

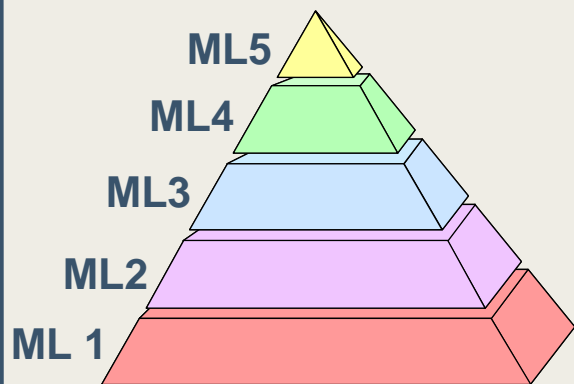
CMMI for Small Businesses

Presented by: Sandra L. Cepeda

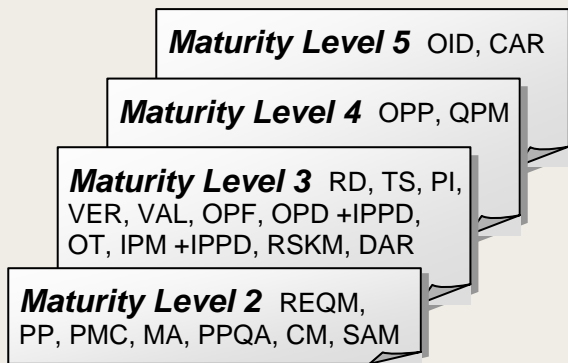
Cepeda Systems & Software Analysis, Inc.

Doing what is right for our customers, partners, community and employees!

Staged



Organization



Process Areas

Organizational Innovation & Deployment (OID)
Casual Analysis and Resolution (CAR)

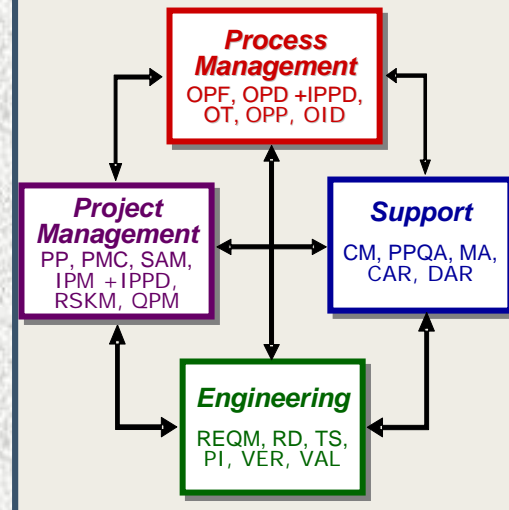
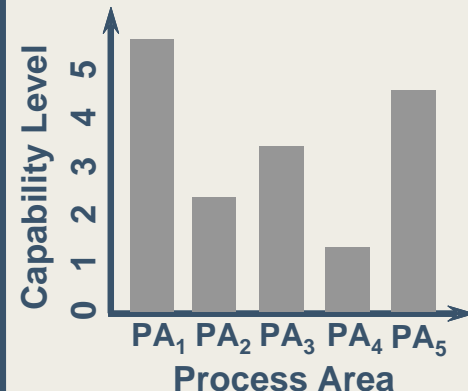
Organizational Process Performance (OPP)
Quantitative Project Management (QPM)

Requirements Development (RD)
Technical Solution (TS)
Product Integration (PI)
Verification (VER)
Validation (VAL)

Organizational Process Focus (OPF)
Organizational Process Definition (OPD) + IPPD
Organizational Training (OT)
Integrated Project Management (IPM) + IPPD
Risk Management (RSKM)
Decision Analysis and Resolution (DAR)

Requirements Management (REQM)
Project Planning (PP)
Project Monitoring and Control (PMC)
Measurement and Analysis (MA)
Process and Product Quality Assurance (PPQA)
Configuration Management (CM)
Supplier Agreement Management (SAM)

Continuous



CMMI Is an enterprise-wide Process-Improvement Model That Provides a Set of Best Practices That Address Productivity, Performance, Costs, and Stakeholder Satisfaction.

<i>Multiple Disciplines</i>	<i>Multiple Applications</i>	<i>Multiple Domains</i>
<ul style="list-style-type: none"> ▪ Engineering Development <ul style="list-style-type: none"> • Software Engineering • Systems Engineering • Concurrent Engineering • Hardware Engineering • “Assurance” Engineering ▪ Program Management <ul style="list-style-type: none"> • Project Management • Quality Assurance • Configuration and Data Management 	<ul style="list-style-type: none"> ▪ Architecture ▪ Design <ul style="list-style-type: none"> • Systems • Electrical • Mechanical • Software ▪ System Integration/Test ▪ Logistics ▪ Operations ▪ Maintenance ▪ Engineering Services ▪ Program Mgt. Services ▪ R&D 	<ul style="list-style-type: none"> ▪ Defense ▪ Aerospace ▪ Telecommunications ▪ Manufacturing ▪ Information Technology ▪ E-Commerce

Total Product and Service Life Cycle Coverage

- ☞ Development and Maintenance of Products and Services
 - Significant Return On Investment (Median ROI 4:1)
- ☞ Delivery of Services
 - Establishment of Processes That Make Organization Capable

- ◆ Cost and Schedule **Vary** a Great Deal From Organization to Organization and depend on key factors such as
 - Starting Point (PI Infrastructure, CMMI Knowledge, Existing QMS, Maturity/Capability Level)
 - Scope of Improvement (Disciplines and Organizations)
 - Number of New Processes That Need to Be Rolled Out
 - Current Measurement Program
 - **Executive Commitment**
 - Level of Resistance

- ◆ From the SEI's Process Maturity Profile for 2001, the Median to move from one Maturity Level to the next for the SW-CMM is
 - Level 1 to Level 2 ... 24 Months
 - Level 2 to Level 3 ... 22 Months
 - Level 3 to Level 4 ... 32 Months
 - Level 4 to Level 5 ... 16 Months

- ◆ From Small Companies we have worked with
 - Maturity Level 2 – 10 to 24 months
 - Maturity Level 3 – Additional 12 to 18 months

- ◆ **Cost Varies Greatly Based Factors Outlined on Previous Page**

- ◆ **Internal Costs (resources)**

- Many Cost Elements (e.g., CMMI and Process Improvement Training, Definition of Processes, Indirect hours applied to CMMI, Revenue Lost Shifting personnel from Direct to Indirect, etc.)
- Data from Small Businesses in the United States
 - Maturity Level 1 to Maturity Level 2: \$80,000 - \$200,000
 - Maturity Level 2 to Maturity Level 3: \$100,000 - \$300,000

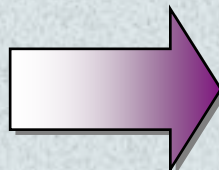
- ◆ **External Costs**

- Many Cost Elements (e.g., Training, Coaching, Appraisal, Consultant Rates, etc.)
- Data from Small Businesses in the United States
 - Maturity Level 2: \$60,000 - \$180,000
 - Maturity Level 3 : \$100,000 - \$280,000

Treat CMMI Like Any Other Project and Estimate Schedule and Budget Accordingly

◆ **Reduced Development, Maintenance, and Service Delivery Costs**

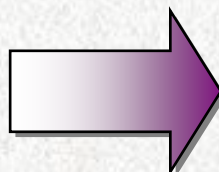
- Improved Productivity
- Less Rework



◆ **Increased Revenue/Profitability**

◆ **Improved Customer Satisfaction**

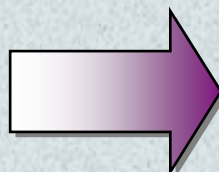
- Reduced Post-Release Defects
- Measurable Improvements of Reliability and Quality



- ◆ Repeat Business
- ◆ Increased Product/Service Sales

◆ **Reduced Cycle Time**

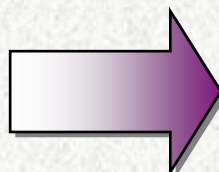
- Improved Process Performance
- Improved Service Delivery Time



- ◆ Enhanced Time-to-Market Performance
- ◆ Enhanced Service Delivery Time
- ◆ Bonuses for Early Delivery

◆ **Improved Professional Staff**

- Improved Employee Morale
- Increased Developer, Maintainer, and Service Provider Confidence



- ◆ Reduced Employee Turnover and Retraining Costs
- ◆ Improved Competitive Advantage



Better Products and Services Delivered Sooner and Cheaper

- ◆ 50% growth
- ◆ 25% increase in ability to bid
- ◆ 100% on time delivery
- ◆ 25% improvement in cost variance
- ◆ Increased proposal win-rate
- ◆ More effective use of personnel due to better tracking of tasks
- ◆ More efficient and cost competitive due to streamlining and standardization
- ◆ Products and Services delivered under budget
- ◆ Improved productivity due to institutionalization of management and engineering practices
- ◆ Shorter time to market (services and products out to the customer faster)
- ◆ More work delivered to the customer for less money
- ◆ Critical deadlines are not missed any more
- ◆ Ability to identify new market opportunities has increased due to visibility into projects
- ◆ Reduced training time and learning curve for new employees
- ◆ Requirements creep eliminated
- ◆ New projects are able to efficiently leverage what other projects have done

- ◆ Product and program tracking improved
- ◆ Early identification and mitigation of risks
- ◆ Duplication of effort eliminated (no more reinventing the wheel)
- ◆ Accuracy of estimates improved
- ◆ Informed decision making
- ◆ Improved ability to organize/communicate project status to customers and other stakeholders
- ◆ Provided path for taking company to next level
- ◆ Greater accountability has resulted in better performance
- ◆ Projects have performance metrics now in addition to cost metrics
- ◆ Change management made much easier at no additional cost
- ◆ For companies implementing CMMI after their ISO 9000:2001 certification
 - CMMI enhanced and improved existing QMS
 - CMMI complemented ISO and provides continuous improvement
 - CMMI expanded QMS to addresses customer projects with processes

CSSA is a Woman-Owned, Certified 8(a) Company, in Huntsville, Alabama, providing Process Improvement and Systems and Software Engineering Services.

◆ **Process Improvement Consulting**

- **CMMI Coaching**
- **CMMI Training**
- **CMMI Implementation and Deployment**
- **CMMI Appraisals**
- **SEI Partner for CMMI Services**
- **ISO 9001:2000**

◆ **Systems and Software Engineering Services**

- **Provide Solutions across the Product Life Cycle to Mitigate Risk and Increase Probability of Success**
- **Perform IV&V Activities across the Product Life Cycle**

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