

# Software Excellence Through Process Excellence

David Walker

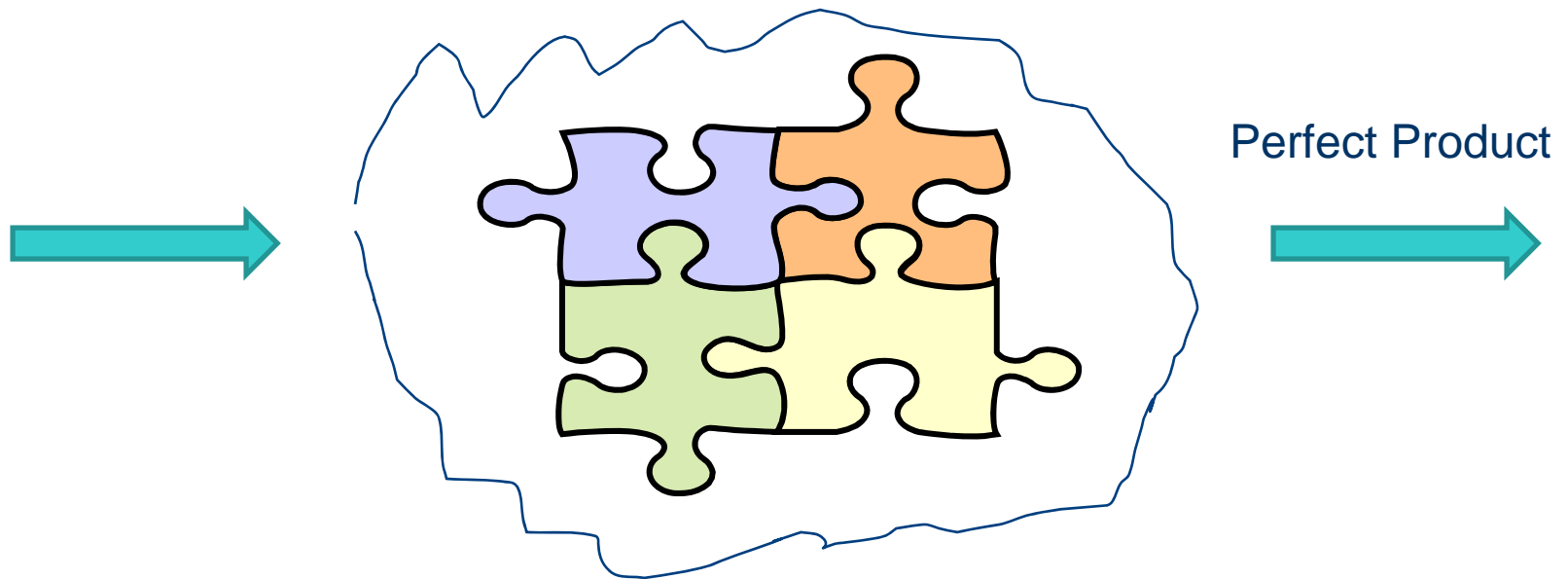
Great Lakes Software Excellence  
Conference

November 5, 2008

# Overview

- Why Process Focus?
- What To Define
- Getting Started
- Getting Good
- Pursuing Excellence

# Does It Matter How?



# Is Measurement Important?

- Must Understand Size, Duration, Quality, and Costs
- If You're Not Measuring, You're Not Managing
- Measurement Cannot Be Effective Without A Reliable Basis For the Underlying Process
- Are You "Belly-Aching" Or Measuring

# W. Edwards Deming

- “Solutions to Some of the Problems Encountered in Business are NOT Obvious”.

# Deming's Quick Fix Definitions “Instant Pudding”

- To depend primarily on experience, common sense, hunches, or past practices for the solution to a problem.
- To attempt to solve problems without data collected and analyzed to test a theory.
- To believe that methods used successfully by others will solve the problems of this organization.
- To focus problem solutions related to end product or service primarily on one or another unit of the organization.
- To believe that the solutions to most problems are immediately apparent.

# Your Team Needs Process Focus

- Does Your Customer Micro-Manage Your Process?
- As Your Process Matures, You Build Trust and Get More Control Over Your Process

# Shrinking Technology Workforce

- A Post I Saw “We are abandoning process and hiring great people”
- As the Tech Workforce Shrinks, Process Will Become More Critical For Business Success
- **Toyota’s Philosophy for Manufacturing Excellence:**  
*Brilliant process management is our strategy. We get brilliant results from average people managing brilliant processes. We observe that our competitors often get average (or worse) results from brilliant people managing broken processes.*

# Risks: NOT Focusing on Process

- Unpredictable
- Limited Visibility
- Costly and Ineffective On-boarding
- Single Point of Failure - Staffing
- Difficult To Pull Out of Crisis
- Cognitive Stress
- Ineffective Intergroup Coordination

# Benefits of Process Focus

- More Time Spent on the “Paying” Problem Domain
- Innovation Begins with Slack Time
- Effective Communication, Coordination, Decisions
- Recognition & Trust
- Proven: Better, Faster, Cheaper

# CMMI Based Performance Improvement Reported by the SEI

Cost	20%
Schedule	37%
Productivity	62%
Quality	50%
Customer Satisfaction	14%
ROI	4.7 : 1

# Defined Process

- A DEFINED process fits the needs of the project AND the organization. It adheres to a standard organizational description, but has been tailored to fit the project.

# Why ORG Standard?

- Many Important Activities Depend on Consistency:
  - Metrics
  - Training
  - Work Product Templates
  - QA Audits

# Tailoring

- Tailoring Needs to be Controlled on Projects to Ensure Consistency with Other Activities
- Pre-defined Options with Decision Criteria
- Primary Tailoring – Pre-defined Options with Criteria
- Secondary Tailoring – New options not in the ORG Process (Pilot, or Customer Directive)

# Why Tailoring?

- Reduces Burden of Projects to Follow One Standard

# What To Define

- Inputs & Outputs
- Entry Criteria & Exit Criteria
- Activities & Sequence
- Roles & Responsibilities
- Measurements
- Checkpoints (QA Checks)

# How Much Detail

- Start with Large Chunks
- Keep It Simple
- Detail Should be Commensurate with Risk
- Beware – Consensus Can Be Difficult

# Getting Started<sup>1</sup>

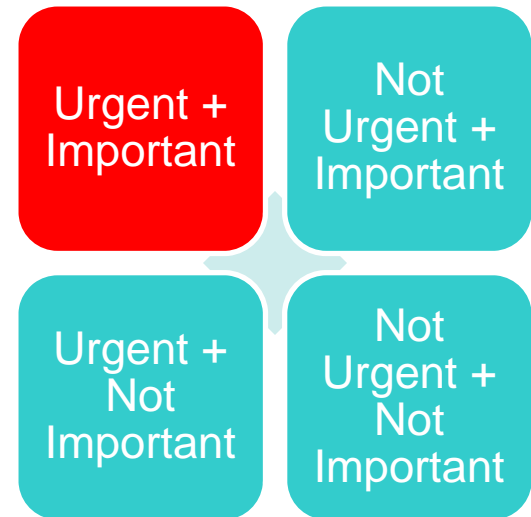
- Start Somewhere, or Go Nowhere
- Why Do Anything?
- Don't Take Action to Improve for the Sake of Change, Change Needs a Firm Basis

# Getting Started<sup>2</sup>

- Strategic Planning
  - Context
  - Direction
  - Values
  - Strengths, Weaknesses, Opportunities, Threats
  - Strategic Themes

# Why SP Doesn't Happen

- It Takes Guts
- Don't Know How
- Organization is Volatile
- Stuck in Quadrant 1



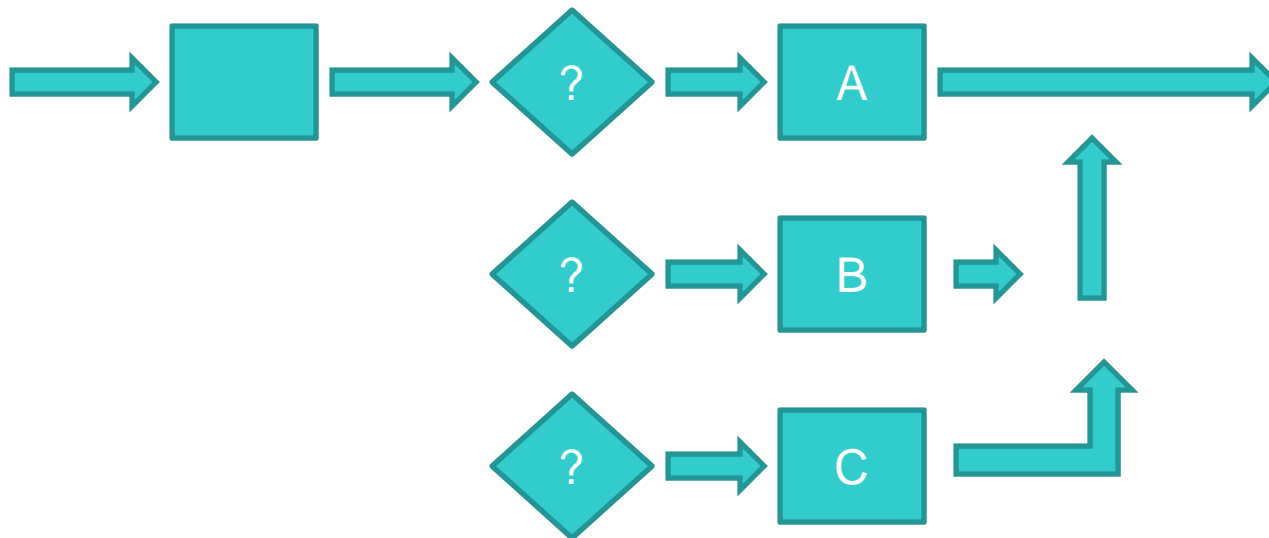
# Considerations For Getting Started

- Upper Level Management Sponsorship
- What Works Elsewhere May Not Work for You
- Reference Models – ISO90003, ITIL, 15504, CMMI-DEV, CMMI-ACQ, CMMI-SVC
- CMMI Generic Practices have Profound Impact on Success
- IDEAL Handbook

# Getting Good

- Building Capability – The Capability to Monitor, Control, and Improve Activities
- Requires Visibility & Understanding (metrics)
- Authority (influence to effect changes)
- Defined Process Provides a Sound Basis for Proposing, Implementing & Communicating Changes

# Establish Approved Variations



# Process Excellence<sup>1</sup>

- A Repository of Measurements has led to an Understanding of Performance
- Applying Statistical Methods, Performance Models can be constructed
- An Understanding of Performance Enables Predictability

# Process Excellence<sup>2</sup>

- Example

Customer wants X Quality, at Y Cost, by Z.

- a. YES, we can do it with N1% certainty
- b. YES, we can do it with N2% certainty
- c. NO, can't do it. No Deal.

# Process Excellence<sup>3</sup>

- Performance Models Should Portray the Organization's Ability to Meet ALL Stakeholders' Needs

# What Is Process Excellence?

Monitoring, Controlling, and Improving the Business Process has led to Reliable Measurement Data that allows the Organization to Manage Using Facts and Data and Predict Outcome.

# What Is Software Excellence?

- Consistently Producing Software that Exceeds ALL Stakeholders Expectations

# Stakeholders

End Users Purchasers	Quality, Cost, & Deadlines
Shareholders	Internal Costs, Headcount, Market Share
Senior Management	Goals & Objectives (more strategic) Communication Needs
Team Members Practitioners	Work Environment, Compensation, Recognition, Communication Needs, Barriers Removed to Enable Good Work

# Resources & Guidance

- The Guidance for Software Excellence has been around for Decades. Organizations Developing Software Intensive Systems Fail to Adopt.
- Gary Gack: *“Not Performing Peer Reviews in Developing Software is Malpractice”*.

# CMMI – Capability Maturity Model Integrated

CMMI Level 5  Software Excellence

- Early Misinterpretation of CMMI and SCAMPI
- SEI Is Taking Major Action in Revoking Appraisal Ratings and Certifying Lead Appraisers

# Barriers To Software Excellence

- “Proactive” Process Focus Appears to Cost More. It Requires Investment.
- False Starts – lack of training
- Solutions to Problems are Not Always Obvious – Deming
- Overly Optimistic Thinking – Why Plan For Problems if they Might Not Occur
- Practitioner Resistance

# Practitioners

- Do Not Force a Team to Use Methods They Don't Want!
- Process & Methods **MUST FIT**

# What Barriers Do You Face?



# Discussion



# Materials

- These Slides [www.davidwalkerspcs.com/downloads](http://www.davidwalkerspcs.com/downloads)
- CMMI ROI:  
<http://www.sei.cmu.edu/cmmi/2007results.html>
- Stop by the ASQ Exhibit!

David Walker, ASQ CSQE,  
SEI Authorized Instructor for CMMI  
[dave@davidwalkerspcs.com](mailto:dave@davidwalkerspcs.com)  
269-352-9000