




***NORTHROP GRUMMAN***

DEFINING THE FUTURE



# Policies, Processes, Procedures, Plans – What's the Difference?

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# Background

- **Policies, processes, procedures, and plans are key to implementing the CMMI in an efficient and effective manner**
- **Unfortunately, the CMMI offers little guidance on approaches for defining these critical process assets, and the open literature provides few examples**
- **This presentation provides practical explanations of how these terms are used in the CMMI, and proven options for defining and structuring these documents**
- **The focus is on creating usable documents that satisfy the CMMI, while providing value to customers, project managers, and engineers**

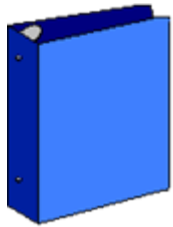
- **A Top-Level Comparison**
  - **Policies**
  - **Processes**
  - **Procedures**
  - **Plans**
  - **Lessons Learned**
- ✓ **Definition**
  - ✓ **Usage**
  - ✓ **Construction**

# A Top-Level Comparison



**Policy**

**High-level “what” to do  
(organizational guidance)**



**Process**

**High-level “how” to do  
(organizational standard, tailored by projects)**



**Procedure**

**Low-level “how” to do  
(details needed to follow a strategy)**



**Plan**

**Instantiation of the process  
(how often, when, etc.)**

# (Organizational) Policies



“A guiding principle typically established by senior management that is adopted by an organization to influence and determine decisions.”

- *Glossary, CMMI-DEV v1.2*

- **Policies provide guidance, to Project Managers and other functional groups, on required activities (what to do)**
- **Example:**
  - “All projects shall establish and maintain a Risk Management Plan”
- **Performers follow their plans, processes, and procedures, which must reflect the policies**
  - Need not be familiar with the policies

## **GP 2.1 Establish an Organizational Policy**

*Establish and maintain an organizational policy for planning and performing the process.*

- **“Establish and maintain” includes usage (see Glossary), suggests someone must audit for compliance with policies**
  - Both projects and functional groups

# Constructing Policies – Option 1

- **Goals are required, so... Make each specific and generic goal in CMMI into a policy statement**

CMMI for Development  
Version 1.2

Although the primary emphasis of the Risk Management process area is on the project, the concepts can also be applied to manage organizational risks.

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**Related Process Areas**

Refer to the *Project Planning* process area for more information about identification of project risks and planning for involvement of relevant stakeholders.

Refer to the *Project Monitoring and Control* process area for more information about monitoring project risks.

Refer to the *Decision Analysis and Resolution* process area for more information about using a formal evaluation process to evaluate alternatives for selection and mitigation of identified risks.

**Specific Goal and Practice Summary**

SG 1 Prepare for Risk Management

- SP 1.1 Determine Risk Sources and Categories
- SP 1.2 Define Risk Parameters
- SP 1.3 Establish a Risk Management Strategy

SG 2 Identify and Analyze Risks

- SP 2.1 Identify Risks
- SP 2.2 Evaluate, Categorize, and Prioritize Risks

SG 3 Mitigate Risks

- SP 3.1 Develop Risk Mitigation Plans
- SP 3.2 Implement Risk Mitigation Plans

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**Specific Practices by Goal**

**SG 1 Prepare for Risk Management**  
*Preparation for risk management is conducted.*

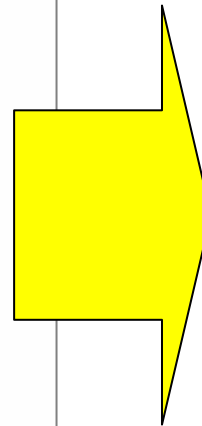
Preparation is conducted by establishing and maintaining a strategy for identifying, analyzing, and mitigating risks. This is typically documented in a risk management plan. The risk management strategy addresses the specific actions and management approach used to apply and control the risk management program. This includes identifying the sources of risk; the scheme used to categorize risks; and the parameters used to evaluate, bound, and control risks for effective handling.

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**SP 1.1 Determine Risk Sources and Categories**  
*Determine risk sources and categories.*

Identification of risk sources provides a basis for systematically examining changing situations over time to uncover circumstances that

Risk Management (RSKM) 421



## Risk Management

- Policy 1 Projects shall conduct preparation for risk management.
- Policy 2 Projects shall identify and analyze *risks to determine their relative importance.*
- Policy 3 Projects shall handle and mitigate risks are handled and mitigated, where appropriate, to reduce adverse impacts on achieving objectives.
- Policy 4 Projects shall institutionalize Risk Management as a defined process.

# Constructing Policies – Option 2

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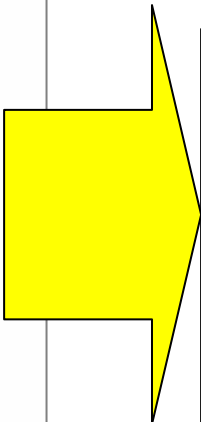
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- Practices are expected, so... Make each specific and generic practice in CMMI into a policy statement



Risk Management

Policy 1 Projects shall determine risk sources and categories.

Policy 2 Projects shall define the parameters used to analyze and categorize risks,

Etc.

- Since practices are only expected, must create an opportunity for the unexpected – a deviation!
  - Does the approach still meet the CMMI goal?





“A documented expression of a set of activities performed to achieve a given purpose. A process description provides an operational definition of the major components of a process. The description specifies, in a complete, precise, and verifiable manner, the requirements, design, behavior, or other characteristics of a process.”

- *Glossary, CMMI-DEV v1.2*

- **Processes describe the steps to be taken**
  - Typical process established in the organizational standard process
  - Tailored by the project to fit their needs

## **GP 3.1 Establish a Defined Process**

*Establish and maintain the description of a defined process.*

- **“Defined process” means tailored from an organizational standard process**
  - Both projects and functional groups must tailor
- **The detail of the processes is driven by the similarities between project needs**
  - If projects are similar, one size fits all
  - The more your project is different than the typical project in the organization, you more tailoring you need
- **Tailoring does not require approval**
  - Policies already define the acceptable limits (i.e., tailor as much as desired as long as you don't violate policy)

## Typical attributes of each process element (per CMMI)

- Process roles
- Applicable standards
- Applicable procedures, methods, tools, and resources
- Process-performance objectives
- Entry criteria
- Inputs
- Product and process measures to be collected and used
- Verification points (e.g., peer reviews)
- Outputs
- Interfaces
- Exit criteria

# Constructing Processes – Option 1

- Practices are expected, so... Make each specific and generic practice in CMMI into a process description step

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**Related Process Areas**

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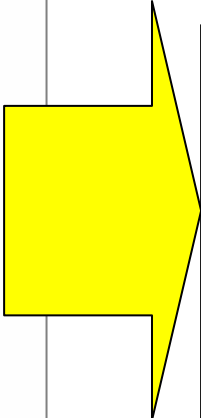
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**Risk Management**

Step 1 Project determines risk sources and categories.

Step 2 Project defines the parameters used to analyze and categorize risks,

Etc.

- Tailoring may create a problem in meeting the goal

# Constructing Processes – Option 2

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- If more detail is desired, add subpractices

## Risk Management

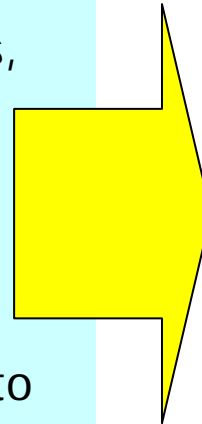
- Step 1 Project determines risk sources.
- Step 2 Project determines risk categories.
- Step 3 Project defines consistent criteria for evaluating and quantifying risk likelihood and severity risks.
- Step 4 Project defines thresholds for each risk category.
- Step 5 Project defines bounds on the extend to which thresholds are applied against or within a category.

Etc.

- Note: subpractices only represent one way practices might be met

## Typical attributes of each process element (per CMMI)

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- Applicable procedures, methods, tools, and resources
- Process-performance objectives
- Entry criteria
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- Interfaces
- Exit criteria



### Risk Management

- Step 1 **Project manager** determines risk sources.
- Step 2 **Project will use the XXX risk categories.**
- Step 3 Project defines consistent criteria for evaluating and quantifying risk likelihood and severity risks **in the Risk Management Plan.**
- Step 4 Project defines thresholds for each risk category.
- Step 5 Project defines bounds on the extend to which thresholds are applied against or within a category **as per procedure YYY.**
- Etc.

# Plan vs. Process Description

## Plan

- Description of activities
- Resources (including funding, people, and tools)
- Schedule
- Assignment of responsibility and authority

**GP 2.3**

**GP 2.4**

*At Level 2, plans describe what to do*

*At Level 3, the existence of a process description means that plans become much shorter*

- Focus is on instantiating the process (e.g., how often a process executes)

## Process Description

**GP 3.1**

- Process roles
- Applicable process and product standards
- Applicable procedures, methods, tools, and resources
- Process performance objectives
- Entry criteria
- Inputs
- Product and process measures to be collected and used
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- Outputs
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## GP 2.2

### *GP 2.2 Establish and maintain the plan for performing the process.*

- **Plan = description of activities + budget + schedule**
  - Description of activities is addressed in GP 3.1 (process description)
  - Budget is addressed in GP 2.3; resources in GP 2.4
- **Schedules for some process areas may be tied to program events**
  - E.g., DAR events may not be separately shown on a schedule, but plans should make clear the conditions under which a DAR is to be conducted