Process that Works: liberating software projects

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A process specification is not a process

A process specification
is not a plan.

A process specification should stabilize and improve process capability

A process specification places constraints on the process

The commandments

- Specify a process if you will do it at least three times.
- Don’t confuse a process specification with the process.
- Seek to stabilize and improve the process capability.
- Don’t place unnecessary constraints on the people who do the activities.

Users want to feel good

- Order
  - discipline
  - knowing what to expect
  - coordination
- Freedom
  - flexibility
  - no micro-management
- Simplicity

Users want a conscience

- “We ought to do this, so make it a rule.”
- Do not agree to add “conscience” items.
  - It guarantees the users will feel guilty and inadequate.
  - “Never give an order that will not be obeyed.”

Users want usable process specifications

- for coordination
  - plans, agreements, expectations
- for education
  - but don’t audit me to this!
- for discipline
  - the rules & policies for the organization
- for remembering
  - don’t accidentally forget anything

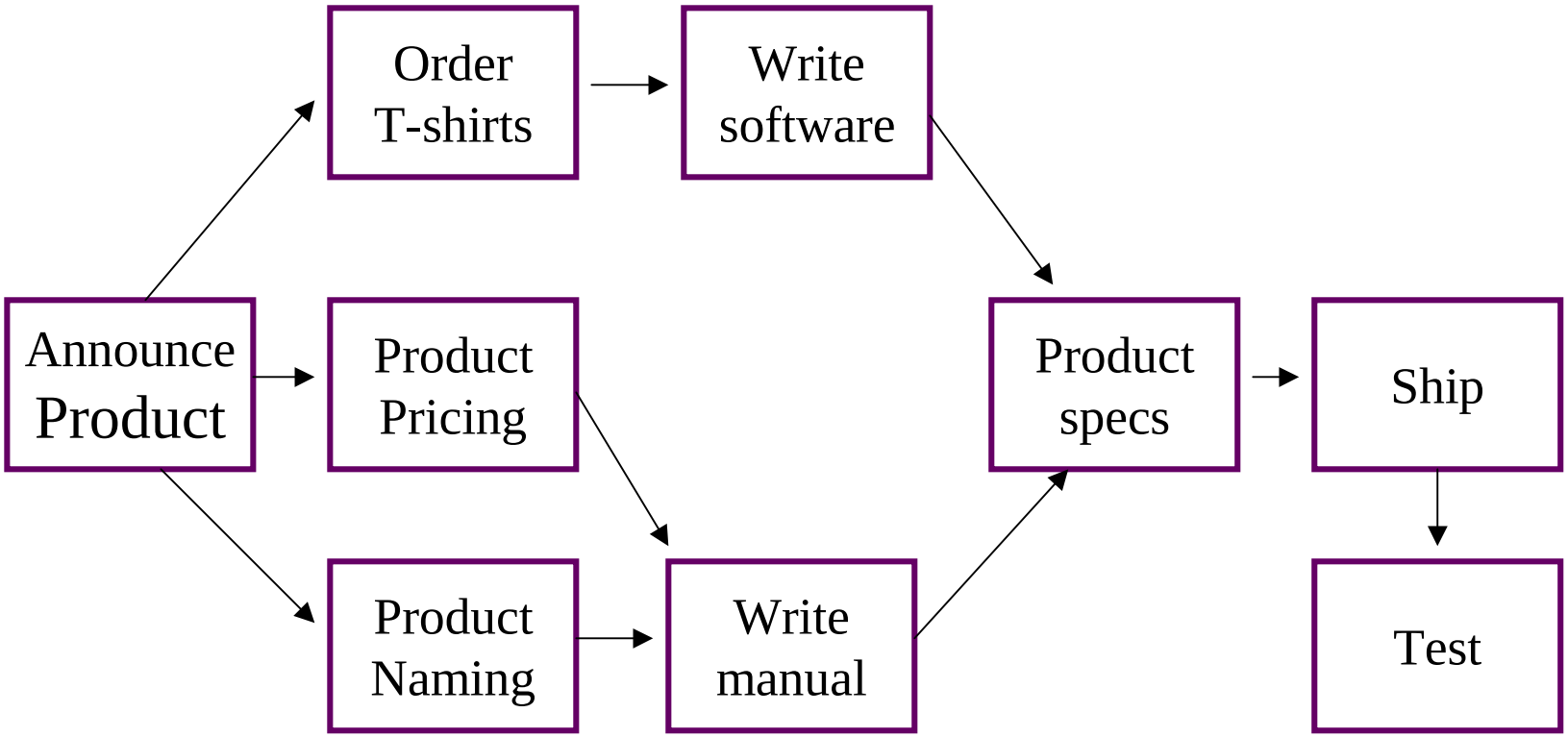
The commandments

- Don’t constrain people unnecessarily.
  - Base the process specification on risks projects really face.
- Do not specify things people ought to do, but won’t
  - Never give an order that won’t be obeyed.
- Select techniques adapted to how your process specification will be used.

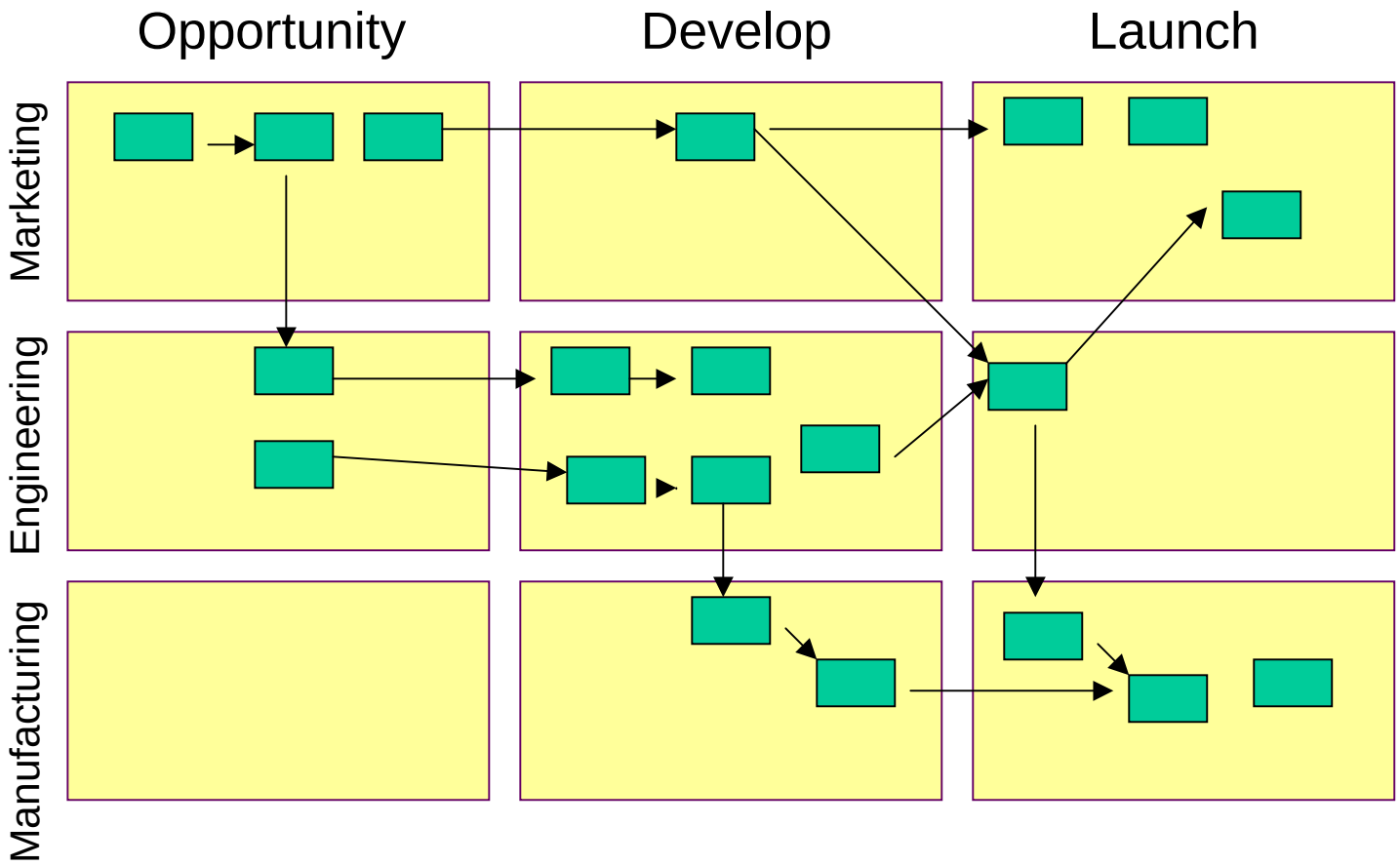
Traditional techniques
Big binders

- Process overview
- Detailed descriptions of activities
- Educational and prescriptive material
- Diagrams
- Structured text
- Tailoring instructions

Graphic techniques
Boxes and arrows



Graphics techniques
Roles and phases



Graphics techniques
Advanced modeling methods

- Petri nets
  - requires high level of completeness
  - good for dynamic modeling of a process
  - good analytical tool
- Harel statecharts
  - models several dimensions of a process
  - can be used for simulations
  - good tool for process understanding

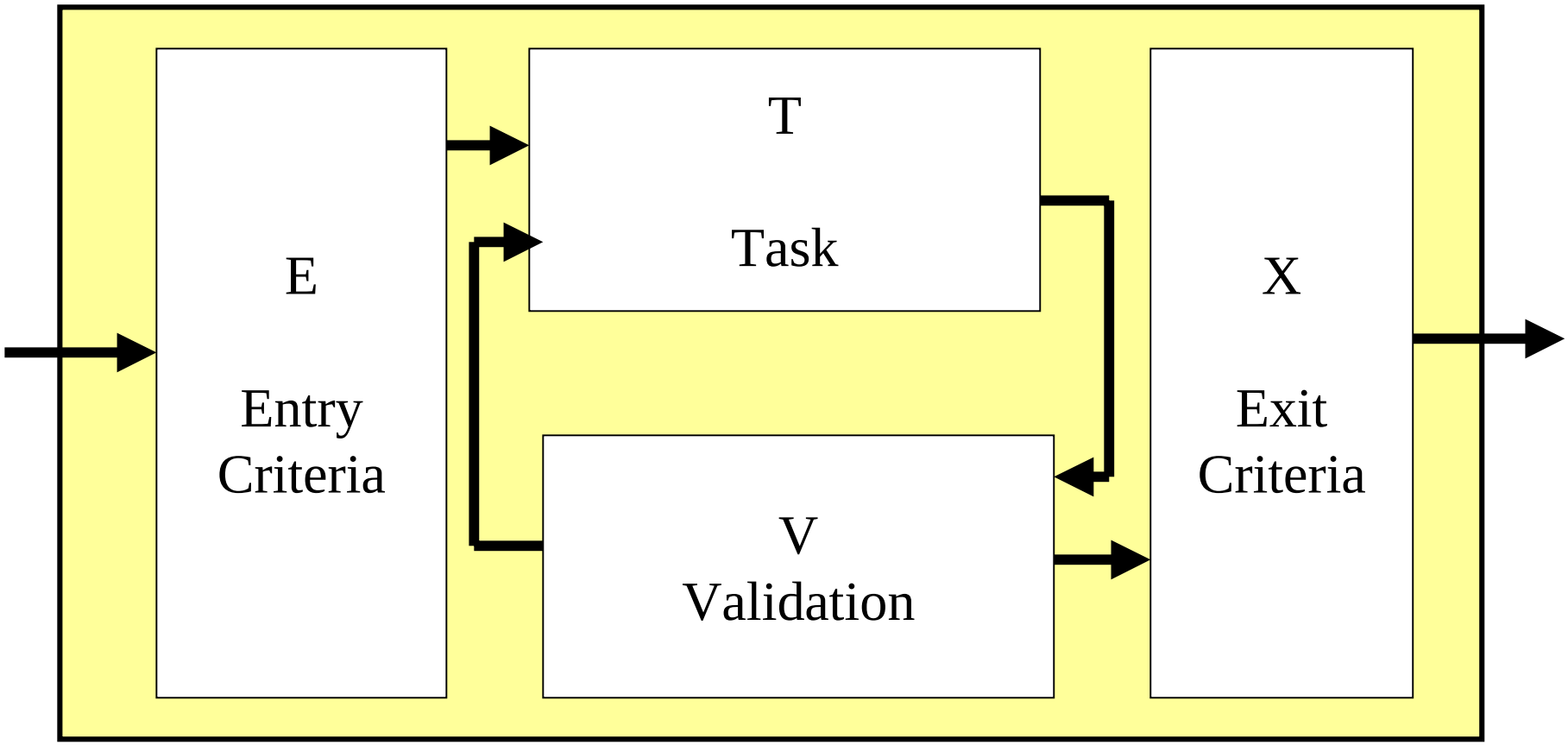
Graphics techniques Summary

- good for discussions about process
- good for presenting a process overview
- for simplicity, the diagram must be kept at a high level
- needs to be supplemented by text
- well-defined boxes, ambiguous arrows
- hard to show options on a diagram
- ambiguities resolved by adding complexity
- may miss the critical factors for stabilizing process capability
- focuses attention on the handoffs; encourages design by sequence of handoffs.

The commandments

- Use graphic techniques for discussions about process.
- Be clear about what your arrows mean.
- Reduce handoffs
- Don’t give up flexibility just because it’s hard to show in a diagram.
- Don’t use graphics techniques to specify rules for your process.

Textual techniques
ETVX



Textual techniques
CMM

- inputs
- entry criteria
- activities
- roles
- measures
- verification steps
- outputs
- exit criteria

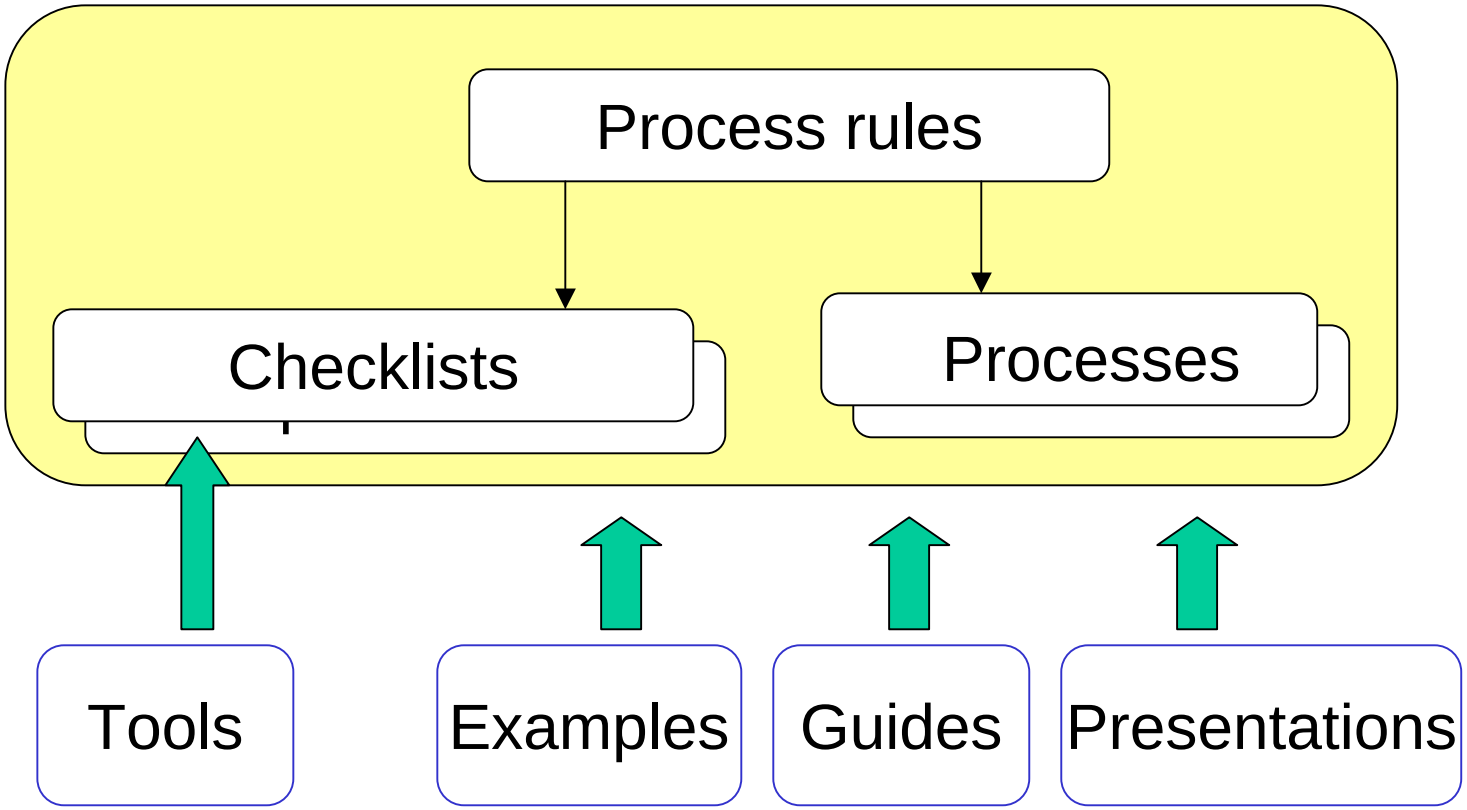
Textual techniques Summary

- Strong temptation to include unnecessary material
  - Tends to micro-manage developers
- Tends to get large and boring.
  - someone will have to maintain it
  - users don’t want to be intimidated
- A good framework for systematically asking questions about an activity

The commandments

- Don’t be complete.
  - Specify only the things that matter.
  - Don’t focus on form
  - Don’t be afraid of not specifying something
- Keep it simple.
- Use ETVX, or CMM, as a checklist for activity *descriptions.*
  - Useful in a process asset database
  - Useful in education

A new architecture for process specifications



The process rules

- layered
- apply uniformly to everyone

Configuration Management.

Configuration Management includes version control, the build process and change management. Each project must describe what documents, deliverables, tools and other materials will be placed under configuration management. Each project must describe how it meets the following:

Version Control. A project must be able to retrieve any version of a specific configuration item. A project must describe the procedures used to check configuration items in and out of the managed repository.

Build Process. A project must be able to identify which elements under version control are part of specific baselines and builds. A project must be able to recreate a specific build from the elements under version control.

Change Control. A project must be able to identify the requests for changes to configuration items (both enhancements and problem reports). A project must describe how decisions are made about allowing or rejecting changes and scheduling them into specific baselines or builds. Change authorisation procedures may become more stringent over time.

The checklists

- two kinds:
  - what will we do?
  - how are we doing? or what's happening?
- specify content, not documents
  - a list of data items
  - allow projects to specify how to communicate the data
- a memory aid, not "one size fits all"
- updated after each post-mortem

The tools

- All the processes are available on the web.
- Checklist viewer
  - create custom views of checklists
  - for reviews and document comparisons
- Template maker
  - create templates for specific documents
  - user can choose format: MS Word or HTML

The new approach
Summary

- Rules, memory aids, advice, education and tools are separate.
- Each project has its own needs & risks.
- Projects can design communication mechanisms to meet their needs.
- Tools help people use the process specification.
- Everything is on the web.

The commandments

- Use different specifications for different audiences.
- Separate the rules from the checklists.
- Use checklists for memory aids.
- Use tools to make the process easy to do and to manage.
- Keep educational materials away from the auditor.

The commandments

- Understand the process before you specify it.
- Make sure the process can be monitored.
- Don’t be complete
  - only specify things that matter
  - work with your users to to determine what matters and what doesn’t

The commandments

- Reduce handoffs
  - handoffs destroy knowledge.
- Put everything on the web
- Put tools into the managers' hands
  - for checklist tailoring
  - for using checklists
  - for creating artifacts
  - for managing communications

Thank you!