Small / Low Maturity Organizations are Different

NDIA/SEI

CMMI Technology Conference

16-20 November 2003 Denver, CO

Raymond L. Kile, PMP

Rkile@csm.com

303-347-1775

©2002 CSM 02-XXX

Agenda

- The premise of this panel
- The problems
- Typical results in a first appraisal
- Some metrics
- Recommendations

©2002 CSM 02-XXX

The Premise

The majority of early CMMI presentations at previous conferences have been by organizations already familiar with the CMM

- Many already at CMM Level 3 or higher
- Many are Transition Partners with the SEI and have internal experts, appraisers, and instructors

These companies have reported on their experience transitioning to the CMMI

- Effort to understand the new model
- Relative effort to convert their processes to be fully CMMI compliant
- Effort to prepare for and undergo a SCAMPI appraisal

©2002 CSM 02-XXX

The Problem in the Premise

These companies are not starting from scratch

- **They've already paid the price to get up the learning curve on the model**
- **They know what it takes to succeed in an appraisal and prepare their documentation and personnel carefully.**

With the best of intentions they are seriously understating the effort it will take if you are starting from scratch to implement the CMMI

©2002 CSM 02-XXX

The Result

If you are small or just starting out in process improvement, you will likely have quantitatively different experiences than you expect

- **Effort to understand the CMMI model will be greater without the CMM experience as a basis**
- **Mapping your practices to the model will be incomplete because your early understanding of the model is incomplete**
- **Preparing for an appraisal will consume a lot of resources**
- **Dealing with the results of the first appraisal can be catastrophic if you aren't prepared**

©2002 CSM 02-XXX

Problems Understanding the CMMI

The CMMI is larger than the CMM

- **Some is due to additional process areas**
- **Much is due to better clarity of expectations**

However, there are still many unique terms that must be understood and internalized

- **Establish and maintain**
- **Identify and involve**
- **Objectively evaluate**
- **Relevant stakeholders**
- **Bi-directional traceability**
- **Baseline audits**
- **Process evaluations**
- **Activities, status, and results**
- **Planned, tracked, managed**

"We really didn't understand the CMMI until we tried to prepare for the appraisal."

©2002 CSM 02-XXX

Problems Mapping Practices to the CMMI

A typical first step in most process improvement efforts (after the Introduction to CMMI training) is to map your practices against the CMMI to determine your gaps

- **Most organizations haven't documented their current practices**
  - It can be hard to tell what you do
  - It's easy to assume just because you know of a process, it's widely used in the organization
- **Most Level 1 organizations that have documented processes don't follow them**
  - They are not widely communicated
  - They are not integrated into a whole project "system" with supporting training, templates, and management encouragement
  - They are abandoned at the first sign of trouble
- **There are numerous practices in the CMMI that aren't understood and assumptions are made which minimize compliance**

©2002 CSM 02-XXX

Problems Preparing for the Appraisal - PIIDs

CMMI appraisals are verification-based appraisals which rely on the organization identifying Process Implementation Indicator Descriptions (PIIDs) and collecting artifacts to prove the practices are implemented

Immature organizations have trouble understanding how to fill out the PIIDs

- **Direct and Indirect Artifacts are confused**
  - Object oriented practices vs. action oriented practices
  - One practice's direct artifact can be another practice's indirect artifact
- **A shotgun approach is used (list as many artifacts as you can think of)**
  - Usually none of the artifact(s) address the practice
- **Too general in terminology, not specific enough to show the practice is really implemented**
  - Meeting minutes, emails, action items
    - Actual examples of the above don't cover the practice in question
- **Appraisal teams will spend an inordinate amount of time separating the appropriate artifacts from the rest and "discovering" the real state of process implementation**

©2002 CSM 02-XXX

Problems Preparing for the Appraisal - Politics

Organizations just starting out have a culture change problem to deal with

- **Managers don't want to air their dirty linen so they are reluctant to be appraised**
- **Project teams haven't really bought into the CMMI yet so they are reluctant to get involved**
- **Everybody is busy and the organization doesn't want to disturb the projects**
  - PIIDs will be filled out by a third party who's trained in the CMMI and in filling out PIIDs but without specific project knowledge, resulting in wasted effort trying to deal with the project team to get information

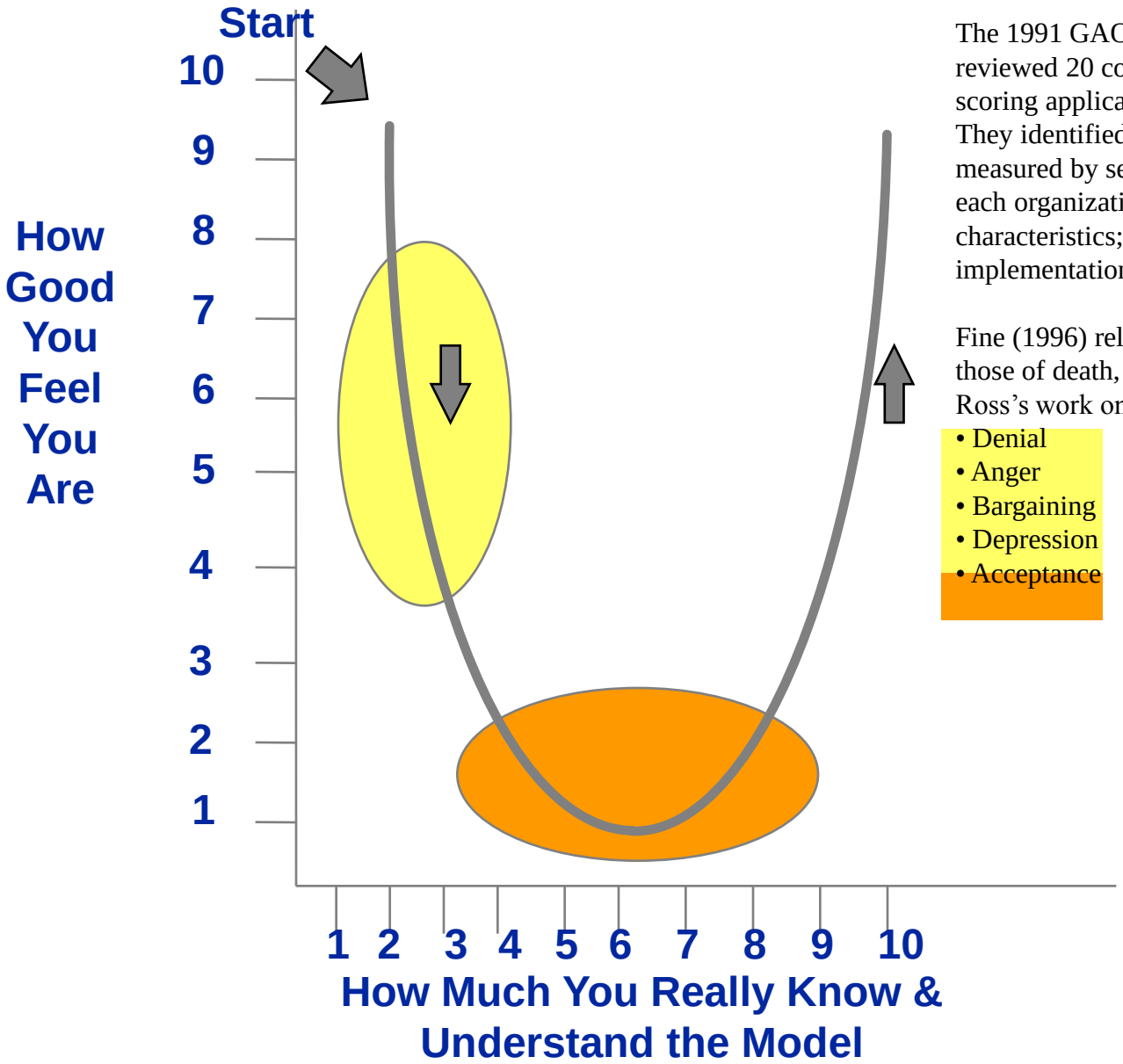
  or

  - PIIDs will be filled out by project team members that may not have been fully trained on what is needed, resulting in repeated requests for more/better information on the PIIDs by the appraisal team

One organization filled out the PIIDs for PP and PMC with "Project Plan" listed as the Direct Artifact for each practice

©2002 CSM 02-XXX

Problems Dealing with the Appraisal Results



Benefits lag behind the improvement efforts.

The 1991 GAO report for Representative Donald Ritter reviewed 20 companies that were among the highest-scoring applicants in 1988 and 1989 for the MBNQA. They identified three major findings: greater success as measured by several yardsticks including profitability; each organization was unique with some common characteristics; and each experienced a time lag between implementation and results.

Fine (1996) relates the emotions of a quality audit with those of death, building on the work of Elisabeth Kubler-Ross's work on Death and Dying,

- Denial
- Anger
- Bargaining
- Depression
- Acceptance

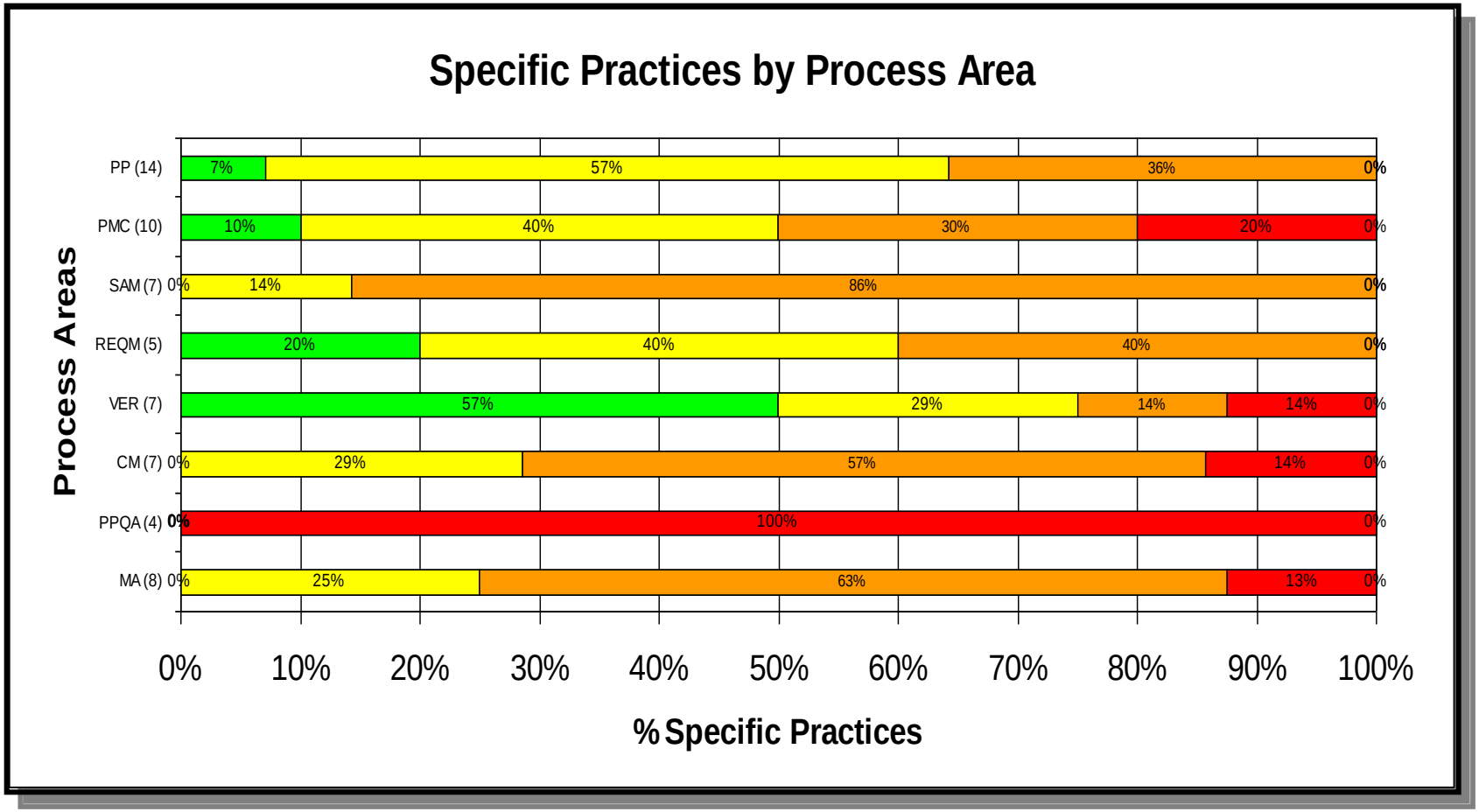
©2002 CSM 02-XXX

Interpreting the Results

Fully Implemented (FI)	Direct artifacts present and appropriate Supported by indirect artifact and/or affirmation No substantial weaknesses noted
Largely Implemented (LI)	Direct artifacts present and appropriate Supported by indirect artifact and/or affirmation One or more weaknesses noted
Partially Implemented (PI)	Direct artifacts absent or judged inadequate Artifacts or affirmations indicate some aspects of the practice are implemented One or more weaknesses noted *Projects that have not reached the point in the life cycle to have produced the necessary direct artifacts are rated PI and this would be accounted for when the instantiations are aggregated at the OU level practice rating.
Not Implemented (NI)	Any situation not covered by above
Not Rated	**Not included in the appraisal**

©2002 CSM 02-XXX

Typical First Appraisal (Class B w/6 projects)



©2002 CSM 02-XXX

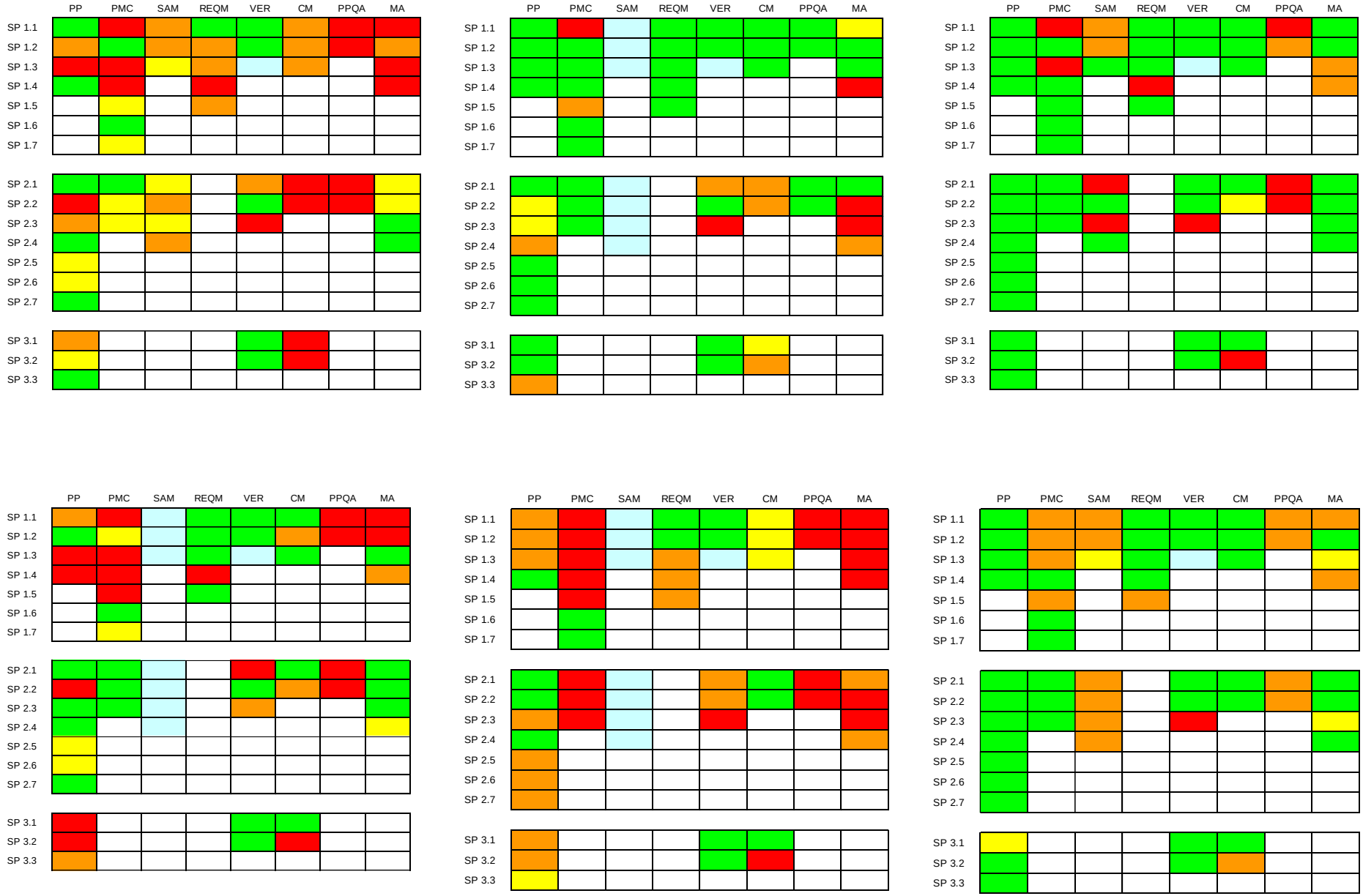
Typical First Appraisal (Class B w/6 projects)

Process Areas

Generic Practices		PP	PMC	SAM	REQM	VER	CM	PPQA	MA
GP 2.1	Establish an Organizational Policy								
GP 2.2	Plan the Process								
GP 2.3	Provide Resources								
GP 2.4	Assign Responsibility								
GP 2.5	Train People								
GP 2.6	Manage Configurations								
GP 2.7	Identify and Involve Relevant Stakeholders								
GP 2.8	Monitor and Control the Process								
GP 2.9	Objectively Evaluate Adherence								
GP 2.10	Review Status with Higher Level Management								

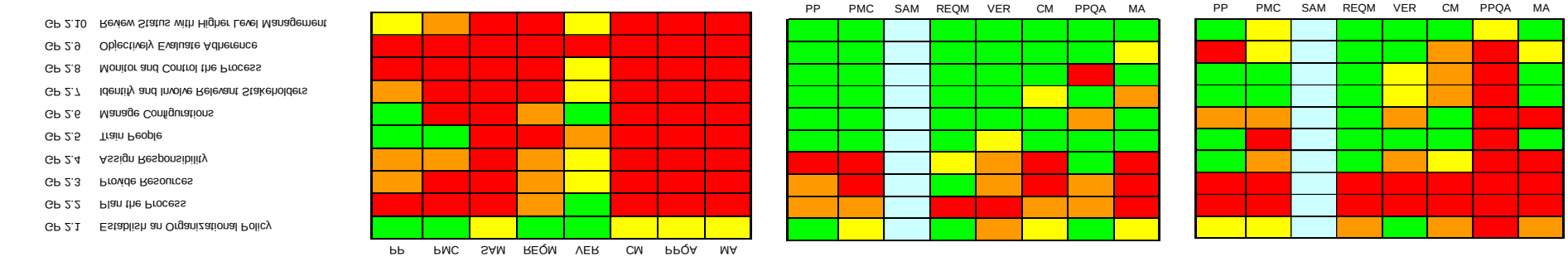
©2002 CSM 02-XXX

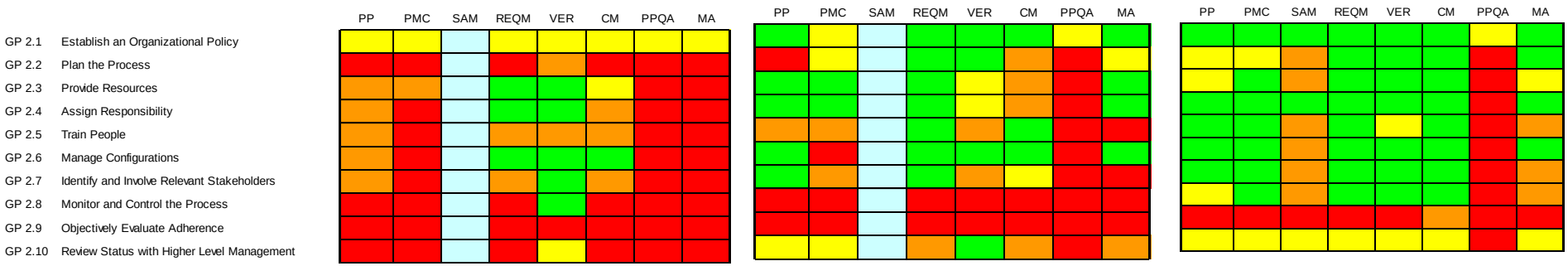
Different Views – Specific Practices



©2002 CSM 02-XXX

Different Views – Generic Practices





©2002 CSM 02-XXX

General Recommendations

Start Small

- **Focus your process improvement energy on a small group to start**
- **Pick a part of your organization that is**
  - Relatively coherent in team structure
  - Motivated (or at least willing) to be a pilot project

Start Slow

- **Don't go for Maturity Level 3 right away**
- **Pick reasonable goals that are reasonably reached quickly**
  - Use continuous representation to focus on problem process areas and target capability level 2
  - Consider the organizational infrastructure process areas early (OPF, OPD, OT) for capability level 3
  - Don't plan to skip Maturity Level 2, there's benefit in celebrating early success

Start Simple

- **Avoid the temptation to write a process for every Process Area**
- **Keep new process documentation at the "expert level", add detail only when needed for clarification**

©2002 CSM 02-XXX

Specific Appraisal Preparation Recommendations
A notional schedule

Week 1

- **Pick pilot projects**
- **Pick organizational appraisal team members**

Week 2

- **Conduct Appraisal Team Training (include a project representative)**
  - Appraisal Methodology
  - Process Implementation Indicator Descriptions

Weeks 2-5

- **Prepare PIIDs**
- **Get expert help for people preparing PIIDs**
  - Additional Appraisal Team Training using real PIIDs
- **Conduct readiness review**

Week 6 - Conduct appraisal

Spend some time assimilating the results

©2002 CSM 02-XXX