

# **Future of CMM and Quality Improvement**

Roy Ko

Hong Kong Productivity Council

# Agenda

- Future Development of CMMI
- CMMI and Small Organizations
- CMMI and Agile Development
- Good Enough Quality
- CMMI and Other Improvement Standards/Schemes
- Conclusions

# **Future Development of CMMI**

# Sunseting of Software CMM

- No maintenance & update
- No more training on SW-CMM
- SEI-authorized appraisals using the Software CMM will continue be accepted
- Move to CMMI & SCAMPI assessment before December 2005

# Objectives and Change Process

- V1.1 of CMMI has been released since December 2001 (CMMI-SE/SW/IPPD/SS version 1.1)
- Purpose of Change
  - Clarity & Simplicity
- Change Request Process
  - CMMI Steering group
  - Configuration Control Board
  - Change Request (CR) Form

# Clarity & Simplicity

- CMMI-SE/SW/IPPD/SS v1.1
- Body of Knowledge
  - System Engineering - SE
  - Software Engineering - SW
- Additional Practices
  - Integrated Process and Product Development - IPPD
  - Supplier Sourcing - SS
- CMMI – SE/SW + IPPD + SS

# Clarity & Simplicity

- No more Grouping by Common Features
- Supplier Agreement management (SAM) & Integrated Supplier Management (ISM)
- Representation and Documentation
- Introduction Course - Combined

# Additional Considerations

- Address to:
  - Commercial-off-the-shelf (COTS)
  - Services (CMMI-Services)
  - Hardware
- Development Environment – OEI

# Additional Publications

- Guidance on higher level practices
- Availability of SCAMPI B & SCAMPI C appraisal methods
- Some updates on SCAMPI A

# Schedule

- Release for Pilot – September 2005
- Release date – mid 2006

# **CMMI and Small Organizations**

# Small Organizations Concerns

- Return on Investment on Process Improvement - they must be QUICK
- Customer Driven Requirements and Practices
- Limited Staff dedicated to Implementation
  - the priority is customer
  - Implementation usually delayed
- Small project with service oriented (against Large scale product development)

# Small Organizations

## Advantages

- Better Communication, Easier to come to Agreement
- Fewer barriers to break
- No defined process - may be difficult to start with, but unlimited possibilities
- Deployment & Feedback
- Institutionalization

# Small Organizations Challenges

- Cost of Appraisal (and implementation)
- Knowledge in:
  - Model & Practices
  - Process Definition
- Standard Processes and Tailored processes

# Some Suggestions

- Using continuous representation
- Plan Carefully
  - Priority
  - Duration
- Demonstrate Benefits Early
- Meeting your Business Objectives

# CMMI and Small Organizations

- SEI Initiatives
- Studies in Other Countries
  - UK, Japan, Australia

# **CMMI & Agile Development**

# Agile Development

- Extreme Programming (XP)
- DSDM (Dynamic Systems Development Method)
- Lean Software Development
- Crystal Methodology
- Etc...

# Objectives

- Reduce the risk of building the wrong thing
- Deliver value as early as possible
  - Begin with minimum
  - Add as needed
- Frequent Delivery

# Agile Development

- Small, non-critical nature
- Rapid evolving projects
- Building Trusts
  - Customer
  - Developer

# Agile Development Characteristics

- Customer Satisfaction, Speed
- Small, Focused
- People Centric
- Collaborative & Participative (customer, developer & team)
- Just-enough-detail planning
- Continuous rework - iterations to achieve customer satisfaction

# Agile Development Characteristics

- Requirements, Documentation, and Quality Assurance
  - Customer participation
  - Operational test cases
  - Minimal documentation
- Refactoring - defect removal & cleaning up

# CMM Characteristics

- Organizational Policy & Plan
- Monitor and Control Plans
- Take corrective action if required
- Defined processes & Lifecycle
- Process & Product Reviews
- Root Cause Analysis & Defect Removal
- Management Review & Resolutions
- Measurement & Quantitative Management

# CMMI & Agile Development

- Processes and Plans
- Comprehensive Documentation
- Contract Negotiation
- Work According to Plans
- Individuals and Interactions
- Working software
- Customer Collaboration
- Respond to Changes

# CMMI Process Areas not Properly Addressed

- Organization Process Focus
- Organization Process Definition
- Decision Analysis and Resolution
- Measurement and Analysis
- Quantitative Project Management
- Risk Management
- Process and Product Quality Assurance
- Causal Analysis and Resolution

# Achieving Agility with CMMI

- Goals of process areas are being achieved
- Evidence of practices
- Intention
- Flexibility using Continuous Representation
- Exchange of Views - Consensus

# **Good Enough Quality**

# Good Enough Quality

- The strategy of shipping software with known bugs
  - shorten the delivery schedule
  - provide minimum quality
- Ship with Bugs, as long as you ship with the “right” bug
  - Important & Unimportant
  - Necessary & Unnecessary

# Good Enough Quality Arguments

- Quality is situational & subjective
- Given enough benefits, the minor problems will be overlooked - Is the problem serious enough to require fixing?
- Exhaustive or sufficient
- Features & Schedule Vs Quality
- What is the cost of high quality? High quality can be too expensive to achieve

# Good Enough Quality

## Counter-argument

- Quality of product Vs the cost and value of further improvement
- It will cost more to fix bugs later
- Good enough for developer or good enough for customer?
- Good enough to survive or good enough to succeed?
- Damages to Reputation & marketplace
  - Agreement with Customer on defect level?
- The privilege of Big Corp?

# Good Enough Quality & CMM

- Business Objectives
- Non-critical Nature
- Target Level of Defect
- Risk management required
- Impact analysis

# **CMMI and Other Improvement Standards/Schemes**

# CMMI and Other Improvement Standards/Schemes

- IEEE Software Engineering Standards
- ISO 9001
- ITIL (IT Infrastructure Library)

# CMMI & IEEE Software Engineering Standards

- Software Quality Assurance Plans
- Software Configuration Management Plans
- Software Requirements Specifications
- Software Verification and Validation
- Software Reviews
- Software Project Management Plans

# CMMI and ISO 9001

- Understanding of process & process definition
- Understanding of Process Deployment
- Quality Assurance & Review
- Management Reporting

# CMMI and ISO 9001

- The surveillance audit
- Management Reporting

# ITIL

- IT Service Delivery
  - Service Level Management
  - Financial Management for IT Services
  - Capacity Management
  - IT Service Continuity Management
  - Availability Management
- IT Service Support
  - Service Desk
  - Incident Management
  - Problem Management
  - Change Management
  - Release Management
  - Configuration Management

# ITIL

- **ICT Infrastructure Management**
  - Design and Planning
  - Deployment
  - Operations
  - Technical Support
- **Application Management**
  - Managing Business Value
  - Aligning Delivery Strategy with Business Drivers
  - Application Management Lifecycle
  - Organizing Roles and Functions
  - Control Methods and Techniques

# CMMI and ITIL

- Service Delivery
  - Project Planning
  - Project Monitoring and Control
- Service Support
  - Configuration Management
  - Causal Analysis and Resolution

# CMMI and ITIL

- Application Management
  - Requirement Management
  - Requirement Development
  - Technical Solutions
  - Product Integration
  - Verification
  - Validation

# CMMI and ITIL

- Development Environment
- Service Delivery & Support
- Business Objectives

# Conclusions

- Keeping Update
- Meeting Business Objectives
  - Requirement from Customer
  - Bidding requirement
  - Confidence of Customer
- Meeting the Purpose of Process Areas
- Flexibility in the Practices

**Thank You**

Roy Ko  
roy@hkpc.org