People - Introduction to People Capability Maturity Model® (P-CMM®)

Dr. Bill Hefley
Dublin, Ireland
November 14, 2000
Levers for improving and maintaining organizational capability

People

Business Capability

Processes

Technologies
Impact of process and people

Relative effect on productivity

Productivity factors

1. Personnel Capabilities
2. Process Maturity
3. Application experience
4. Modern programming practices
5. Virtual machine experience
6. Software tools
7. Virtual machine volatility
8. Storage constraints
9. Timing constraints
10. Required reliability
11. Product complexity
12. Language experience
13. Database size
14. Schedule constraint
15. Turnaround time

Product complexity
Continuing Chaos in IT organizations

- $250 billion/year spent on Information Technology
- 175,000 Software Projects are Started

"CHAOS" Project Study:

<table>
<thead>
<tr>
<th>Company Size</th>
<th>Impaired or Canceled</th>
<th>&quot;Challenged&quot; (Cost or Schedule Overruns)</th>
<th>&quot;Successful&quot; (Based on Cost &amp; Schedule)</th>
<th>Planned Function Actually Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large (&gt; $500m)</td>
<td>30 %</td>
<td>62 %</td>
<td>9 %</td>
<td>42 %</td>
</tr>
<tr>
<td>Medium ($200-500m)</td>
<td>37 %</td>
<td>47 %</td>
<td>16 %</td>
<td>65 %</td>
</tr>
<tr>
<td>Small ($100-200m)</td>
<td>32 %</td>
<td>50 %</td>
<td>28 %</td>
<td>74 %</td>
</tr>
</tbody>
</table>

Source: Standish Group -- CHAOS Study, 1995
Managing Software Risks with World-Class Customers

Levers for moving out of chaos

Percent of Projects by Outcomes

1994

1998

Recent focus on process and people are changing industry by reducing the numbers of failed and challenged projects

Source: Standish Group – 1999
(Cited in Software Magazine, December 1999)
Agenda

- Common people problems in organizations
- Characteristics of a high performing workplace
- People CMM
- Applying the People CMM
Some trends affecting the workforce

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doers differ from thinkers</td>
<td>Doers must be thinkers</td>
</tr>
<tr>
<td>Assets are things</td>
<td>Assets are people</td>
</tr>
<tr>
<td>Labour is an expense</td>
<td>People are an investment</td>
</tr>
<tr>
<td>Lifetime employment</td>
<td>Lifetime employability</td>
</tr>
<tr>
<td>Top down control</td>
<td>Decentralised decisions</td>
</tr>
<tr>
<td>Localised work</td>
<td>Networked problem solved</td>
</tr>
<tr>
<td>Measure for results</td>
<td>Measure for improvements</td>
</tr>
</tbody>
</table>
Participants in People CMM courses were asked to identify the 4 greatest people-related problems in their organization.

In this exercise:
- participants recorded their most pressing issue on an index card
- they traded index cards
- another student added to the card
- after two more passes - issues were recorded on a flipchart
Top Five People Issues

1. Enabling people to deal with continual change in the organization
2. Managing skills and career growth
3. Ensuring consistent communication between management and staff
4. Providing clear performance feedback
5. Overcoming low morale & burnout
Top Ten People Issues

6. Measuring subjectively or the wrong thing
7. Identifying competencies
8. Defining roles and responsibilities
9. Motivating personal goals to align with organizational goals
10. Reducing turnover
From Maps to Issues

P-CMM Issues Classification

People / Groups
- People/Personnel
- Management
- Software Engineer
- Teams
- Communication Infrastructure
- Roles & Responsibilities
- Skills & Careers
- Competencies
- Technology

Properties / Constraints
- Resistance
- True
- New

Processes / Activities
- Cost-Effective Orientation & Training wrt Skills/Technology
- Aligning Personal and Organizational Goals
- Insure Clear Performance Feedback & Recognition, Reward, & Incentives
- Increase Consistent Communication Lines between Managers and Personnel
- Measurement Drives Wrong Behavior & Objective Measurement Difficult
- Overcoming Low Morale & Burnout
- Move from a Culture of Bad News to a Team Culture
- Avoiding Turnover

Supporting People in Organizational Change

Managing Software Risks with World-Class Customers

Denmark – France – Germany – Ireland – Norway – Sweden – UK – USA
Employee Breaking Points

NEW HIRE CRISIS: New employee is discontented by underwhelming assignments, the volume of work, or bad chemistry with the boss.

PROMOTION CRISIS: After hanging in for two years, employee is ready and eager for a promotion that may or may not be available.

BOREDOM CRISIS: With promotions fewer and farther between employees’ attention wanders to opportunities elsewhere.

Barriers to quality improvement

Absence of

- employee empowerment
- management's listening to employees
- employee training
- mutual trust between management and employees
- team building
- quality-related goals for employees
- a performance management system that measures and rewards quality improvements
- reasonable workload expectations
- a stable and relatively certain work environment
- employee acceptance

Agenda

- Common people problems in organizations

- Characteristics of a high performing workplace

- People CMM

- Applying the People CMM
Levers for improving and maintaining organizational capability

People

Business Capability

Processes Technologies
The Standish Group also identified ten critical success factors for IT projects:

- User involvement
- Executive management support
- Clear statement of requirements
- Proper planning
- Realistic expectations
- Smaller project milestones
- Competent staff
- Ownership
- Clear vision and objectives
- Hard-working, focused staff

Ten Key Principles

1. Treat human capital as being fundamental to strategic business management

2. Integrate human capital functional staff into management teams - not just as personnel administrators

3. Leverage internal human capital function with external expertise

4. Hire, develop and sustain leaders according to leadership characteristics identified as essential to achieving specific missions and goals

5. Communicate a shared vision that all employees, working as one team, can strive to achieve

Ten Key Principles

6. Hire, develop, and retain employees according to competencies

7. Use performance management systems, including pay and other meaningful incentives, to link performance to results

8. Support and reward teams to achieve high performance

9. Integrate employee input into the design and implementation of human capital policies and practices

10. Measure the effectiveness of human capital policies and practices

Agenda

- Common people problems in organizations
- Characteristics of a high performing workplace
- *People CMM*
- Applying the People CMM
Managing Software Risks with World-Class Customers

People Capability Maturity Model™
Perspectives on the People CMM

- Common sense application of principles from:
  - total quality management
  - human resources management
  - organizational development

- Community-owned guide:
  - extensive input from industry and government
  - ongoing review and evolution

- Framework for improving workforce practices:
  - organizational assessment
  - improved workforce practices
  - staged improvement program
Improvement Program Shortfalls

Improvement programs have focused on:
- process
- technology
- not people

High maturity organizations:
- improvement required innovative workforce practices
- not accounted for in the CMM for Software
- are often using People CMM

Many organizations
- want to improve workforce practices
- do not know where to start

“The big criticism of the original maturity model was that it ignored people.”
- Ed Yourdon (1995)
Adoption

The 1999 Survey of High Maturity (Software CMM) Organizations found that 10 of the 37 Level 4 and 5 responding organizations reported the People Capability Maturity Model as an ongoing additional quality/process initiative.

Source: Practices of High Maturity Organizations: The 1999 Survey, Mark C. Paulk, Dennis Goldenson, and David M. White (SEI)
Why Adopt People CMM?

1. Overcome “pain”

2. Become “Employer of Choice”
   - many unfilled IT jobs
     - Of roughly 1.6 million IT workers needed in the US in 2000, half of these positions--843,328--will likely go unfilled. (http://www.itaa.org/workforce/studies/hw00execsumm.htm)
     - Similar shortfalls outside US
     - Cost of turnover
       - direct costs of turnover
       - indirect costs (turnover correlated with defects)
   - what keeps people in organizations
     - Environment will get them in
     - Challenging work will keep them
     - Remuneration - ball park is close enough
Why Adopt People CMM?

3. Enhance business performance

4. Manage:
   - intellectual assets
   - knowledge capital
   - human capital

5. Measure HR’s contribution to the business
   - provides common measurement framework
   - allows benchmarking against best practices

6. Build on a well-understood framework for integrating improvement actions
People CMM provides a framework to address central people issues

P-CMM Framework

- Assess workforce management capability
- Set priorities for improving workforce management capability
- Integrate improvements in process and workforce
- Bring HR & the business together to develop the workforce

Central Issues

- Avoiding Turnover
- Supporting People in Organizational Change

Business Outcomes

- Become an employer of choice
- Have and enable the talent required to execute your business strategy
Managing Software Risks with World-Class Customers


Maturity Framework

Level 1 Initial
- People management

Level 2 Repeatable
- Competence management
- Managed practices

Level 3 Defined
- Team management
- Tailored practices

Level 4 Managed
- Capability management
- Measured and aligned practices

Level 5 Optimizing
- Continuously improving practices
-Managed and aligned practices

Level 1 Initial to Level 5 Optimizing represents a continuous improvement cycle in software practices and management.
# People CMM Architecture - Version 1

<table>
<thead>
<tr>
<th>Level</th>
<th>Focus</th>
<th>Key Process Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Optimizing</td>
<td>Continuous workforce improvement</td>
<td>Continuous Workforce Innovation</td>
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<tr>
<td></td>
<td></td>
<td>Coaching</td>
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<td></td>
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<td>Personal Competency Development</td>
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<tr>
<td>4 Managed</td>
<td>Team-based and quantitatively managed workforce practices</td>
<td>Organizational Performance Alignment</td>
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<td>Organizational Competency Management</td>
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<td>Team-Based Practices</td>
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<td>Team Building</td>
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<td>Mentoring</td>
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<td>3 Defined</td>
<td>Competency-based workforce practices</td>
<td>Participatory Culture</td>
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<td>Competency-Based Practices</td>
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<td>Career Development</td>
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<td>Competency Development</td>
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<td></td>
<td>Workforce Planning</td>
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<td>Knowledge and Skills Analysis</td>
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<tr>
<td>2 Repeatable</td>
<td>Managers take responsibility for managing and developing their people</td>
<td>Compensation</td>
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<tr>
<td></td>
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<td>Training</td>
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<td>Performance Management</td>
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<td>Communication</td>
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<td></td>
<td>Work Environment</td>
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<tr>
<td>1 Initial</td>
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</tbody>
</table>
People CMM

1. Initial
   - Compensation
   - Training
   - Performance Management
   - Staffing
   - Communication
   - Work Environment

2. Defined
   - Continuous Workforce Innovation
   - Coaching
   - Personal Competency Development

3. Managed
   - Organizational Performance Alignment
   - Organizational Competency Management
   - Team-Based Practices
   - Team Building
   - Mentoring

4. Optimizing
   - Participatory Culture
   - Competency-Based Practices
   - Career Development
   - Competency Development
   - Workforce Planning
   - Knowledge and Skill Analysis

© 1995 by Carnegie Mellon University
Initial (Level 1) Organizations

- **Administrivia**: Workforce practices considered overhead, performed hastily
- **Inconsistency**: Little training in managing people
- **Displacement**: Managers expect HR Department to administer workforce practices
- **Ritualism**: Workforce practices applied without analysis of impact
- **Turnover**: Staff not loyal to the organization
Repeatable (Level 2) Organizations

**Commitment**
Executives commit organization to workforce development

**Discipline**
Unit managers take responsibility for performing basic practices

**Repeatable**
Managers repeat successful practices regularly

**Performance**
Practices enhance individual and unit performance

**Unit-based**
Units know and manage their skill needs
Level 2 Key Process Areas

Level 2 — Repeatable

- Compensation
- Training
- Performance Management
- Staffing
- Communication
- Work Environment

Instill basic discipline into people related activities

Level 1 — Initial
Defined (Level 3) Organizations

**Competencies**
Organization identifies knowledge and skills required by work

**Strategic**
Workforce planning develops competencies needed by business

**Tailored**
Workforce practices encourage and reward competency growth

**Participatory**
Involvement optimizes impact of competencies on performance

**Professionalism**
Organizational culture emerges from competence models
Level 3 Key Process Areas

Level 2 — Repeatable

- Participatory Culture
- Competency-Based Practices
- Career Development
- Competency Development
- Workforce Planning
- Knowledge and Skills Analysis

Level 3 — Defined

Identify core competencies and align people related activities with them
Managed (Level 4) Organizations

- **Integrated**: Teams integrate competency-based processes and skills.
- **Empowered**: Teams responsible for managing performance.
- **Quantitative**: Measurable goals for competence growth and aligning performance.
- **Corrective**: Effectiveness of workforce practices evaluated quantitatively.
- **Predictable**: Organization knows its workforce capability quantitatively.
Level 4 Key Process Areas

Level 4 — Managed

- Organizational Performance Alignment
- Organizational Competency Management
- Team-Based Practices
- Team Building
- Mentoring

Level 3 — Defined

Quantitatively manage workforce practices and establish competency-based teams
Optimizing (Level 5) Organizations

- **Excellence**: Individuals continuously improve their work processes
- **Coaching**: Coaches work with individuals & teams to improve performance
- **Innovative**: Organization continuously improves capability
Level 5 Key Process Areas

Level 4 — Managed

Continuous Workforce Innovation
Coaching
Personal Competency Development

Level 5 — Optimizing

Continuously improve personal and organizational competence
## Process Threads in the People CMM

<table>
<thead>
<tr>
<th>Levels</th>
<th>Developing competence</th>
<th>Building teams and culture</th>
<th>Motivating and managing performance</th>
<th>Shaping the workforce</th>
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<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Training Communication</td>
<td></td>
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</tr>
</tbody>
</table>

- **Optimizing (5)**: Coaching, Personal Competency Development
- **Managed (4)**: Mentoring, Team Building
- **Defined (3)**: Competency Development, Knowledge and Skills Analysis
- **Repeatable (2)**: Training, Communication

- **Managing**: Building teams and culture, Motivating and managing performance, Shaping the workforce
- **Developing**: Continuous Workforce Innovation
- **Coaching**: Personal Competency Development
- **Motivating**: Organization Performance Alignment, Team-Based Practices
- **Continuous Workforce Innovation**: Team-Based Practices, Career Development
- **Communication**: Performance Management, Work Environment
- **Organizational Competency Management**: Workforce Planning
- **Staffing**: Workforce Planning
Focus for Changing Practice

- Organization
  - Organizational development
  - Management establishes basic discipline
  - Ad hoc, inconsistent, people practices
- Unit or team
  - Skill-based teams and measured competencies
- Individual
  - Individual improves personal process

Maturity levels
1. Organization establishes core competencies
2. Management establishes basic discipline
3. Skill-based teams and measured competencies
4. Individual improves personal process

Denmark – France – Germany – Ireland – Norway – Sweden – UK – USA
Agenda

- Common people problems in organizations
- Characteristics of a high performing workplace
- People CMM
- **Applying the People CMM**
Ways to apply People CMM

- Roadmap for improvement activities
- Assessing workforce practices
Roadmap

- Use People CMM as a guide for people-related improvement
- A framework for improvement
- Use as a checklist of good practices
- Help you to prioritize activities
- Determine what to do - but not how to do it
Assessing

- People Capability Maturity Model v1.0 released in September 1995

- Assessment Status
  - First People CMM Assessment conducted in March 1996 - led by Bill Hefley
  - First Joint CBA IPI - People CMM Assessment led by John Vu and Bill Hefley at Boeing in January 1997
  - 19 assessments have been completed

- There are presently thirteen SEI-Authorized People CMM Lead Assessors

- Over 100 professionals have applied for People CMM Lead Assessor training
Assessment Overview

- Determine the status of the workforce practices
- Highlight strengths and weaknesses
- Compare own workforce practices with known best practices
Assessment Flow

Preparation
- Organize team
- Brief participants
- Review documents
- Analyze surveys
- Script interviews

Interview
- Interview process owners
- Consolidate data
- Interview managers
- Consolidate data
- Workforce discussions

Findings
- Consolidate data
- Develop preliminary findings
- Develop findings briefing

Review
- Review with Legal
- Review with process owners
- Review with managers
- Review with workforce
- Revise findings

Presentation
- Present findings
- Debrief sponsor
- Wrap-up assessment
- Debrief sponsor
- Present findings

Curtis & Hefley 1998

Managing Software Risks with World-Class Customers
People CMM Assessments as Reported by SEI-Authorized People CMM Lead Assessors

- 19 Completed
- 4+ Planned
People CMM Assessment
Results as Reported to the SEI

Level 1  Level 2  Level 3  Level 4  Level 5

1996
1997
1998
1999
2000

(And More Planned)

= 1 Assessment
The population of the assessed entities varies, as do their functions.
The scope of these entities also vary.

- An Entire Organization
- A Center
- Division
- Program
- Geographical Site
- Project
Types of organizations assessed

- Non-Profit: 16%
- Information Systems: 26%
- Defense Contractor: 16%
- Telecommunications: 27%
- Financial: 5%
- Federal/Military: 5%
- Services/Consulting: 5%
Organizational trends since adopting People CMM

Data from organizations indicates:

- **Turnover:**
  - A decrease in turnover of 5 - 10% below industry average
  - A decrease to 3-7% from an industry average of 18%

- **Employee satisfaction:**
  - An increase in employee satisfaction (on a scale from 1 - 10) of 2 points
  - An increase of 3+ points on a ten point scale

*Staff satisfaction = Customer satisfaction*
Organization Trends

- Most frequently identified People CMM improvement initiative by Level 1 organizations:
  
  **Performance Management**

- Most frequently identified improvement initiative by Level 2 and 3 organizations:
  
  **Supervisor/Manager training, education or development**
Who Should Start?

- Organizations with mature software processes
  - Understanding of the CMM structure
  - Projects under control

- Organizations with high turnover rate
  - All improvements walk out of the door

- Organizations that already have spent effort on people related aspects
  - To get credit for existing improvements
  - To get understanding and commitment for the next step
  - To deal with organizational or cultural change
Top 3 reasons given for conducting a People Capability Maturity Model Assessment

- Establish baseline workforce practices to enable appropriate improvement
  - Becoming an “Employer of Choice”

- Organizational merge, transition or change in ownership
  - Blended cultures
  - Merged policies, procedures and processes

- Sustaining higher CMM levels via solid workforce practices
Adoption

- During 1999, 994 individuals, from over 850 companies, based in 90 countries visited the People CMM section of the Software Engineering Institute’s Software Engineering Information Repository (SEIR) to view and download information.

- Trend is continuing in 2000

- [http://seir.sei.cmu.edu](http://seir.sei.cmu.edu)
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Source: Practices of High Maturity Organizations: The 1999 Survey, Mark C. Paulk, Dennis Goldenson, and David M. White (SEI)
Adoption

Of the 10 high-maturity software organizations reporting the People Capability Maturity Model is an additional quality/process initiative:

- One organization reports a People CMM Assessment planned for 2001.
- One organization reports benchmarking the People CMM to determine a plan for a formal appraisal.
- One organization reports completing a People CMM Appraisal during 1999.
How to Proceed?

- Management understanding
- Management commitment
- Define business related goals for improvement
- HR involvement
- Find champions
- Create baseline
- Define improvements
- Measurements
- Close follow up
Recommendations

- Use P-CMM as:
  - a guide & framework for people-related improvement
  - a standard for assessing workforce practices
  - a guide/checklist for planning & implementing good practices
  - a guide on a strategy for developing your organization over time
    - Can help you prioritize activities
    - Determines *what* to do - but not *how* to do it

- Consider how to use:
  - improvement actions
  - training
  - assessment
DON’Ts

Do NOT

- Try to do too much to start with
- Focus on the higher levels without the foundation in the lower levels
- Perform an assessment without commitment for the next step
- Leave all the responsibility to HR
- Omit HR
Q-Labs Capabilities

- **Multiple P-CMM assessors**
  - Largest of any organization

- **Longstanding focus on humanics**
  - team work
  - coaching

- **Proven expertise in process improvement**
  - SW-CMM
  - Quintum framework for improvement
  - CMMI
Q-Labs Capabilities

Bill Hefley

- Author of People CMM
- Formerly SEI Project and Product Manager for P-CMM development
- Co-author of P-CMM Assessment Method
- SEI-Authorized Lead Assessor for P-CMM Assessment Method
- SEI-Authorized Lead Assessor for SW-CMM CBA IPI Assessment Method
- Leading a pilot SCAMPI assessment for CMMI
- Authorized Instructor:
  - Introduction to the P-CMM
  - Introduction to the SW-CMM
Q-Labs Offerings

- Training
  - Executive Briefing
  - One day P-CMM
  - 3 day Introduction to the P-CMM

- Humanics
  - Teamwork
  - Coaching
Q-Labs Offerings

- Full range of assessment services
  - P-CMM Assessment
  - Joint CBA IPI/P-CMM Assessment
  - SEI-Style
  - Interview
  - Workshop

- Roadmap support
  - consulting
Other Possibilities

Light Assessments:
- SEI style
  - Questionnaires
  - Feedback session
  - Final Presentation
- Interview based
  - Interviews
  - Limited Doc. Review
  - Feedback session
  - Final Presentation

Training/Light Assessment:
- Workshop
  - Short Mgmt interview
  - Training for 15 people
  - Self assessment exercise through the whole
  - Feedback session
  - Final Presentation
  - Higher understanding/interest
  - Something to start from
Conclusion

- People CMM
  - Assessment <------> Roadmap

- Connect to business

- Think ahead

- Avoid common mistakes
  - Keep it simple!
  - Focus on your issues!
For Further Information

- People CMM Overview
- People CMM
- People CMM-Based Assessment Method Description

CMU/SEI-95-MM-001
CMU/SEI-95-MM-002
CMU/SEI-98-TR-012

http://www.sei.cmu.edu/cmm-p/p-cmm.sum.html
Obtaining the People CMM

Descriptions:
http://www.sei.cmu.edu/products/publications/95.reports/95.mm.001.html
http://www.sei.cmu.edu/products/publications/95.reports/95.mm.002.html

Overview and Model:
http://www.sei.cmu.edu/pub/documents/95.reports/pdf/mm001.95.pdf
http://www.sei.cmu.edu/pub/documents/95.reports/pdf/mm002.95.pdf

Version 2001 will be published by Addison Wesley Longman
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