

# Process and Procedure Definition: A Primer

Mike Bandor  
Member of the Technical Staff  
Acquisition Support Program  
[mbandor@sei.cmu.edu](mailto:mbandor@sei.cmu.edu)



# Overview

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What is a “process”?

Definitions

Varieties of Processes & Procedures

Why Do They Need to be Defined?

Components

Documentation Relationships

Documentation Methods

Documenting Processes Example

Documenting Procedures Example

Group Exercise

References



# What Is a Process - 1

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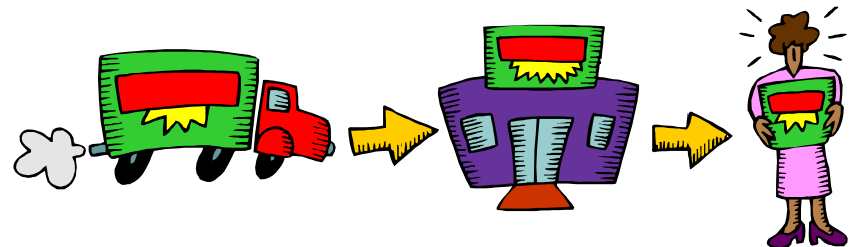
A process is not the same thing as a procedure

A process is not a:

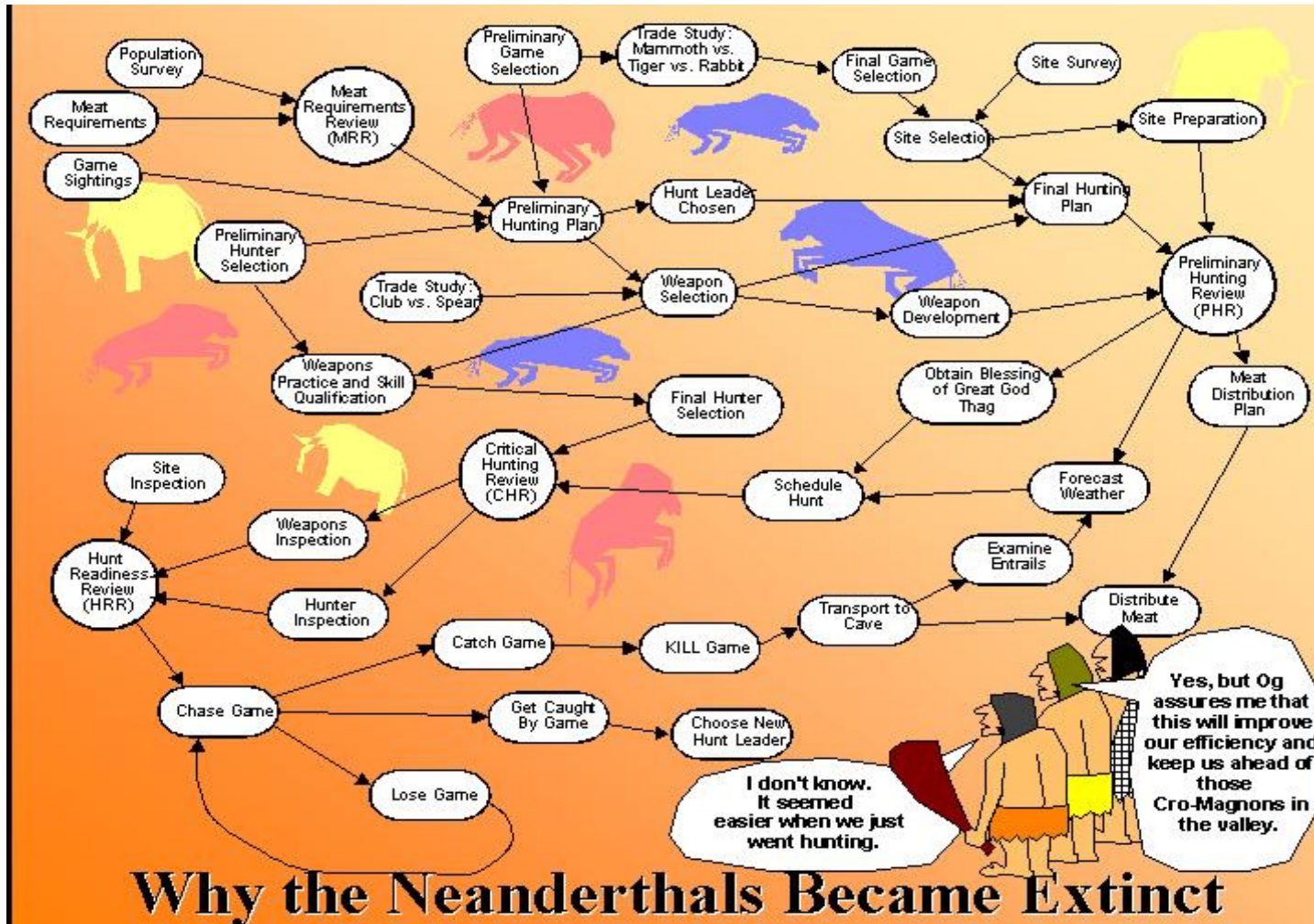
- High-level flowchart
- Lifecycle standard (e.g. Mil-Std-498)
- Tool

A process defines “what” needs to be done and which roles are involved

A procedure defines “how” to do the task and usually only applies to a single role



# What Is A Process - 2

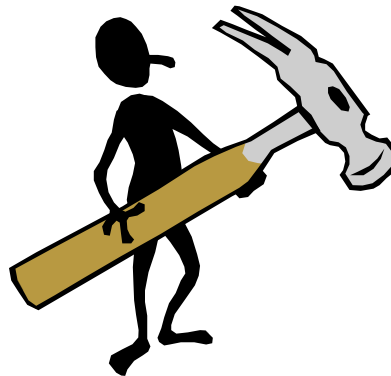


# What Is A Process - 3

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A process consists of the following:

- Roles and responsibilities of the people (roles) assigned to do the work
- Appropriate tools and equipment to support individuals in doing their jobs
- Procedures and methods defining “how” to do the tasks and relationships between the task



# Definitions – 1

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## Dictionary.com:

- A systematic series of actions directed to some end: *to devise a process for homogenizing milk.*
- A continuous action, operation, or series of changes taking place in a definite manner: *the process of decay*

## Capability Maturity Model Integration (CMMI) V1.2:

- *In the CMMI Product Suite, activities that can be recognized as implementations of practices in a CMMI model. These activities can be mapped to one or more practices in CMMI process areas to allow a model to be useful for process improvement and process appraisal. (See also “process area,” “subprocess,” and “process element.”)*



# Definitions – 2

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## **Process Description** (as defined by the CMMI V1.2):

- *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. It also may include procedures for determining whether these provisions have been satisfied. Process descriptions can be found at the activity, project, or organizational level.*



# Definitions – 3

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## Managed Process (as defined by the CMMI V1.2)

- *A performed process that is planned and executed in accordance with policy; employs skilled people having adequate resources to produce controlled outputs; involves relevant stakeholders; is monitored, controlled, and reviewed; and is evaluated for adherence to its process description. (See also “performed process.”)*

## Defined Process (as defined by the CMMI V1.2)

- *A managed process that is tailored from the organization’s set of standard processes according to the organization’s tailoring guidelines; has a maintained process description; and contributes work products, measures, and other process improvement information to the organizational process assets. (See also “managed process.”)*





# Varieties of Processes & Procedures - 1

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## “As-is”

- Defines how you are doing business today
- Provides a baseline for future improvement efforts



## “To-be”

- Defines future (e.g. new and improved) process with a desired end-state
- “Paving over the cow path” does NOT constitute a “to-be” process (i.e., nothing of any significance is done).



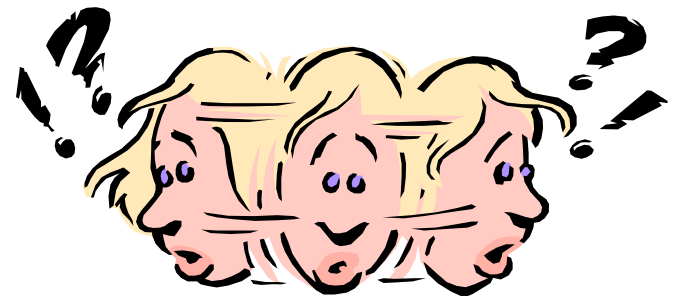
# Why Define Processes & Procedures - 1

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Consider the following questions:

- Is the process important for the *business goals*?
- Is there *only* one person who knows *how* to do the task?
- Do *many* people perform the task, but one way is *preferred*?

If you can answer “Yes” to any one of these questions, then you **NEED** to define your processes!



# Why Define Processes & Procedures - 2

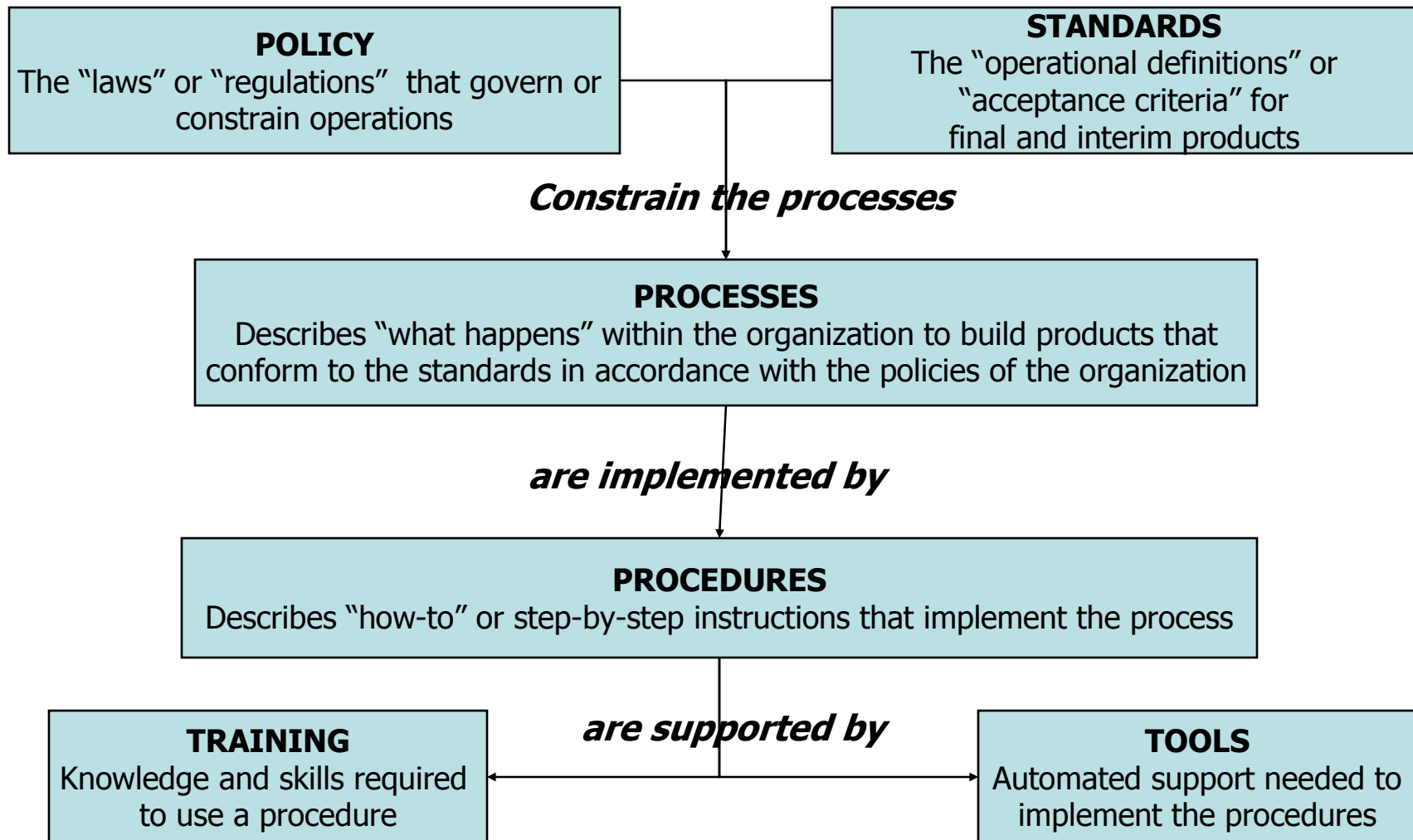
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Benefits of defining your processes and procedures:

- Provides visibility into areas of quality, productivity, cost and schedule
- Improves communication and understanding
- Aids in the planning & execution of plans
- Provides the ability to capture Lessons Learned
- Helps facilitate the analysis/execution of organization-wide processes
- Provides basis for training & skills assessment



# Documentation Relationships



# Common Components - 1

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## Process and Procedure components

- Identifier
- Name
- Purpose
- Owner
- Entry & Exit Conditions
- Input & Output required
- Roles & Activities (steps)
- Methods & Tools
- Measurement(s)
- Review(s)
- Training & References



# Common Components - 2

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## Identifier

- Unique identifier; shows where the process fits within a hierarchy of processes (e.g. SQA 1.2.1)
- Procedures may not necessarily have an identifier
- Not the same as the Configuration Identifier

## Name

- The name of the process or procedure being performed
- Starts with a verb (e.g. Perform Document Peer Review)

## Purpose

- Describes what is accomplished & when it is to be accomplished



# Common Components - 3

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## Owner

- Describes what organization or work center “owns” and is responsible for the process and its description

## Entry & Exit Conditions

- Not the same as Input & Output – conditions are a “state”
- Conditions that must be met before starting or exiting
- Entry conditions can also be thought of as “trigger events”



## Input & Output

- Items needed to perform the process/procedure (input)
- Items that are created (artifacts) as part of the process/procedure (output)
- Input can be modified and become an output



# Common Components - 4

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## Roles & Activities (steps)

- Activities define what steps are being performed
- Roles define who is performing the step
- Procedures are usually defined for a single role
- Process activities are defined at a high-level and decomposed into lower levels (e.g. each step may be a sub-process)



## Methods & Tools

- Lists what tools (e.g. MS Word, Test Director, etc.) is used





# Common Components - 5

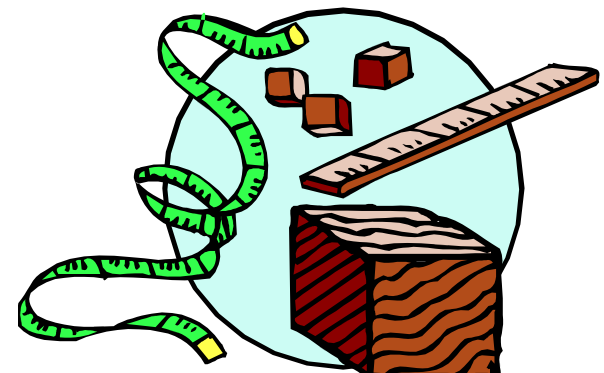
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## Measurement(s)

- What measurement(s) are performed as part of this process or procedure (e.g. number of defects found, review time, etc.)

## Review(s)

- Lists what reviews are accomplished as part of the process or procedure (e.g. Branch Chief Review, QA Rep Review, etc.)



# Common Components - 6

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## Training

- What training is needed in order to perform the process or procedure

## References

- Lists reference material (e.g. checklists, AFIs, user manuals, etc.) necessary

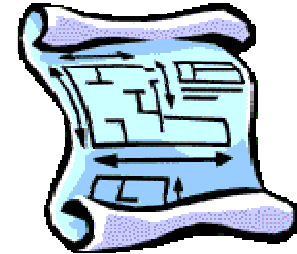


# Documentation Methods - 1

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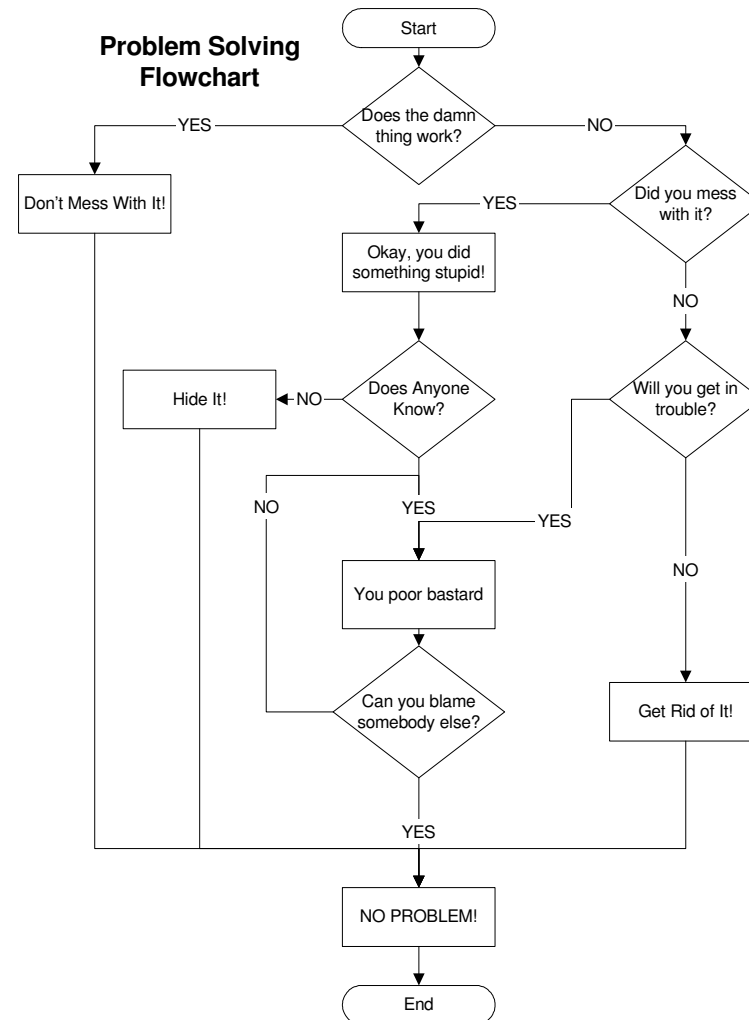
Different methods can be used

- Graphical
  - Flowcharts
  - Cross-functional diagrams
  - Integrated Definition for Functional Modeling (IDEF) diagrams
- Narrative description
  - Entry-Task-Verification/Validation-eXit (ETVX)

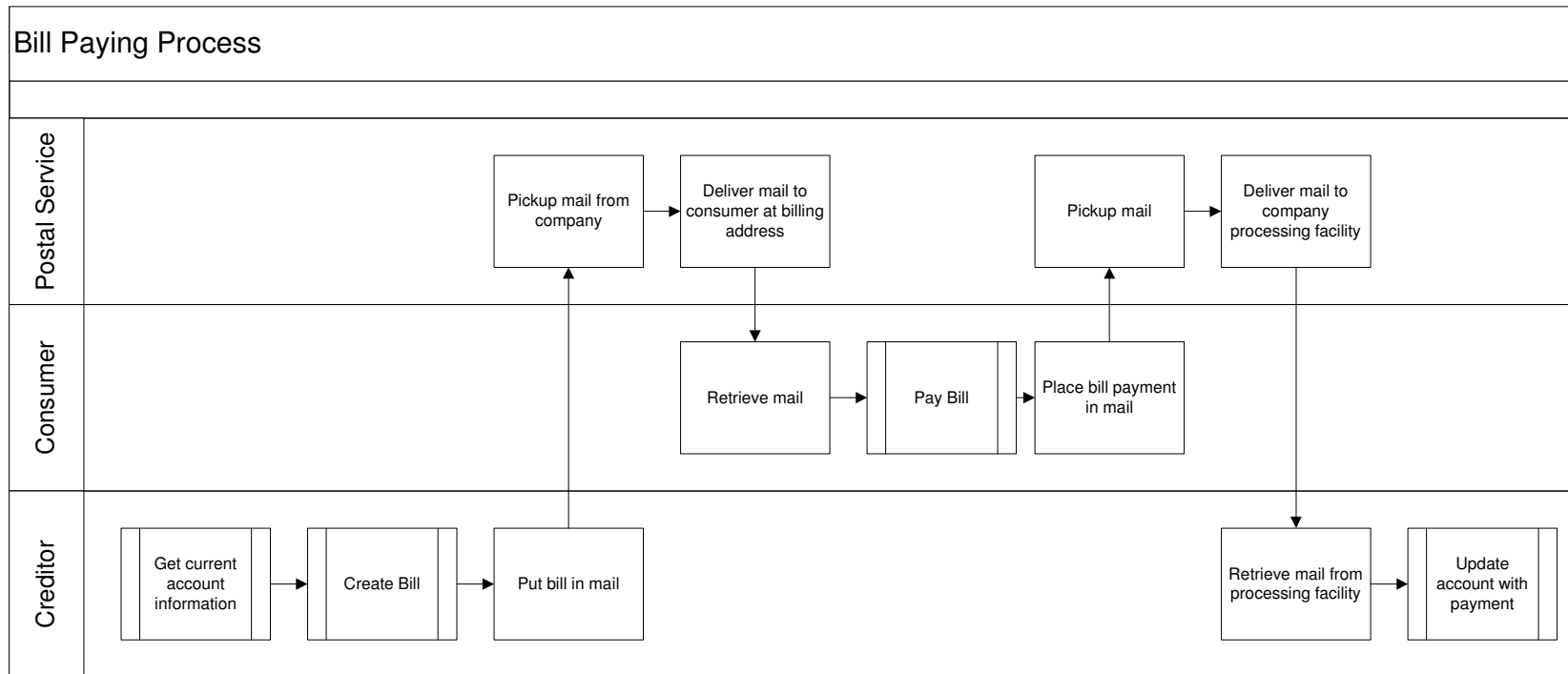


# Documentation Methods - 2

- Flowcharts show activities, decisions, etc
- Standard symbols used



# Documentation Methods - 3

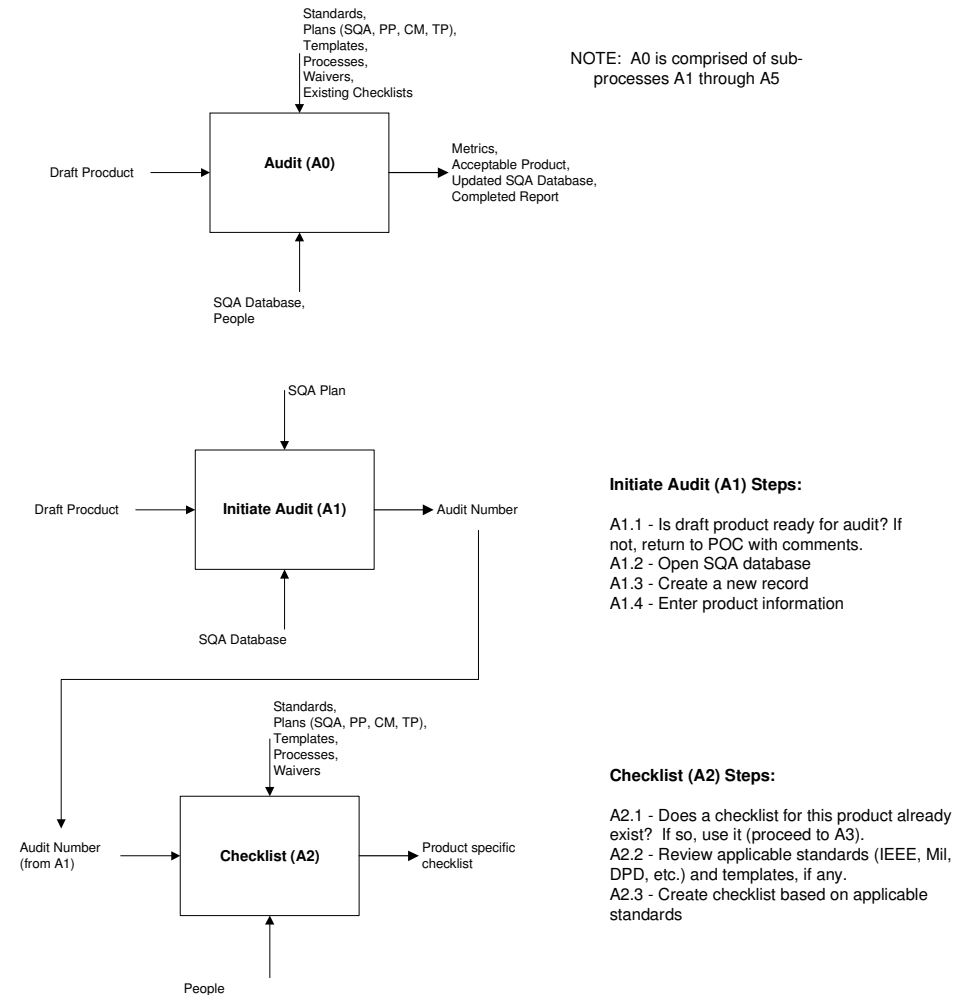


- Cross-Functional Diagram (a.k.a "swim lane" diagram)
- Shows roles and functions performed
- Uses standard symbols

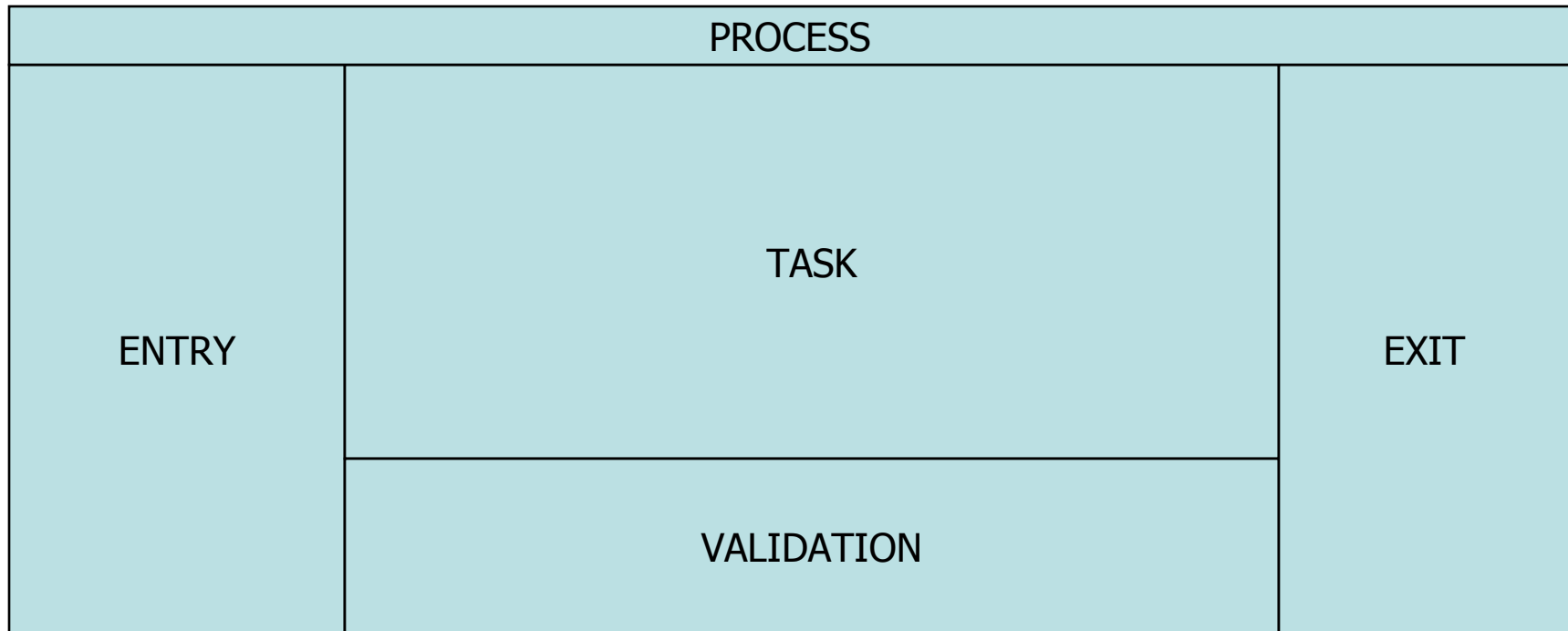


# Documentation Methods - 4

- IDEF Diagrams
- International standard
- Standard symbols used
- Shows input (material, requirements, equipment, etc.), Control mechanisms, Agents (humans, machines, & software), and output (products, services, etc.)
- Decomposed into lower-level activities



# Documentation Methods - 5



- ETVX originated by IBM in 1980's
- Indicates the entry criteria (state), the tasks to be performed, the validation/verification criteria, and exit conditions (state)



# Documentation Samples

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## Implementation Samples:

- Process Specification Template Sample
  - Tailored versions of ETVX format
- Can be supplemented with additional documentation (flowcharts, cross-functional diagrams, etc.)
- Procedure Specification Template Sample
  - Similar to Process Specification Template
  - Intended for greater level of detail
- Procedural Checklist Template Sample
  - Used in cases where a checklist is a better implementation (e.g. discrete tasks that have to be performed and verified)





# Documenting Processes Example - 1



## Specific Guidance

- Process Title: includes the unique identifier (e.g. SQA 1.2.1) as well as the name of the process
- Version: use form of “x.x” for version control
- Revised: Date of last revision
- Owner: owner of the process (office symbol)
- CID: Configuration ID (used by Configuration Management)
  - Not the same as the Identifier
  - Left blank while in draft form
  - Needs CID assigned once approved



# Documenting Processes Example - 2



## Specific Guidance (cont)

- Purpose: self explanatory
- Entry & Exit Conditions: self explanatory
- Input: self explanatory
- Output: artifacts produced
  - High-level definition uses bullet format
  - Lower-level definition uses legal-style format; matches process step numbering
  - At the high-level definition, only show the final products from the lower-level processes (not intermediate products)



# Documenting Processes Example - 3



## Specific Guidance (cont)

- Process Steps:
  - Numbering should match identifier sequence (e.g. if process ID is 2.0, then first process step is 2.1, etc.)
  - Starts with a verb phrase (e.g. perform, conduct, create, etc.)
  - Do not exceed 3 levels of decompositions (e.g. x.x.x.x is maximum depth)
  - If process steps exceed 8-10, then decomposition needs to be reexamined
  - Include procedure names when referencing procedures
  - Processes may call other pre-defined processes (include process identifier in the step)



# Documenting Processes Example - 4



## Specific Guidance (cont)

- Roles: list roles (not people) performing the activities
  - Role list in template is tailorable (provided as a sample)
- Activities: (listed across the top; includes the numbering)
  - Use the pre-defined list of activities
  - Key activity being performed should be annotated with a bold-face font



***TIP: The table information can be used as the basis for a cross-functional diagram***



# Documenting Processes Example - 5



## Specific Guidance (cont)

- Methods & Tools: self explanatory (don't forget about the MS Office software)
- Measurements:
  - List of measurements that should be taken
  - Don't list all possible measurements
  - Not a set of standard process metrics (varies from process-to-process)
- Reviews: list any reviews from the process steps (defined as part of the process)



# Documenting Processes Example - 6



## Specific Guidance (cont)

- Training: list any specific training needed to perform the process
- References
  - List any references used (standards, checklists, guides, etc.)
  - Check against Input section!



*TIP: Whiteboard sessions work very well for initial definition sessions!*



# Documenting Procedures Example - 1

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## Procedure Specifications

- Uses the Procedure Specification Template as standard format
- Provides specific information for each entry in the specification
- Format is slightly different than process definition
  - Assumed to be a single role but can include multiple roles if the situation calls for it
  - Greater level of detail in a single definition
- Checklist variant of the template can also be used where a checklist makes more sense (e.g. Database Administration steps, etc.)



# Documenting Procedures Example - 2



## Specific Guidance

The same guidance used for processes is used for procedures with the following exceptions:

- Roles
  - List of Role or Roles involved in performing the tasks
- Summary of Tasks
  - List of Task (summary) to be performed
  - Uses legal-style numbering
  - Start with 1.1 (1.0 is assumed with the title of the procedure)





# Documenting Procedures Example - 3



## Specific Guidance (cont)

- Procedure Steps
  - For each task (from Summary of Tasks) provide the detailed steps (in order) to accomplish the specified task
  - Provide as much as the “click on...” and “enter xxx” detail as necessary
  - Task steps will be prefaced with “Step” and sequentially numbered
    - Numbering for each task step will restart with each task
  - Only 1 action will be performed per step
  - If additional info is needed to clarify the step (e.g. if a message appears, etc.) make sure it is included
  - If more than 1 role is involved in the task, be sure you identify which role performs the specific steps



# Group Exercise

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As a group, define the “going to work” process

- Use the whiteboard to capture the information
- Give some thought to “trigger events”, input needed, activities being performed (keep in mind gender differences in the process steps), etc.
- Have fun!



# References

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# Contact Information

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Mike Bandor  
Member of the Technical Staff  
Acquisition Support Program  
Software Engineering Institute (SEI)  
Carnegie Mellon University  
[mbandor@sei.cmu.edu](mailto:mbandor@sei.cmu.edu)  
210-380-5563

<http://www.sei.cmu.edu/programs/acquisition-support/>

