

# Process Mistakes

(McConnell)

- Overly optimistic schedules
- Insufficient risk management
- Contractor failure
- Insufficient planning
- Abandonment of planning under pressure
- Wasted time during fuzzy front end
- Short-changed upstream activities

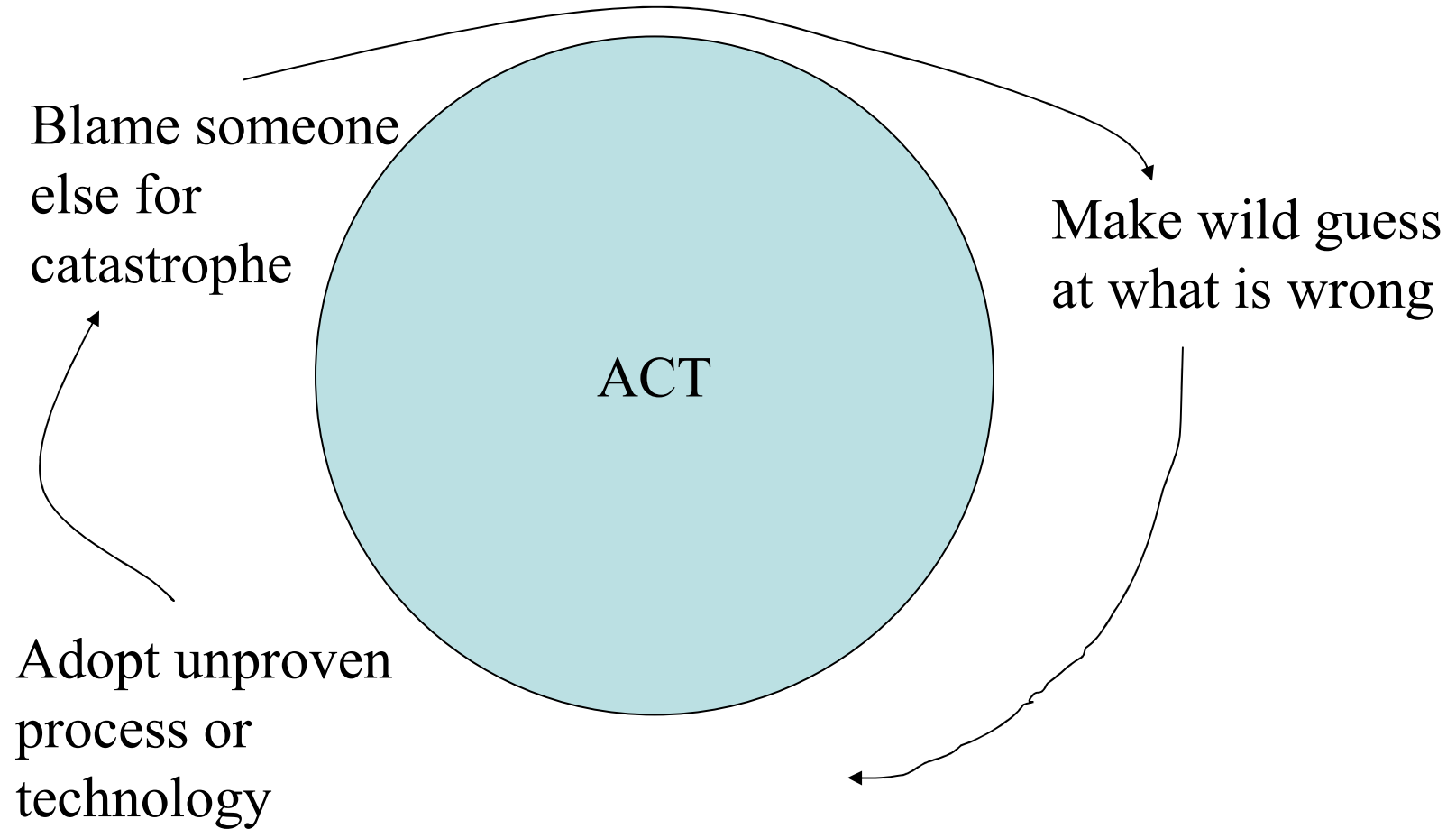
# More Process Mistakes

- Inadequate design
- Short changes quality assurance
- Insufficient management controls
- Premature or overly frequent convergence
- Omitting necessary tasks from estimates
- Planning to catch up later
- "Code-like-hell" programming

# McConnell Fixes

- Identify and fix classical mistakes
- Miniature milestones
- Milestone-based schedule
- Track schedule meticulously
- Record reasons for missed milestones
- Recalibrate early and often
- Don't commit to a new schedule until you can do so meaningfully
- Manage risks painstakingly

# The Dilbert Cycle



# Process Improvement (Shewart Cycle)

## 1. Plan

- What and why?

## 2. Do

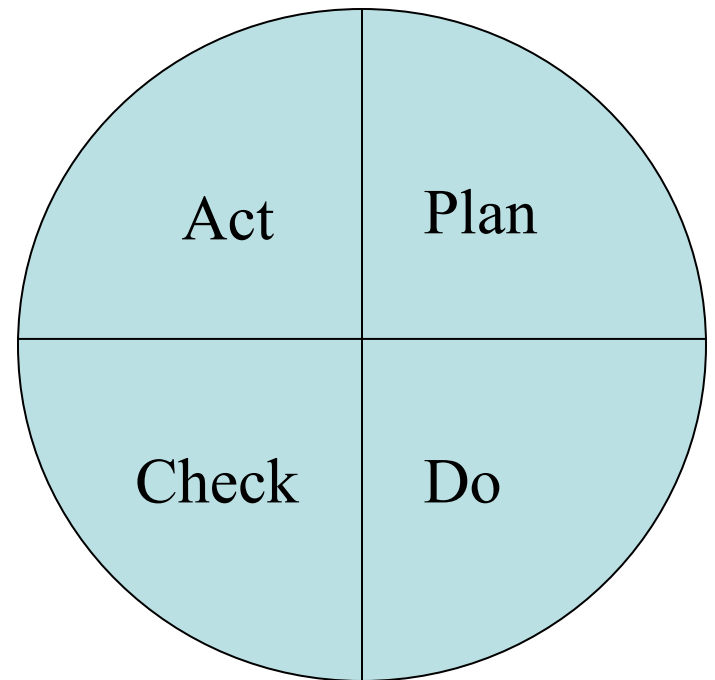
- How, when, and how much?

## 3. Check

- How will you know it worked?

## 4. Act

- How do you plan to fully adopt?



# 1. Plan

- Identify problem or opportunity
- Vision
  - Where do you want to be?
- Describe the current process
- Is the process in control? Is it repeatable?
- Identify possible weaknesses
- Strategic impact
  - Cost / benefit analysis, how effort supports core-competence, risk of not doing

## 2. Do

- Determine what changes might help
- Develop or purchase an evolution plan
- Implementation tactics
  - Major deliverables, organization maturity considerations, key role of infrastructure, coordination with other groups, timing to match user projects, hand-off criteria
- Select and implement a change on a pilot project
- People and resources
  - Sponsor and champion roles, user partners, people and expertise needed, hardware, software, space
- Schedule risks, contingency plans

# 3. Check

- Measure effect of change
  - Baseline measurement, prechange environmental characteristics, expected effect
- Postproject review, degree of adoption
  - Percentage of engineers using improvement, range of uses, maturity of usage



# 4. Act

- Adopt across organization
- Support strategy
  - Infrastructure changes, documentation, training, consulting, packaging, maintenance, feedback
- Continue cycle

# Key Metrics

- Lines of code
- Staff months
- Calendar months
- Defects

# Root Cause Analysis

- Determination of the underlying process deficiency that causes a class of product defects
  - Collect defect data
  - Determine causes
  - Organizational buy-in (tie to business goals)
  - Assign responsibility
- Variations
  - One-shot, postproject, continuous

# Third Party Audits / Assessments

- CMM: maturity model
- ISO9001: international standard
- SQPA: business practices; functional model
- QMS: business model
- Baldrige: Department of commerce; weighted criteria

# Guidelines for Process Improvement

- Incremental rather than big-bang implementation
  - Contrast with “Paradigm Shift”, “BPR”
- Use data
- Treat root causes not symptoms
- Workers know best how to do a process
  - Avoid consultants

# More Guidelines

- Today's problems come from yesterday's solutions
- The harder you push, the harder the system pushes back
- The easy way out usually leads back in
- The cure can be worse than the disease

# Still More Guidelines

- Faster is slower
- *Cause* and *Effect* are not closely related in time and space
- Small changes can produce big results, but the areas of highest leverage are the least obvious
- You can have your cake and eat it too, but not at the same time
- Dividing an elephant in half does not produce two small elephants
- "Fix the problem, not the blame"