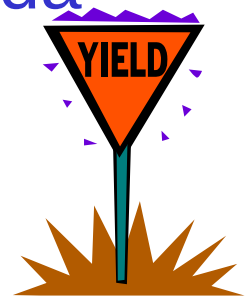


- Learn where everybody is coming from…
- Life history can color their ability to <u>accept change</u>
  - It could be something that happened 20 minutes ago or 20 years ago, you just don't know

# Meeting Reminders

Do:

- Be respectful of people's time
- Have an agenda and stick to it
- Watch body language
- Work the crowd
- Watch out for the strong silent type…




Don't

- Be process fanatics
- Stick to the letter of the law
- Let the tools use you; you use the tools
- Forget to smile or laugh …

# Put your whole body into it!

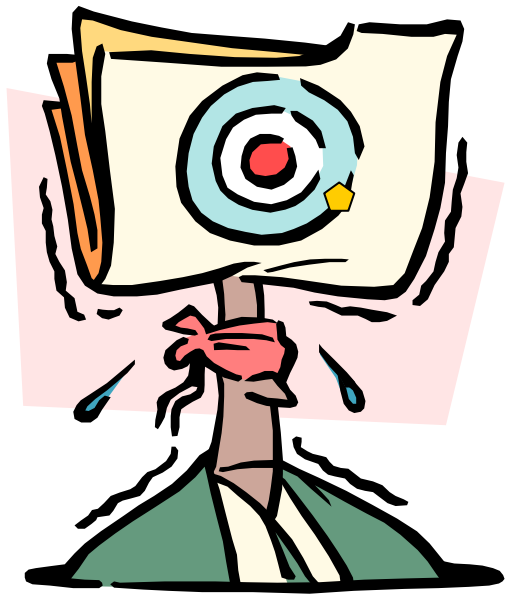
- Your presence makes a difference.
- When Executives show up, people are appreciative. It shows you care!
  - **Some executives think: "They'll think I'm interfering"**

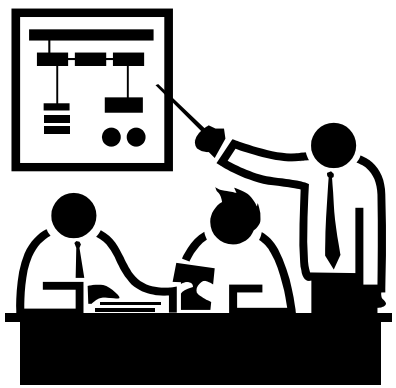


- **Importance of your presence applies equally to SPI teams and project teams**

# Peer Pressure

- Executive Status Reviews
  - A few presentations
  - Walk around view of Wall Charts
  - Face time for teams





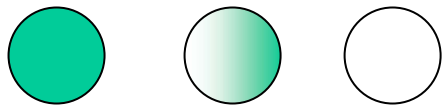
"You'd think after 5 years of SPI, Jim's radar would be a little bigger"

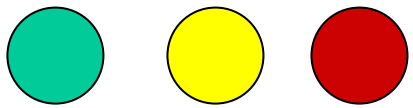
# Process Reuse: a Learning Tool

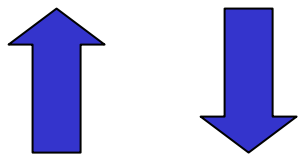
- Rethink your goal
  - "How close to the finish line can I start?"
- Borrow with honor
  - shamelessly steal and edit process artifacts
- Find it Fast
  - It has to be easier to find than to reinvent

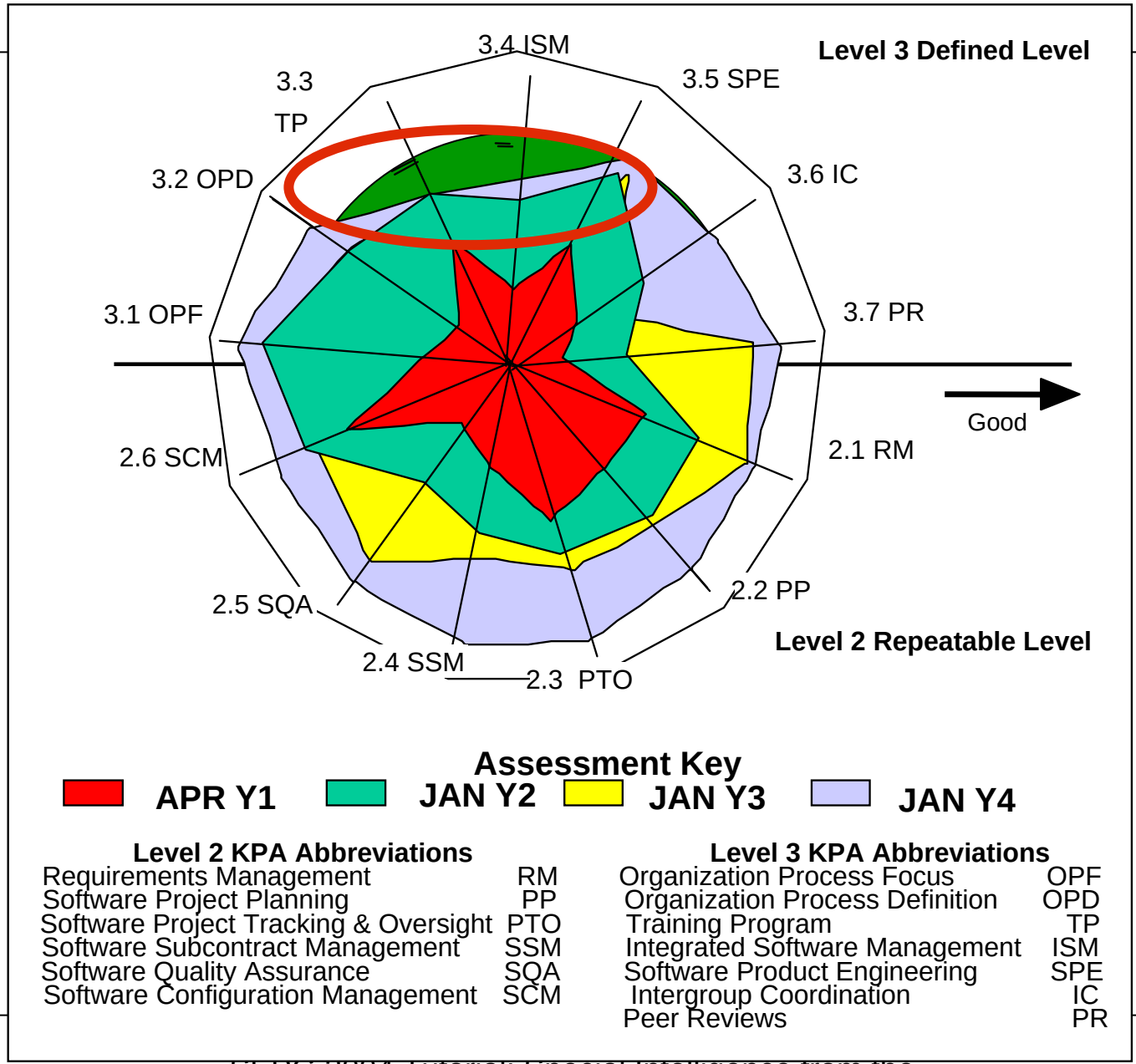
# Time Pressure

- Visual Charts 
  - If they don't get it in 10 seconds, they won't bother trying
  - If it's too detailed, use highlighting or color to draw attention to the point








3.4 ISM
Level 3 Defined Level
3.3
TP
3.5 SPE
3.2 OPD
3.6 IC
3.1 OPF
3.7 PR
Good
2.6 SCM
2.1 RM
2.5 SQA
2.2 PP
2.4 SSM
2.3 PTO
Level 2 Repeatable Level
Assessment Key
APR Y1
JAN Y2
JAN Y3
JAN Y4
Level 2 KPA Abbreviations
Requirements Management RM
Software Project Planning PP
Software Project Tracking & Oversight PTO
Software Subcontract Management SSM
Software Quality Assurance SQA
Software Configuration Management SCM
Level 3 KPA Abbreviations
Organization Process Focus OPF
Organization Process Definition OPD
Training Program TP
Integrated Software Management ISM
Software Product Engineering SPE
Intergroup Coordination IC
Peer Reviews PR

# TCM; Technolog Watch – tracking technology visually

| Architecture | Technology | Technology Type | primetime zone | impact on business | cost to implement |
|---|---|---|---|---|---|
| | XML | Data/Knowledge | 1 | 1 | 2 |
| | text analysis | Data/Knowledge | 1 | 2 | 2 |
| | data, analysis, decision support | Data/Knowledge | 1 | 1 | 2 |
| | content based retrieval | Data/Knowledge | 2 | 1 | 3 |
| | Brilliant content | Data/Knowledge | 2 | 3 | 3 |
| | Audio Mining | Data/Knowledge | 4 | 3 | 3 |
| | Intelligent Agents | Data/Knowledge | 1 | 2 | 3 |
| | speech recognition | Input | 2 | 2 | 2 |
| | natural language processing | Input | 2 | 3 | 4 |
| | display technologies | Output | 2 | 2 | 3 |
| | digital ink | Output | 3 | 3 | 4 |
| | handwriting recognition | Input | 2 | 2 | 3 |
| | speech synthesis | Output | 2 | 3 | 2 |
| | wearables (embedded miniature computers) | Device | 4 | 3 | 3 |
| | Automatic Platform Adjustment | Transport/Connectivity | 2 | 1 | 3 |
| | Enterprise Portals | Data/Knowledge | 1 | 1 | 2 |
| | Voice Portals | Data/Knowledge | 2 | 2 | 2 |
| | Quantum Computing | Device | 4 | 3 | 4 |
| | Web tops | Data/Knowledge | 2 | 2 | 3 |
| | Linux | Device | 1 | 1 | 1 |
| | B2B Electronic Commerce | Application | 1 | 1 | 2 |
| | CRMs | Application | 1 | 1 | 3 |
| | ASP's | Application | 1 | 2 | 4 |
| | Workflow engines | Application | 1 | 1 | 3 |
| | Wireless Web (WAP/WML) | Transport/Connectivity | 2 | 1 | 2 |
| | DSL/Cable modems | Transport/Connectivity | 1 | 2 | 2 |
| | Enterprise Directory/w LDAP | Access | 2 | 2 | 3 |
| | Digital Authorization | Access | 1 | 2 | 2 |
| | Biometrics | Access | 2 | 2 | 3 |
| | Smartcards | Access | 2 | 2 | 2 |
| | Voice over IP | Transport/Connectivity | 1 | 3 | 4 |
| | Bluetooth | Transport/Connectivity | 2 | 1 | 2 |

# Props and Backdrops

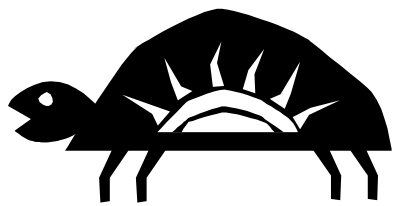
- Little Books or Reference Cards
  - Purple Book Guide to SPI
  - ISO 9000 Reference Card
- CMM Posters
- Wall Charts

# Iconize Your Spirit

- Give your team a name and graphic with meaning they can relate to

Phoenix Rising from the ashes…
Unsurpassed Excellence

As Predictable as the Rising Sun…



# As our process matured, so did the Phoenix logo…

# Use SPI ROI Data To Your Advantage

- **Software Engineering Institute 1994 study:** Average of 5:1 ROI for 13 organizations engaged in SPI
- **Navy FMSO:** saved over $2 million using Formal Inspections
- **Air Logistics Center:** 7.5:1 ROI, 10X productivity increase
- **Raytheon:** Achieved a 7.7:1 ROI with 2:1 productivity gains, defect rate reduced by 4.2X, reduced testing effort by 1/2. Received $9.6M bonus for early delivery
- **PRC:** Reduced documentation defects by 78%, code defects by 70%, defects found in operation by 60%, increased ability to meet monthly cost goals by 40%
- **Boeing:** Reduced cycle time up to 50%, increased productivity 240%, and realized a cost-to-benefit ratio of 1:7
- **Ogden Air Logistics Center:** Spent ~$5M to reach Level 5; received over $100M in new work (19-to-1 ROI)

# Intangible Benefits of SPI

**At Ogden Air Logistics Center - *CrossTalk, May 1999***

- **Positive influence on working environment**
- **Beneficial structure provided to the development process**
- **Fewer surprises and last-minute glitches, "fire drills" reduced**
- **Better quality software; overtime & unhappy customers reduced**

**At Boeing Space Transportation Systems - *IEEE Software,Oct 1999***

- **Employee satisfaction up from 74% to 96%**
- **Employees motivated to eliminate defects, improve quality**

-

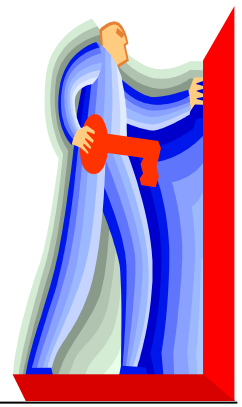
**At SSC San Diego *Costs and Benefits of SPI, Karen D. Prenger***

- **Better management control over project, team communication**
- **Better overall performance of the software**
- **Improved morale of team, less overtime, absenteeism**
- **Increased competitive advantage and repeat business**

-

**At multiple sites - *DACS: Business Case for SPI Revised***

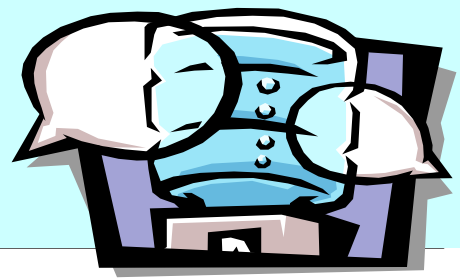
- **Improved customer satisfaction**
- **Improved professional staff**



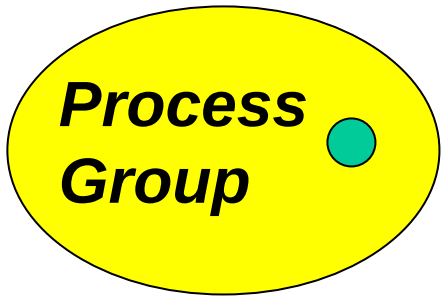
# Benefits of SPI at SSC San Diego

## Testimonials from Level 3 Project Managers about SPI:

- We have been awarded new work based on our SPI efforts
- We have fewer surprises, last minute glitches, and fire drills
- We have fewer risks this year because we learned from our Risk Management Plan from last year
- We are now consistently producing builds with zero defects
- We produced more complex builds in less time
- Implementing Peer Reviews and other process improvements significantly reduced the problems found and the testing efforts (e.g., reduced trouble reports by 71%, time to conduct tests by 33%, time to fix all trouble reports by 70%)
- We have better communication across the team, and people know what they are supposed to be doing
- The project people have told me they would not work on another project without a defined processes
- I feel I am a much better project manager



# The Process Group Perspective Summary




- People are Human
  - Care and Feeding
  - Use Visual Techniques
- Know Yourself and Your Audience
  - Talk the Way They Listen
  - Use Data to Your Advantage

# The SECRET Decoding Chart

NO – NO time, no way

SE – Sell & Enlighten

C – Communicate Expectations Often

***Loop Re-Entry Points***

- Get Managers to Support it
- Get Developers to Follow it

R – Reorganization

SE – Sell & Enlighten

- Get Executive Sponsorship

MA – This doesn't Apply to Me

T – Tailor things to fit new situations

- Get Champions Involved
- Learn From Experience

L – Will they ever Learn?

RE – Rejuvenate & Encourage

- Learn From Experience

# One More Secret: SPI Leadership

*"As for the best leaders,*
*the people do not notice their existence.*
*The next best, the people honor and praise.*
*The next, the people fear,*
*and the next, the people hate.*
*When the best leader's work is done,*
*the people say, "We did it ourselves"."*

Lao-Tsu, 6th Century BC

# Special Intelligence from the Women In Black

**QUESTIONS**

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