Quality, Planning, Control, and Improvement Trilogy

June 8, 2011

Updated 10-16-11

Public Health Performance Management
Centers for Excellence

Learning Objectives

- Explain difference between Quality Control (QC), Quality Improvement (QI), and Quality Planning (QP)
- Map QC, QI, QP approaches to different quality models (languages)
- Apply key criteria to determine if best approach to start is QC, QI, QP
- List 1 possible area/process within your organization for each of the 3 approaches

Public Health Performance Management Centers for Excellence

Quality Methods & Tools (Public Health Standards Context)

Domain 9: Evaluate and continuously improve processes, programs, and interventions Evaluate the Effectiveness of Public Health Processes, Programs, and Interventions

Standard 9.1 B: Evaluate public health processes, programs, and interventions provided by the agency and its contractors.

Standard 9.2 B: Implement quality improvement of public health processes, programs, and interventions.

2010-2011 Standards for Public Health in Washington State (Local Public Health Agencies)

Poll

Are you using a particular quality model/language?

A. PDCA (PDSA)

B. Six-Sigma / Lean Six-Sigma

C. Other / Mix

D. Not sure yet

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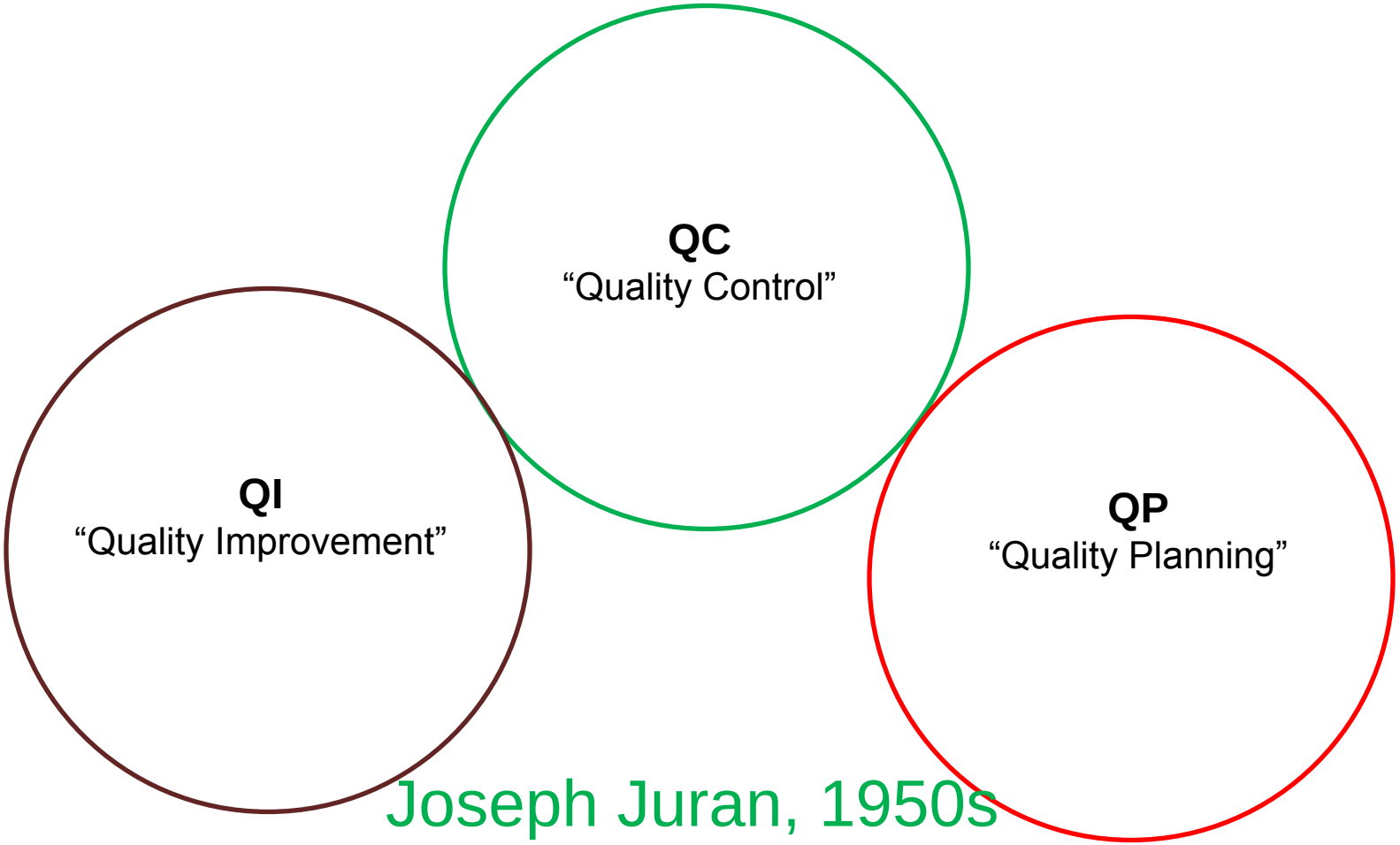
The Quality Management Trilogy



Joseph Juran, 1950s

Juran on Leadership for Quality, Free Press, 1989

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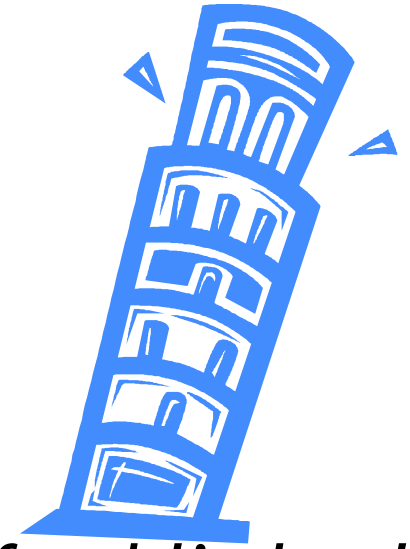
Beware the Tower of Babel!



The collision of public health jargon, planning jargon, different quality management jargon, and our own LHJ/program jargon can lead to great confusion!

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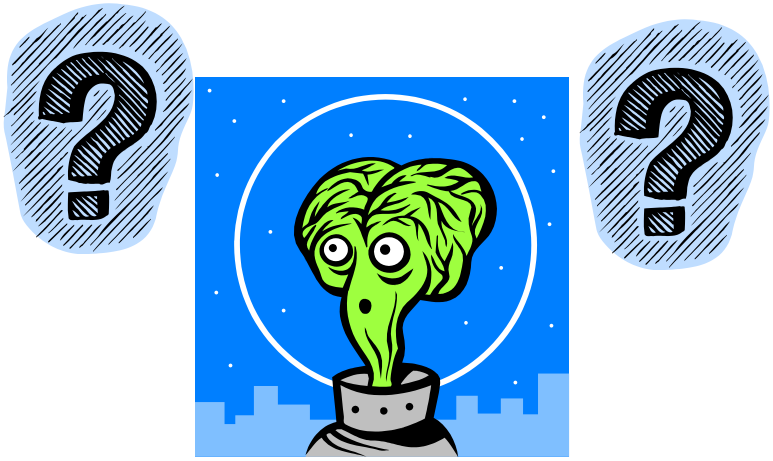
Words, Words, Words

- I love my wife. I love my surfboard.
- Strategic plan. Quality improvement plan. Quality planning. Plan, do, check, act
- Group process. Work process. QI process.



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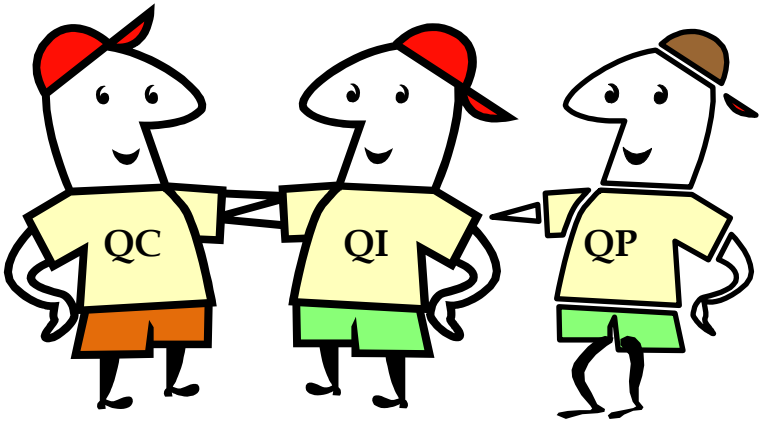
How are QC, QI, and QP different?

- First we have to understand what they have in common.
- Which is *a lot* …



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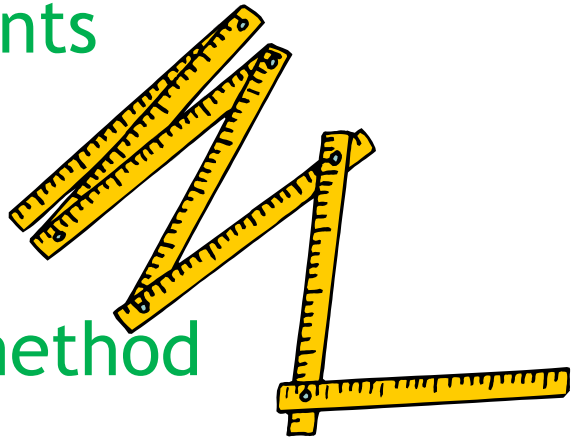
Quality Management Principles

All quality methods/approaches are based on…

- Meeting customer requirements
- Understanding variation
- Standardizing process
- Using continuous scientific method



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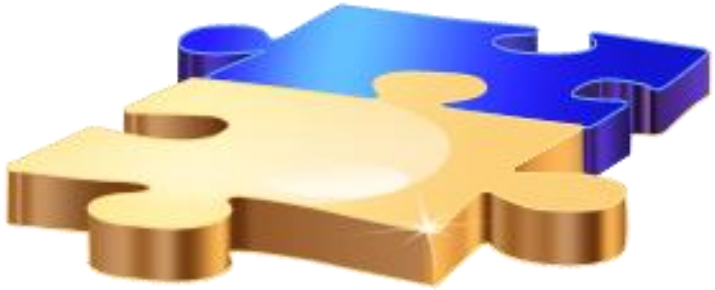
Quality Principle: Focus on Customer Requirements

If you're ever puzzled about what to do next with your process/service/program, you'll be amazed at how clarifying these questions can be:



- Who is the customer?
- What do they need?
- Are we providing what they need?
- How do we know?

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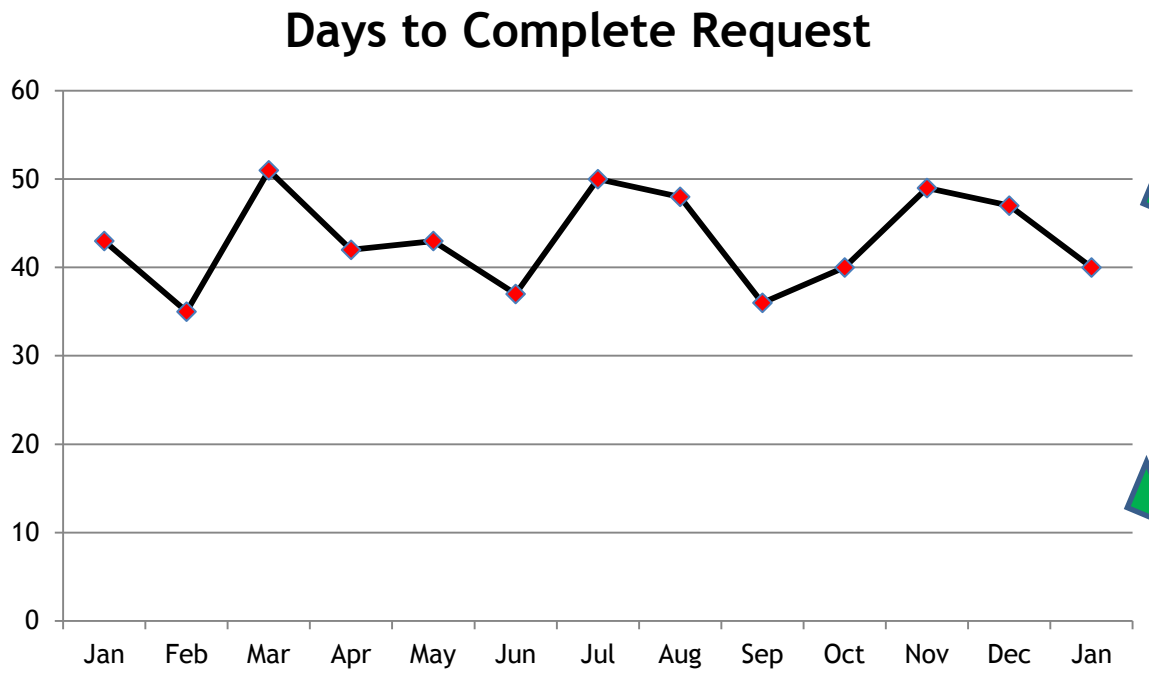
Are we capable of meeting customer requirements?



Here's where we are

Here's where customer needs us to be

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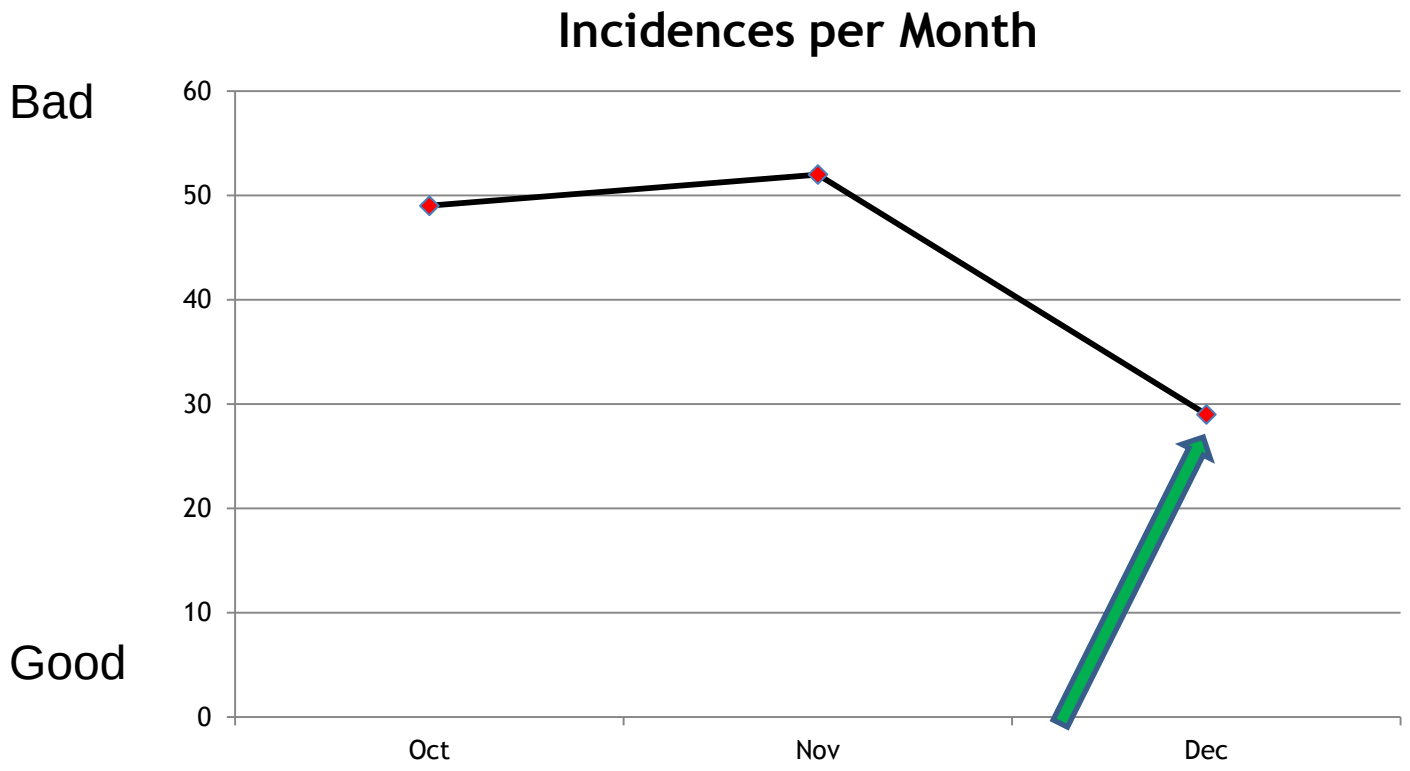
Quality Principle: Understanding Variation



We're headed in the right direction!

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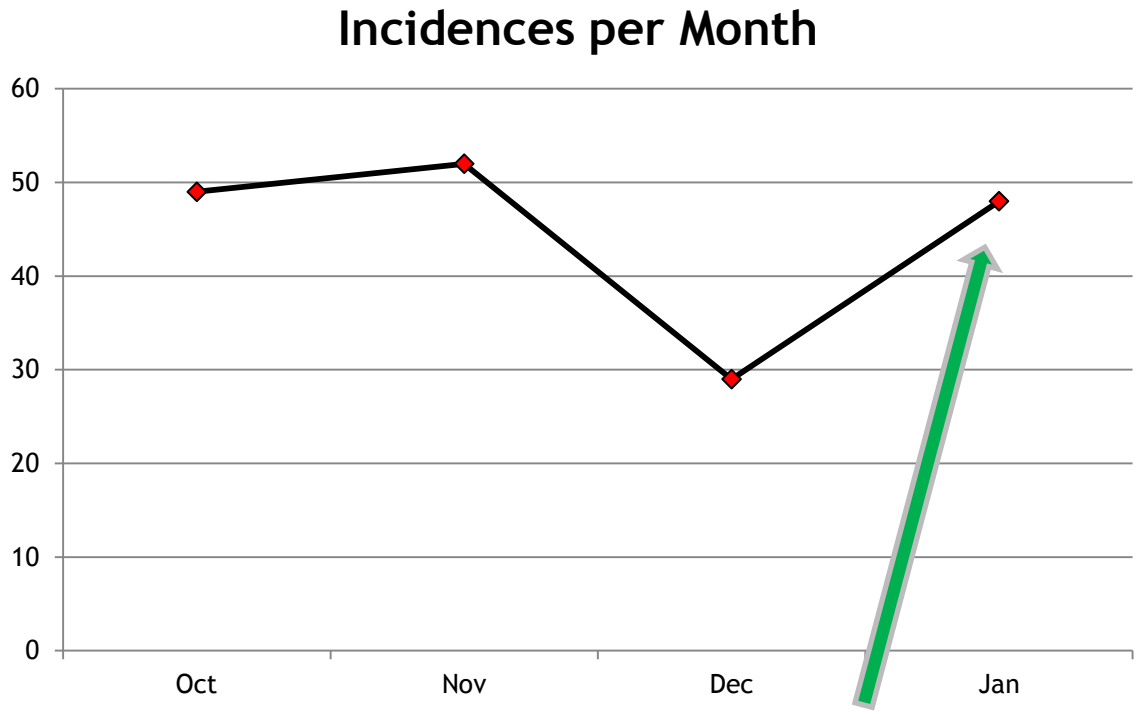
Understanding Variation



Uh-oh! We're slipping! Why? Who screwed up?

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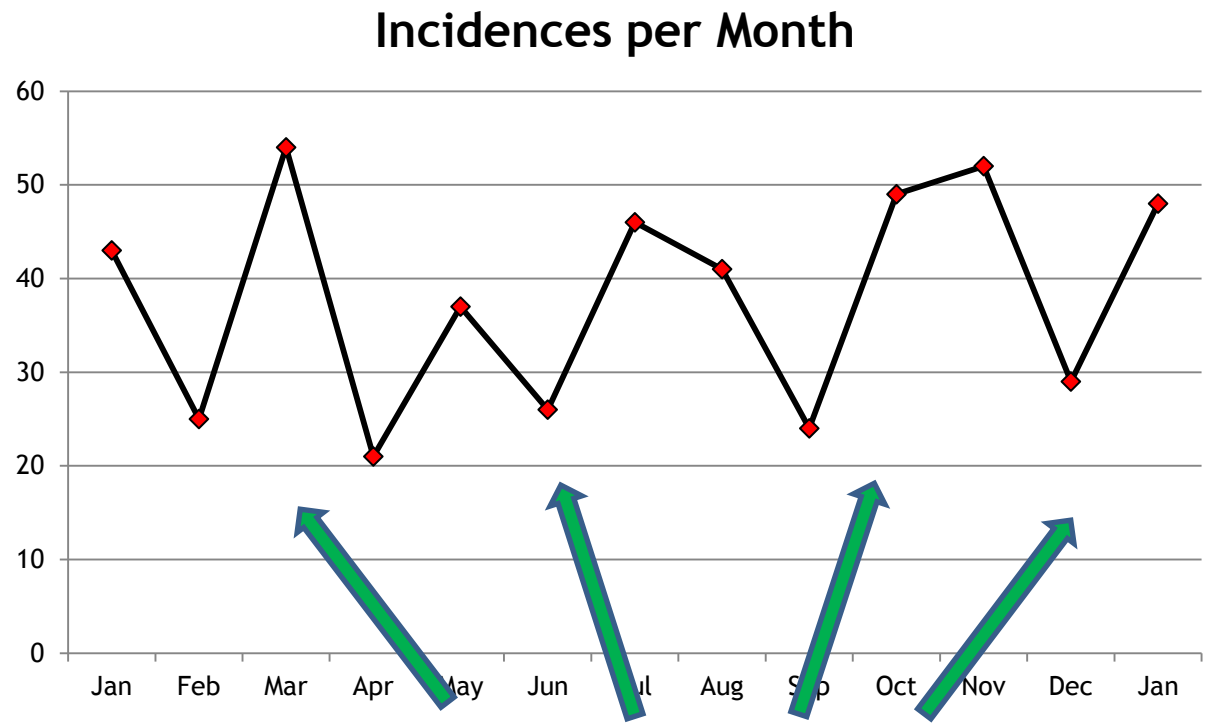
Understanding Variation



Hmmm. Why does it vary so much?

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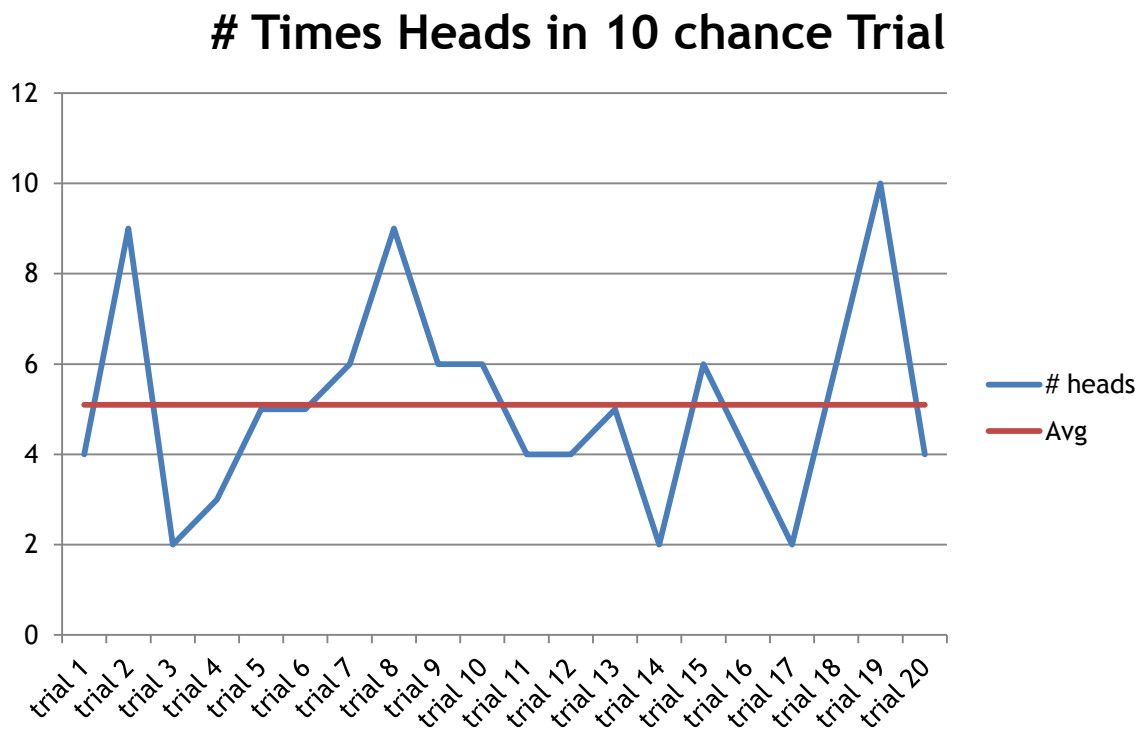
Process Variation

What's random and expected (common)?
What's unexpected (special)?



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Process Variation

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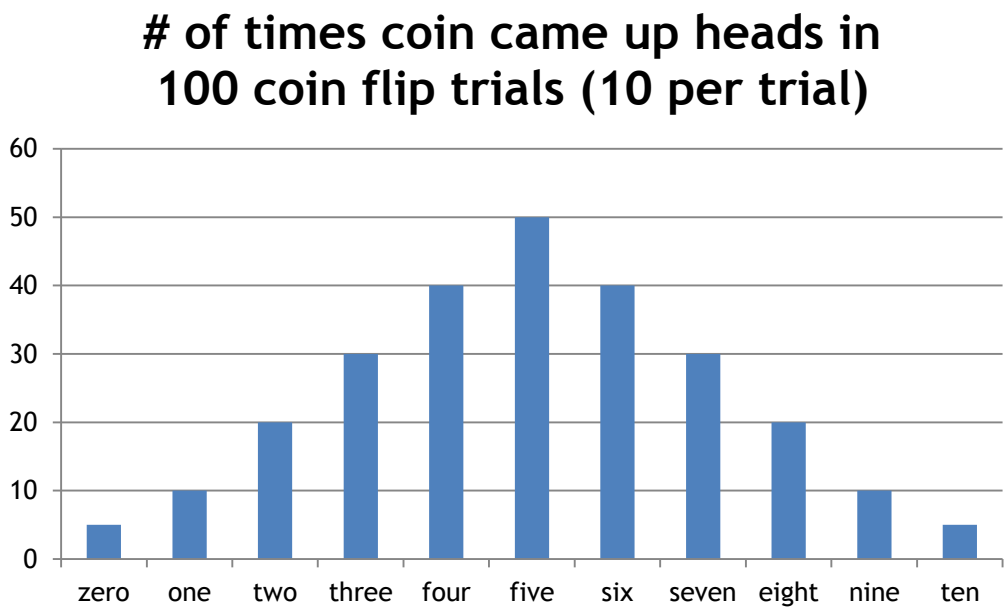

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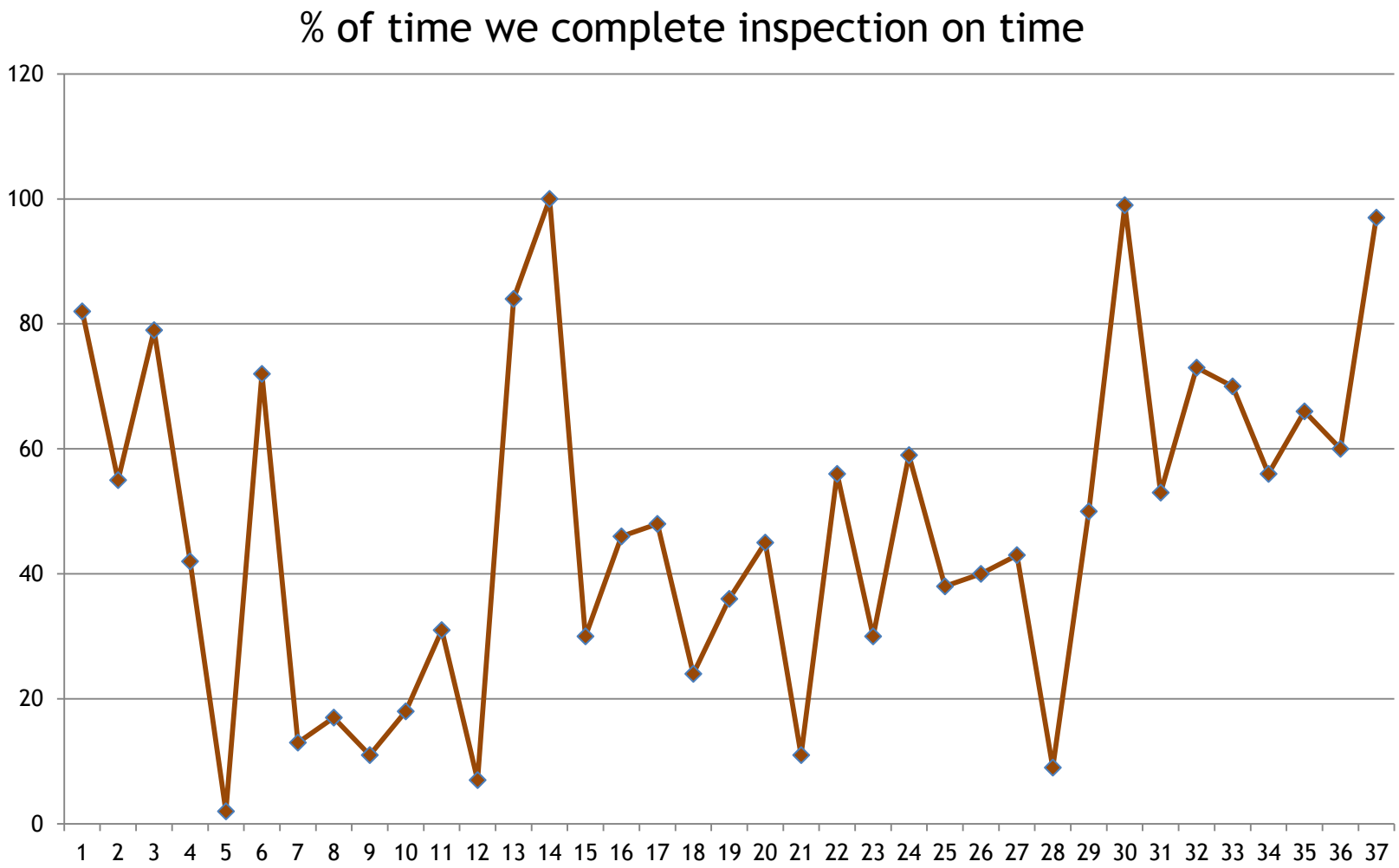
Variation Over Time Example



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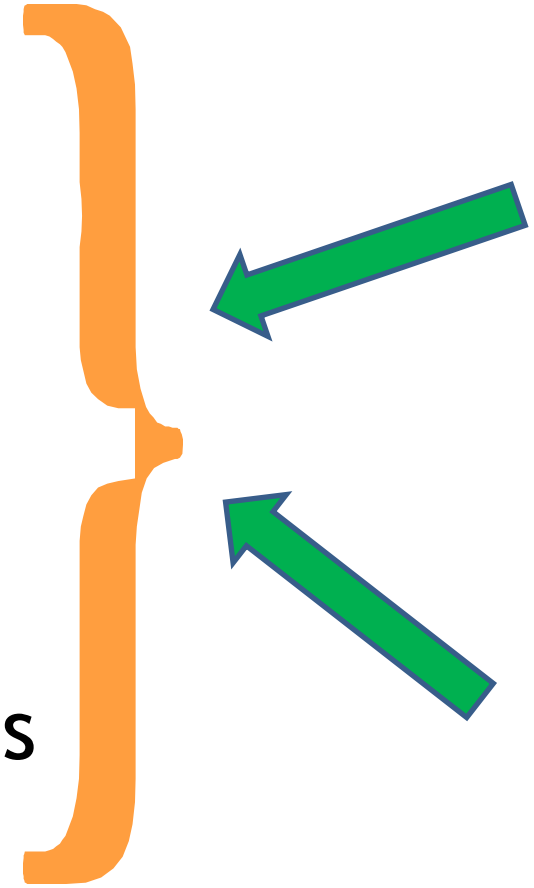
Sources of Variation

- Methods
- Materials
- Environment
- Staff
- Machines
- Measurements
- Customers



Which among these are variable?

Which among these are controllable?

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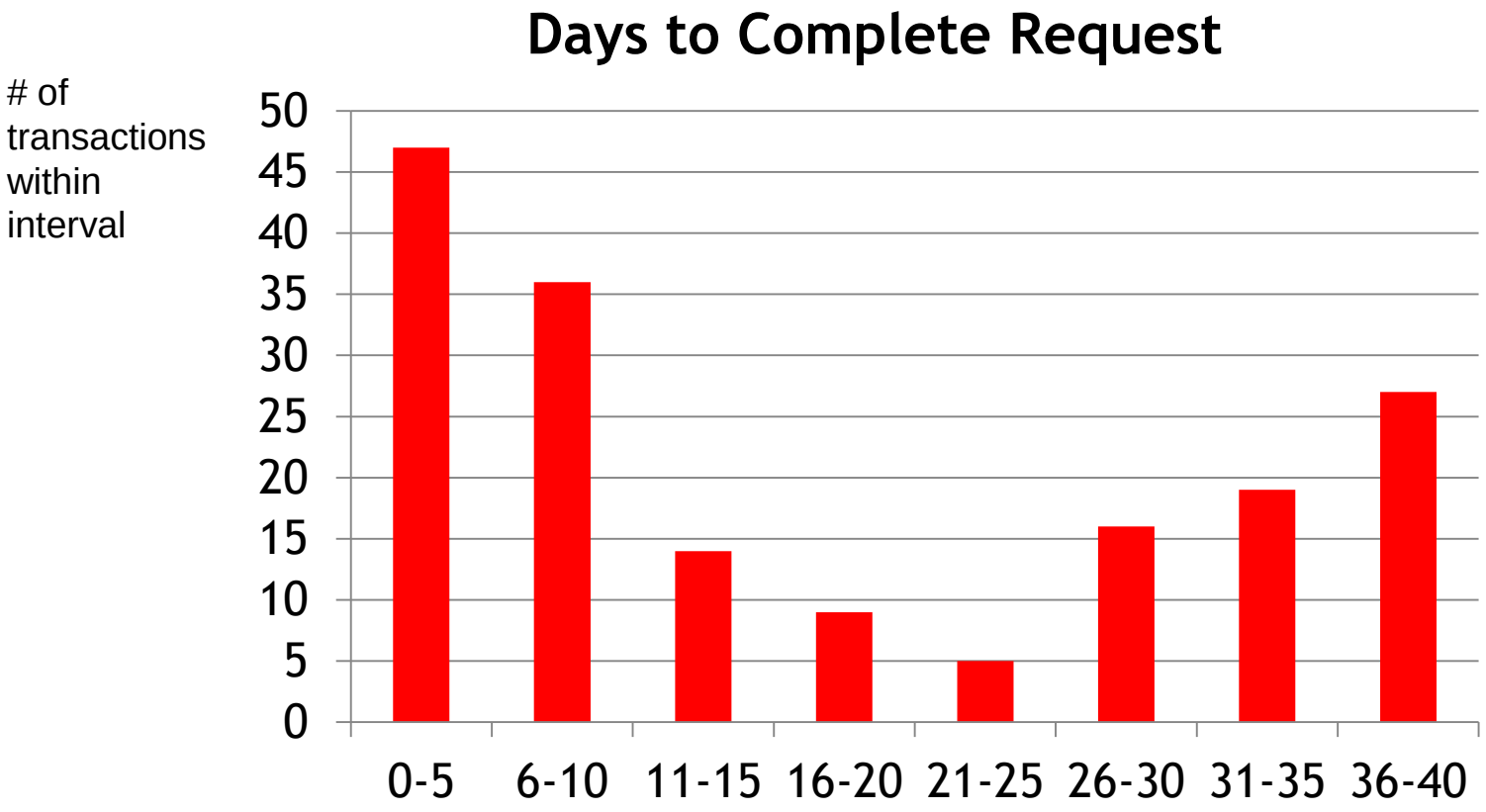
Sources of Variation

Why is there variation in results?



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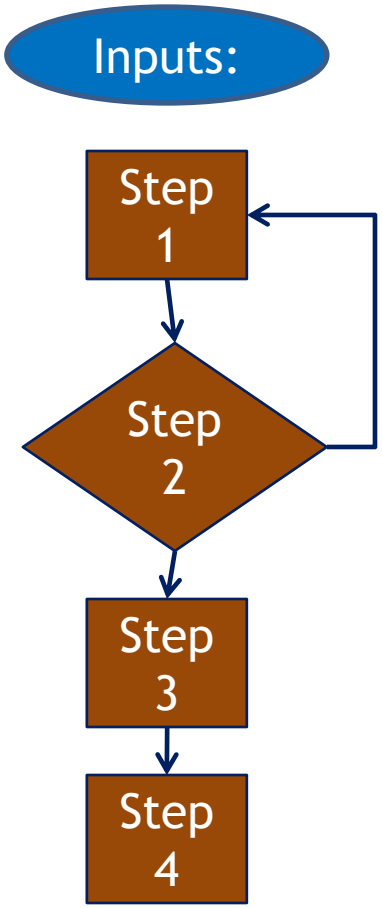
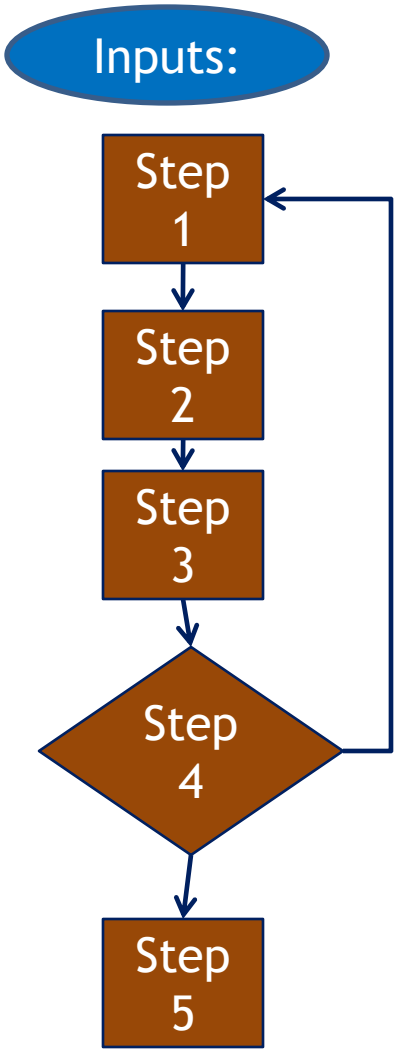
Process Driven Variation

Which procedure is more likely to take longer to complete?

A.



B.



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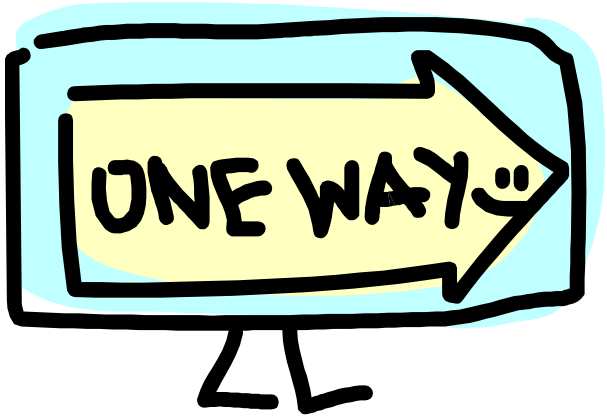
Quality Principle: Process Standardization*

Consistent result requires consistent process



Search for the "one best way" and then *control variation*

***Includes procedures, methods, materials, environment, staff, measurement**

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Discussion

What are some ways we control a process and reduce variation?

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Control Examples

a.
- Job Descriptions
- Documented procedures
- Training

b.
- Inspection
- Supervision
- Exception reporting

c.
- Manuals & cheat sheets
- Reminders (signs/messages)
- Check lists
- Analog asset trackers (File "Out" cards)
- Just-in-time inventory triggers (Kanban)
- Digital asset trackers (bar codes)
- Tracking boards
- Electronic tracking
- Forms
- Required electronic fields
- In/Out boxes
- Automated routing (SharePoint)

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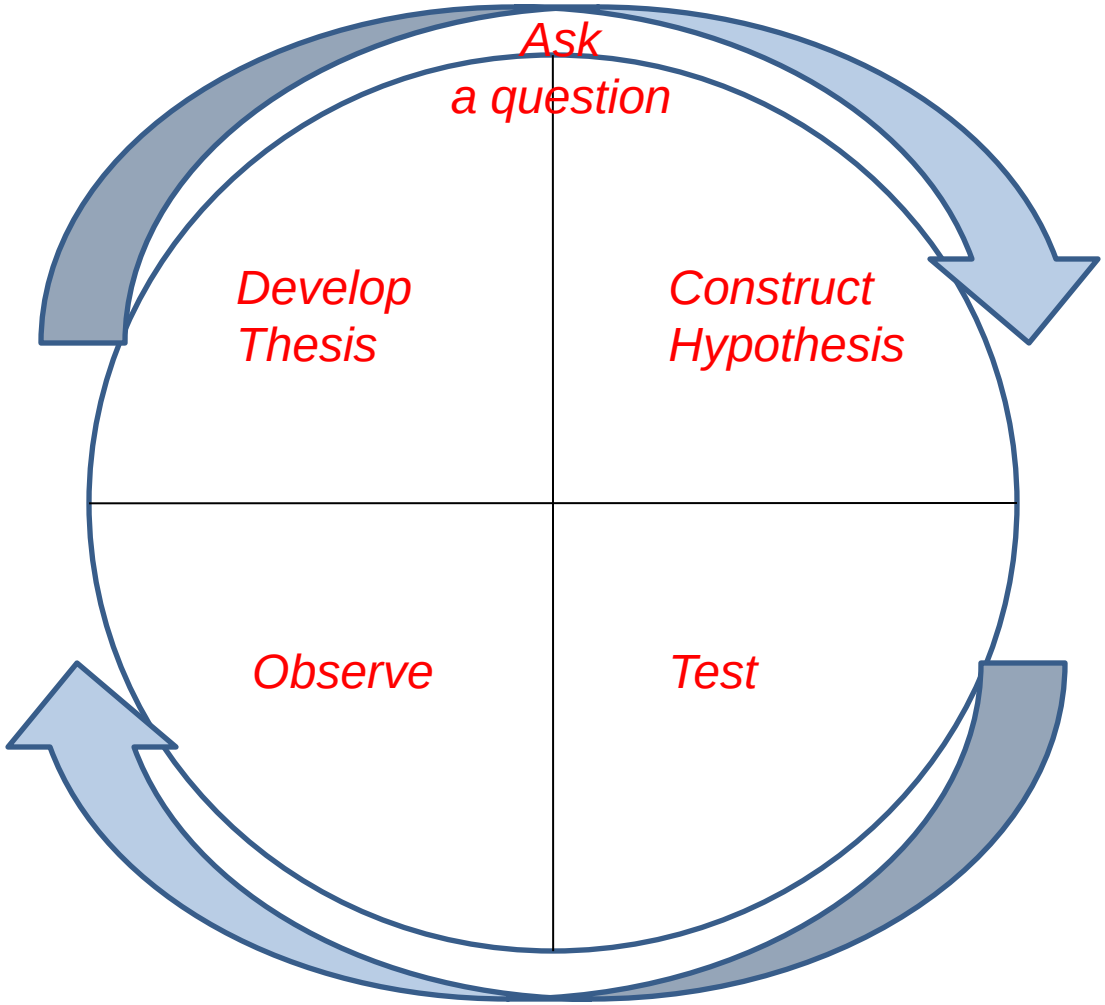
Quality Principle: Continuous Scientific Method



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Scientific Method

Aspect 1

Analysis of variation to develop a hypothesis

- What is different?
- What is associated with these differences?
- Are some associations stronger than others?
- Why do I get a different result if I do this versus that?
- What causes the difference?

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What variation did John Snow ask about?

London Cholera Epidemic 1854

- Who is dying of cholera?
- Where do they live?
- What did they eat, drink, do prior to getting sick?
- What's different?
- What do they have in common?
- Why the Broadstreet pump?

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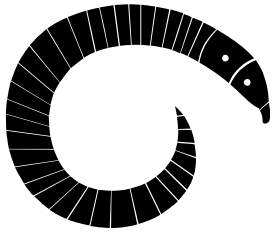
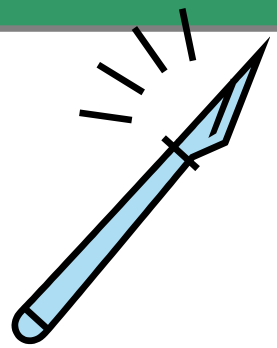
Scientific Method





Aspect 2
Evidence to confirm hypotheses

- Logic is not enough!
  - People naturally try to expel when they are sick.
  - Expelling bad vapors makes people better.
  - Helping speed the expulsion of bad vapors will help people get well.
  - Blood letting will cure illness.
- Logic + Evidence = Science

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Scientific Method

Aspect 3

We are always learning

- Theory is not fact.
- We constantly question, test and observe facts to refine and improve our theories.
- Science and quality management are continuous.
- Cycles of inquiry/improvement lead us forward.

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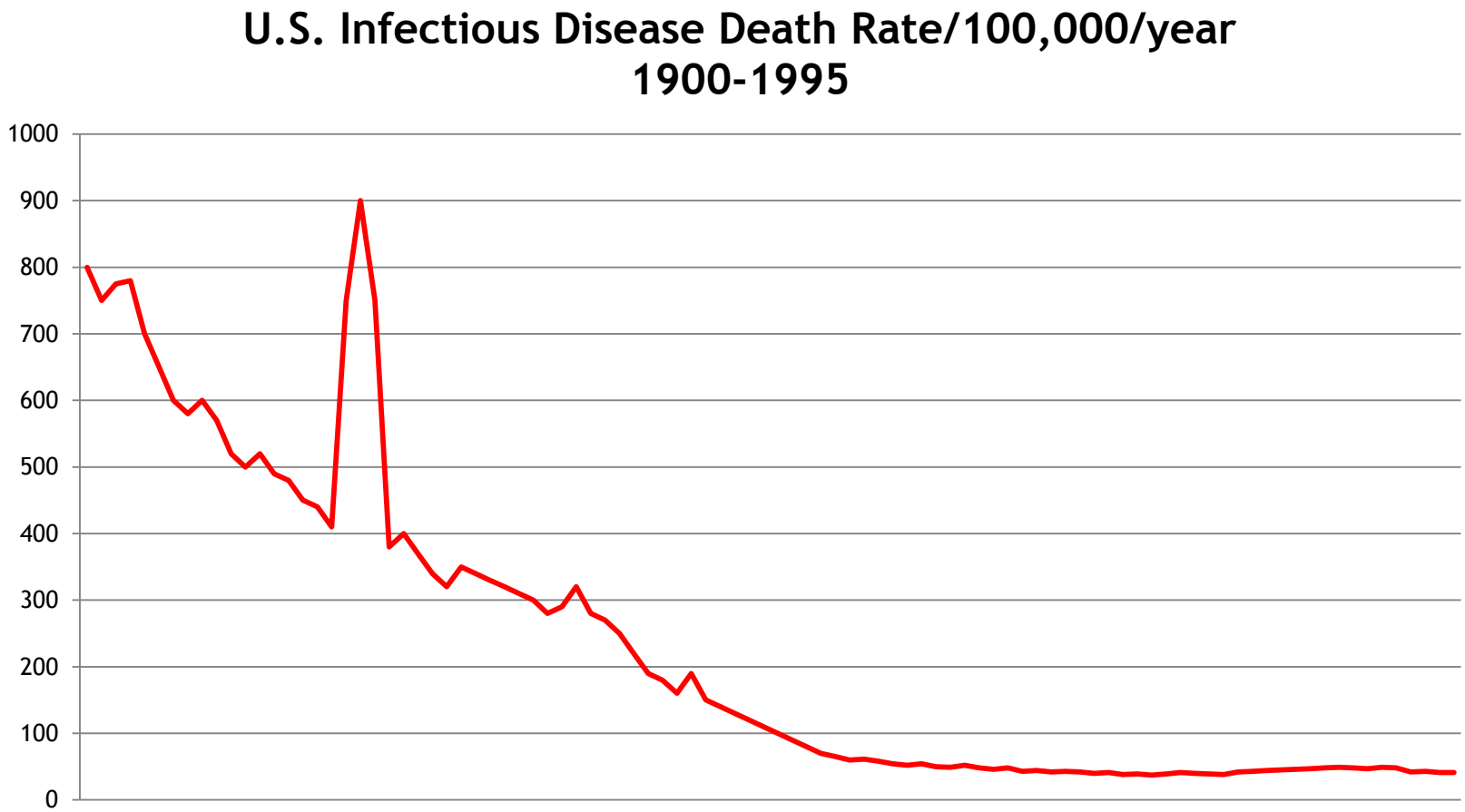
Public Health Performance Management Centers for Excellence

Public Health knows how to apply scientific method for continuous improvement



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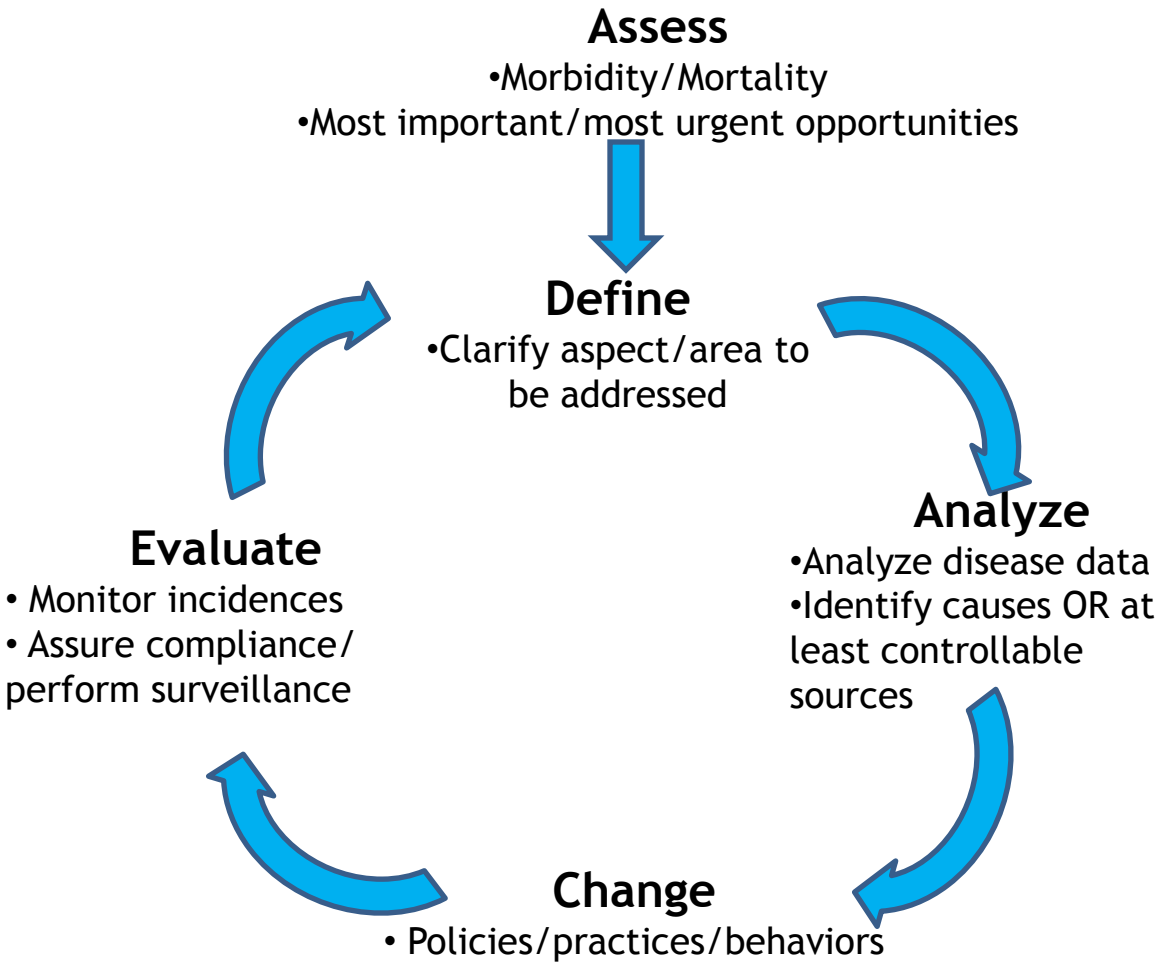
Public Health Performance Management Centers for Excellence

Public Health: Science-based continuous improvement



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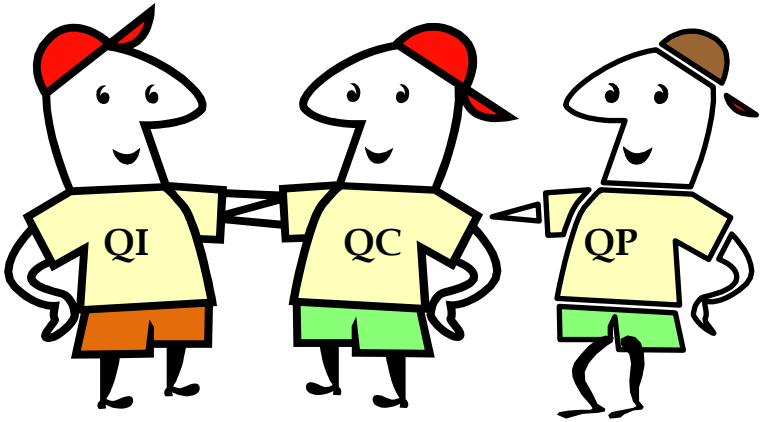
QC, QI, and QP are *mostly* the same…

- Meeting customer requirements
- Understanding variation
- Standardizing process
- Using continuous scientific method



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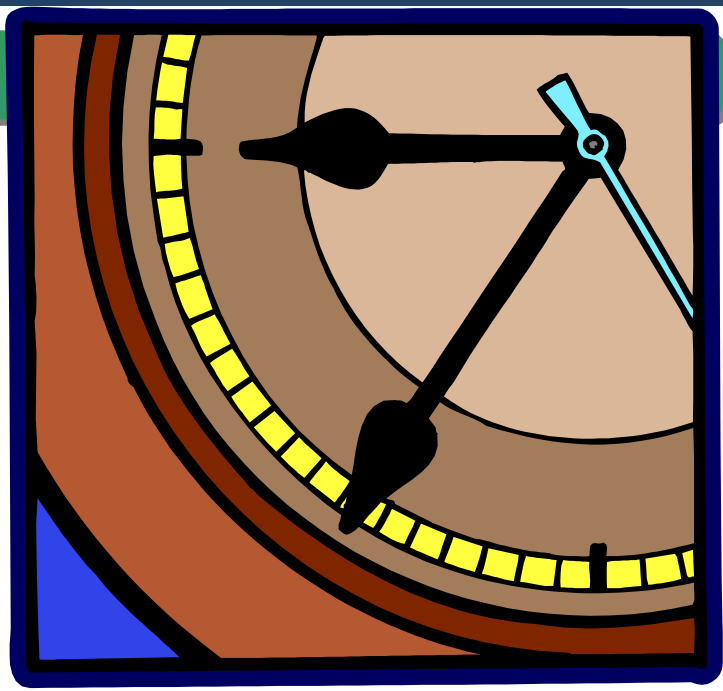
BREAK



When we return …

Quality Trilogy … what's different?

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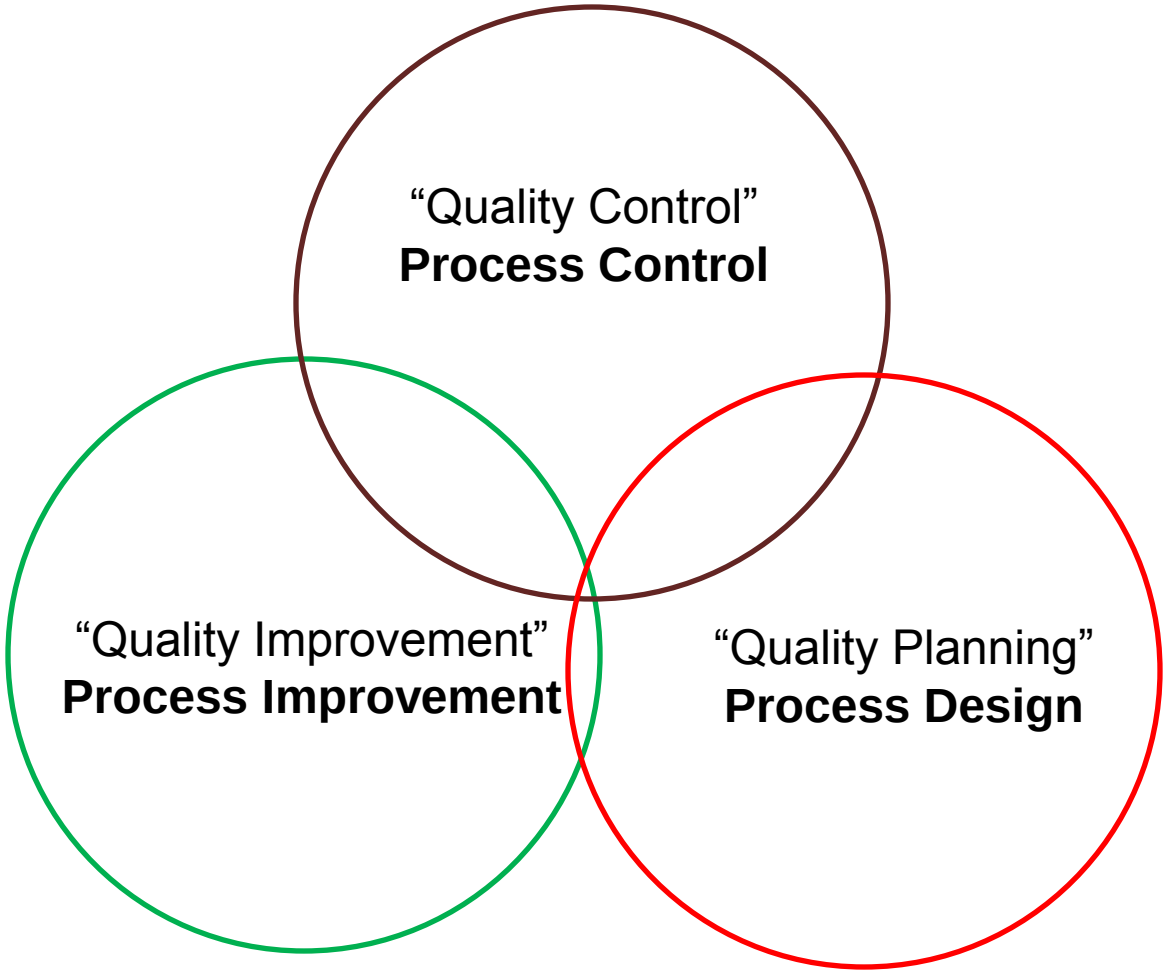
Quality Trilogy ~ So what's different?



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Trilogy as different objectives

- **Quality Improvement** (process improvement):
  - Maximize performance of existing process
  - Determine causes of variation
  - Establish control
  - Create conditions for further improvement
- **Quality Control** (process control):
  - Maintain performance, and perhaps …
  - Incrementally improve
- **Quality Planning** (process design):
  - Provide a whole new service/product, OR
  - (re)Align process performance to customer needs, OR/AND
  - Obtain whole new level of performance

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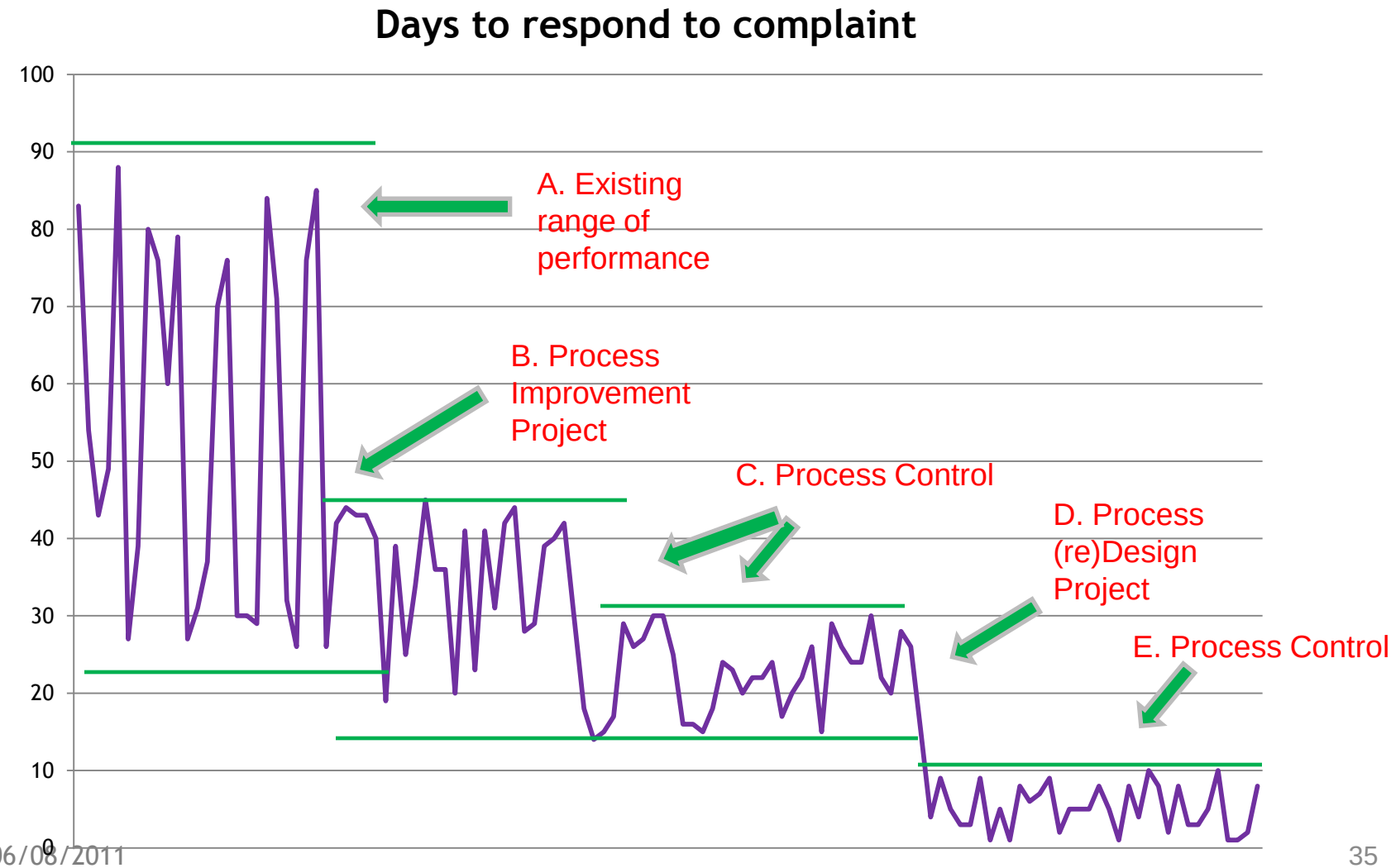
Trilogy as connected phases of results



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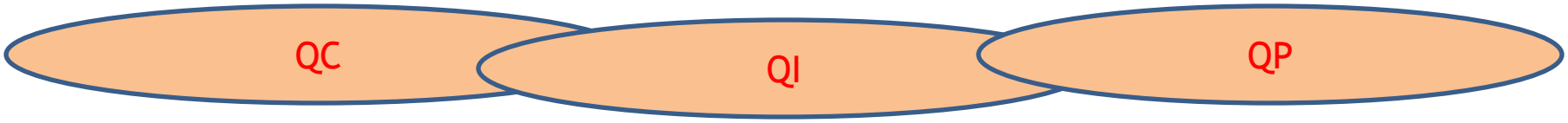
Trilogy as different starting places



- Problem(s) narrow & easily defined
- Variables understood
- Measures & Controls in place
- Customer needs understood
- Process capable

- Problem(s) more complex (though still easily defined)
- Process exists; may have been documented
- Few controls in place
- Data available but unanalyzed
- Customer needs assumed
- Process appears capable of meeting customer needs – at least some of the time
- Process reasonably stable

- Customer needs are consistently going unmet
- Process/service does not exist, or
- Current performance not capable of meeting customer needs

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Exercise

- Think of problems / opportunities within your department/agency
- Identify one that might make a good *quality improvement* *(process improvement)* topic
- Identify one that might make a good *quality planning* *(process design)* topic
- Be ready to share …

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When is a Quality Improvement Project appropriate?

- Cross functional problem
- There is an existing process that is reasonably understood
- Problem can be narrowly defined – cycle-time, # of incidences, etc. (1 or *maybe* 2 problems; not many)
- Customer requirements are understood
- Performance data are available or can be collected without too much time and/or expense
- Environment is stable – no major market, organization, or technology changes on *near* horizon
- There is organizational support for effort during AND after project complete

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When is Quality Planning project appropriate?

- Service/process has never existed before
- Customer requirements are not known
- OR, Existing service/process performance is not capable of meeting customer requirements
- Service/process is ad hoc; *extremely* variable; never been well defined or worked on before *as a whole*
- Current performance has multiple problems … not 1 or 2
- Unstable environment – major market, technology, organizational change on *near* horizon
- No performance data exist or would take excessive time/expense to collect data
- Organizational support for effort during and after the project

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Trilogy as different actions

- QC … less analysis, more trial and error, more emphasis on standardizing/tweaking what you already have
- QI … more analysis, more testing of theories, more things to change, more emphasis on setting things up for control
- QP … more customer needs analysis, more benchmarking, total change management, ensuring suppliers can perform as needed; complete measurement and control plan

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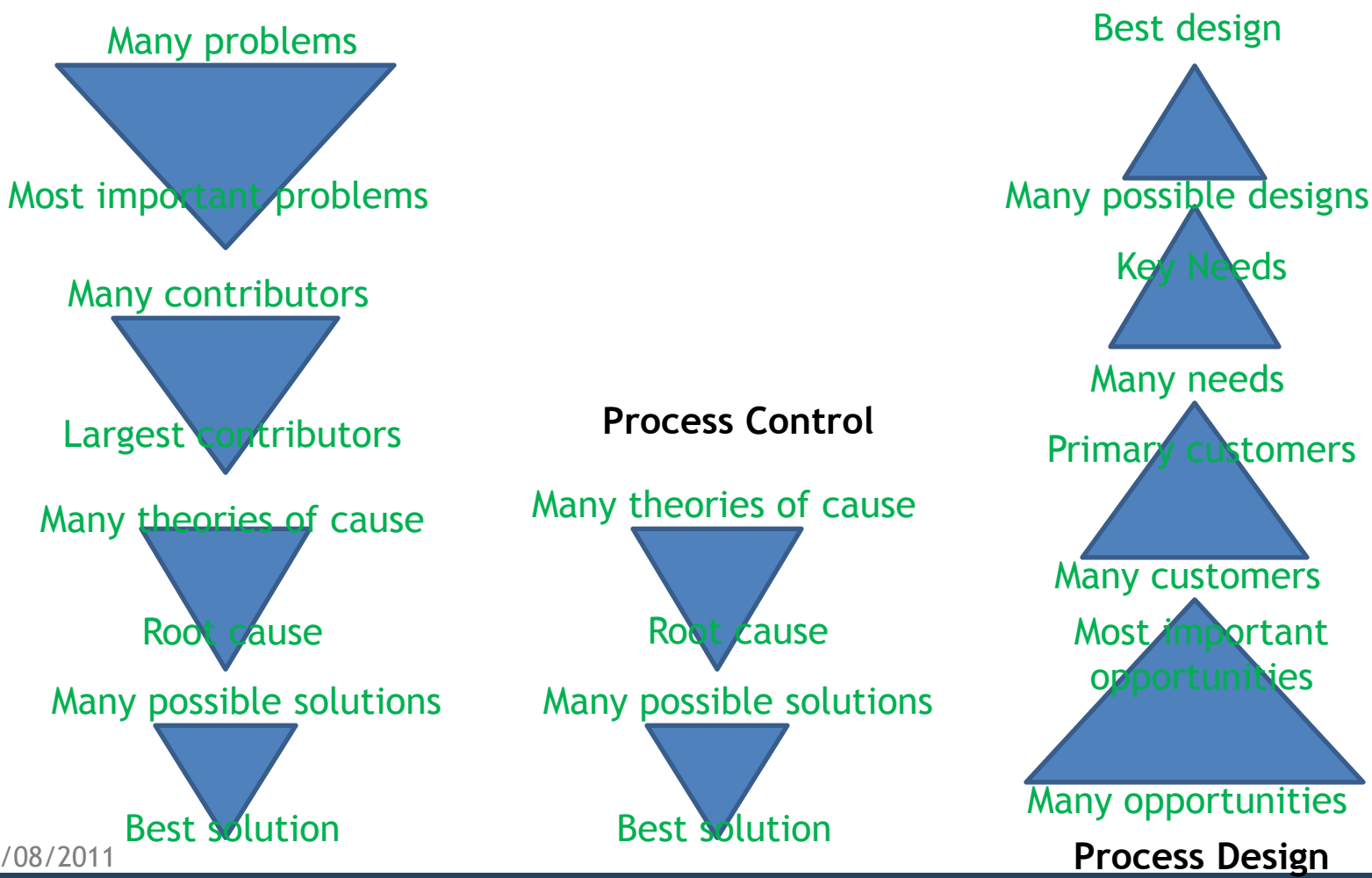
QC, QI, QP as Different Actions

How many trips through which *funnels*?



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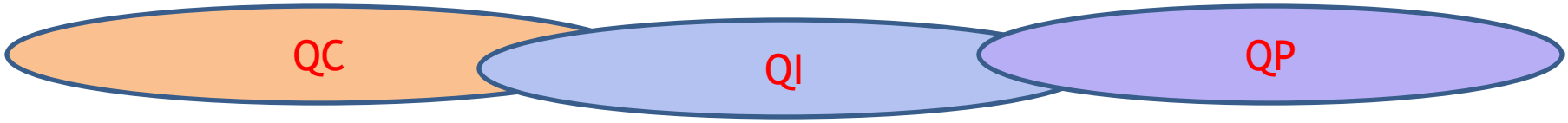
Trilogy as different intensity & organization of effort



- A little effort every day and forever
- Performed by people in process as part of their job

- A lot of effort by a project team for a specific time period;
- Hand-off to existing operations

- A very large amount of effort by a project team for a specific time period;
- Hand-off to new operation

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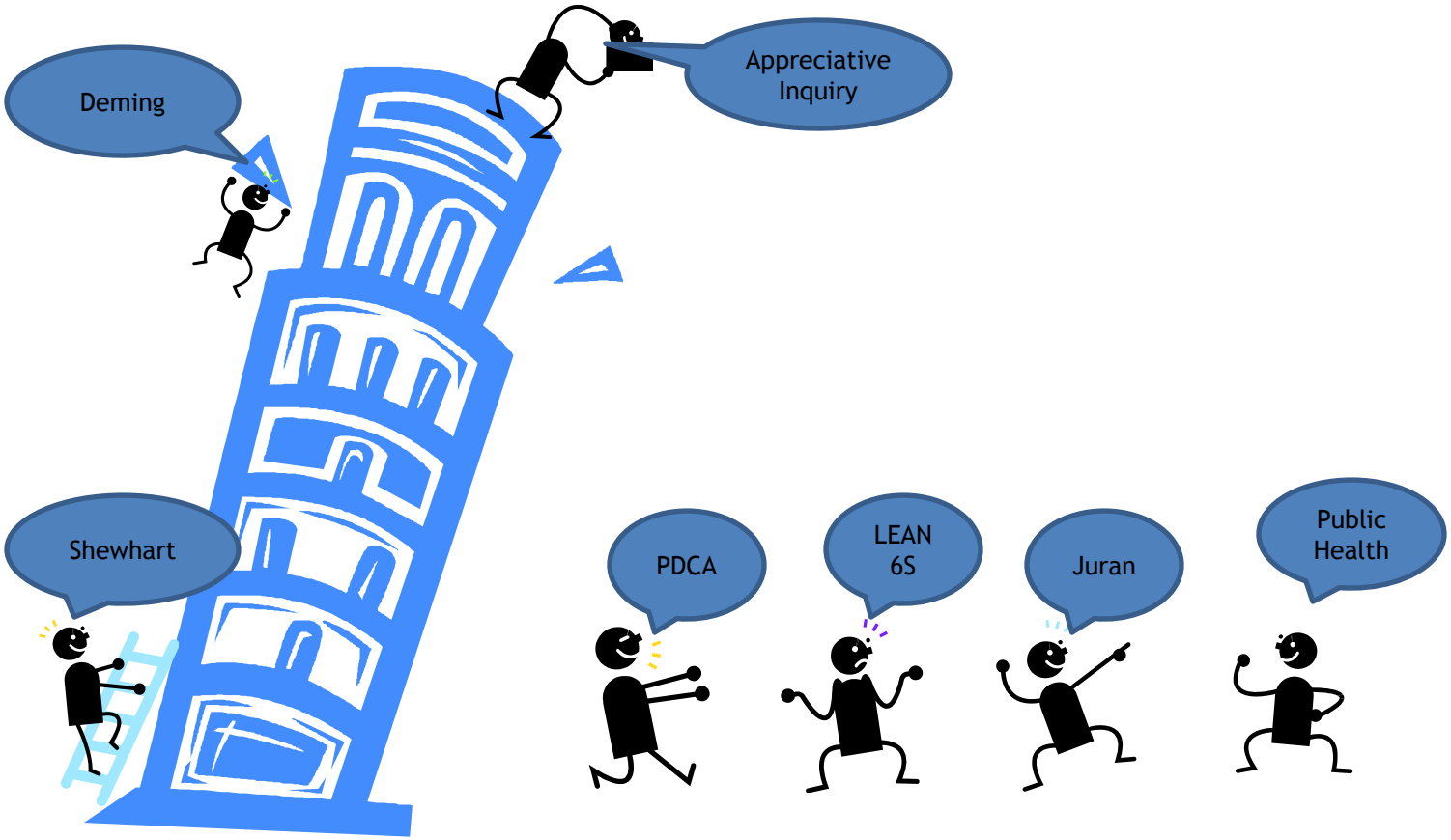
The Trilogy in Different Languages



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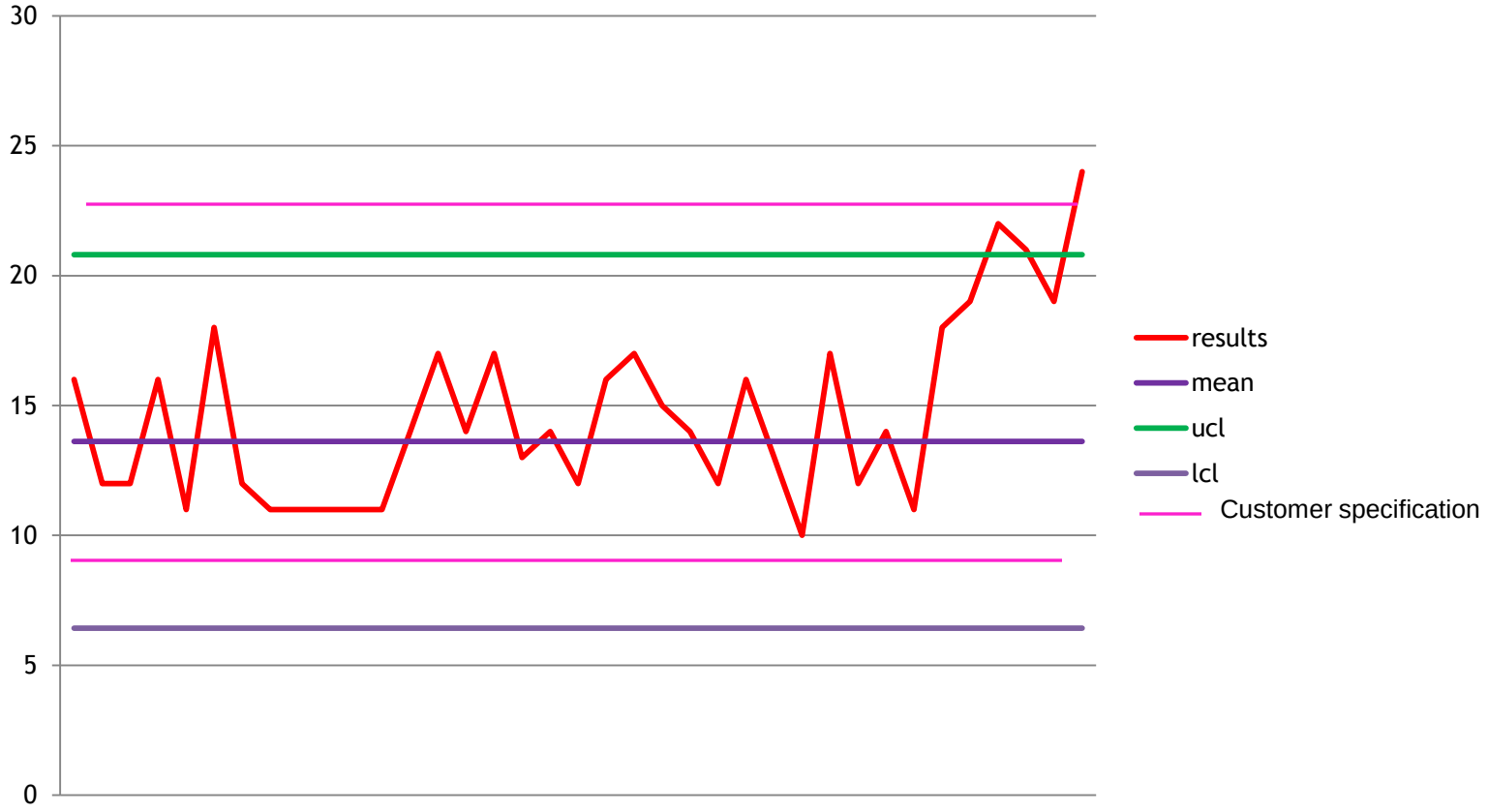
Classic Quality Control, an alternative to inspection & tampering



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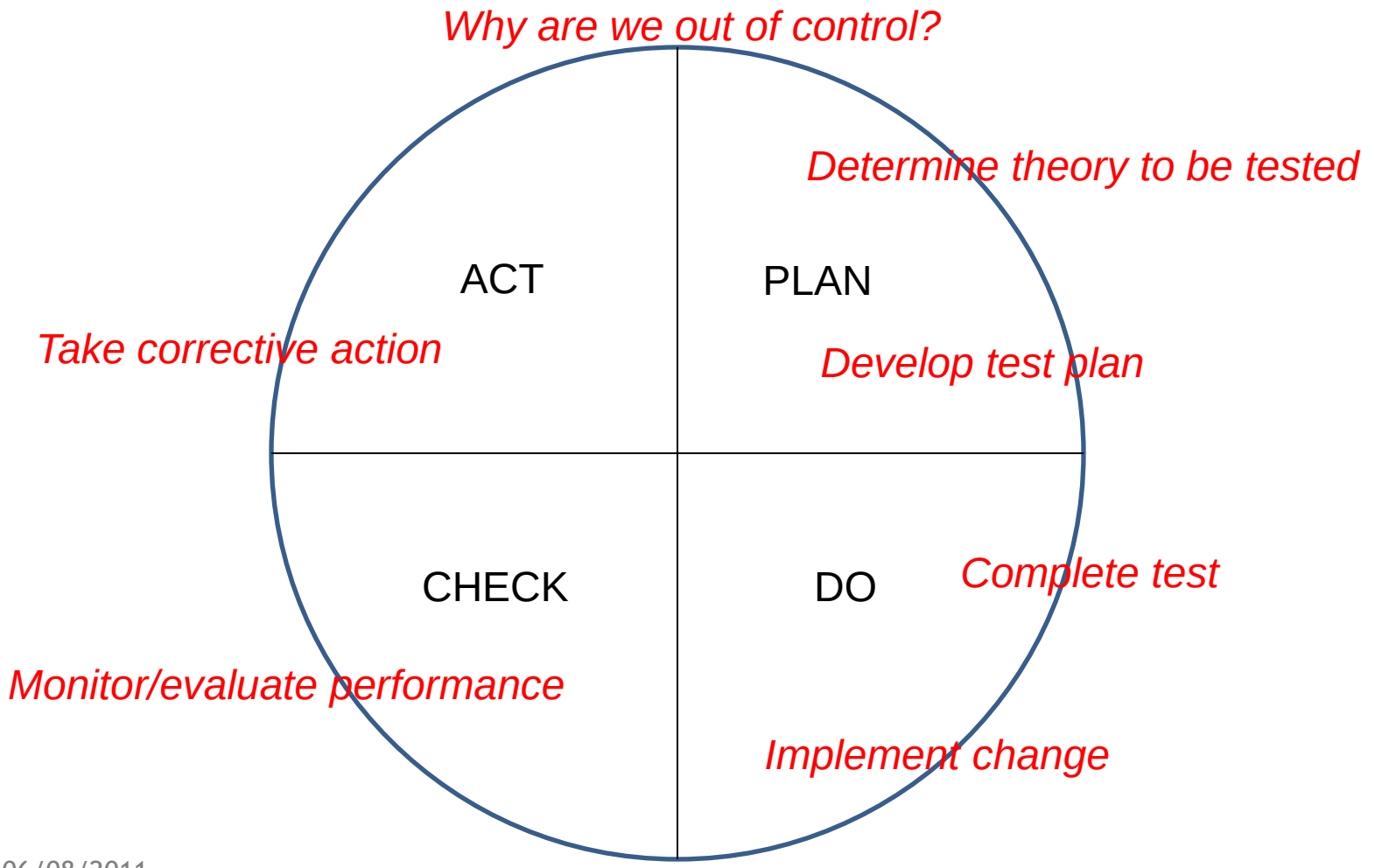
Shewhart PDCA Control cycle



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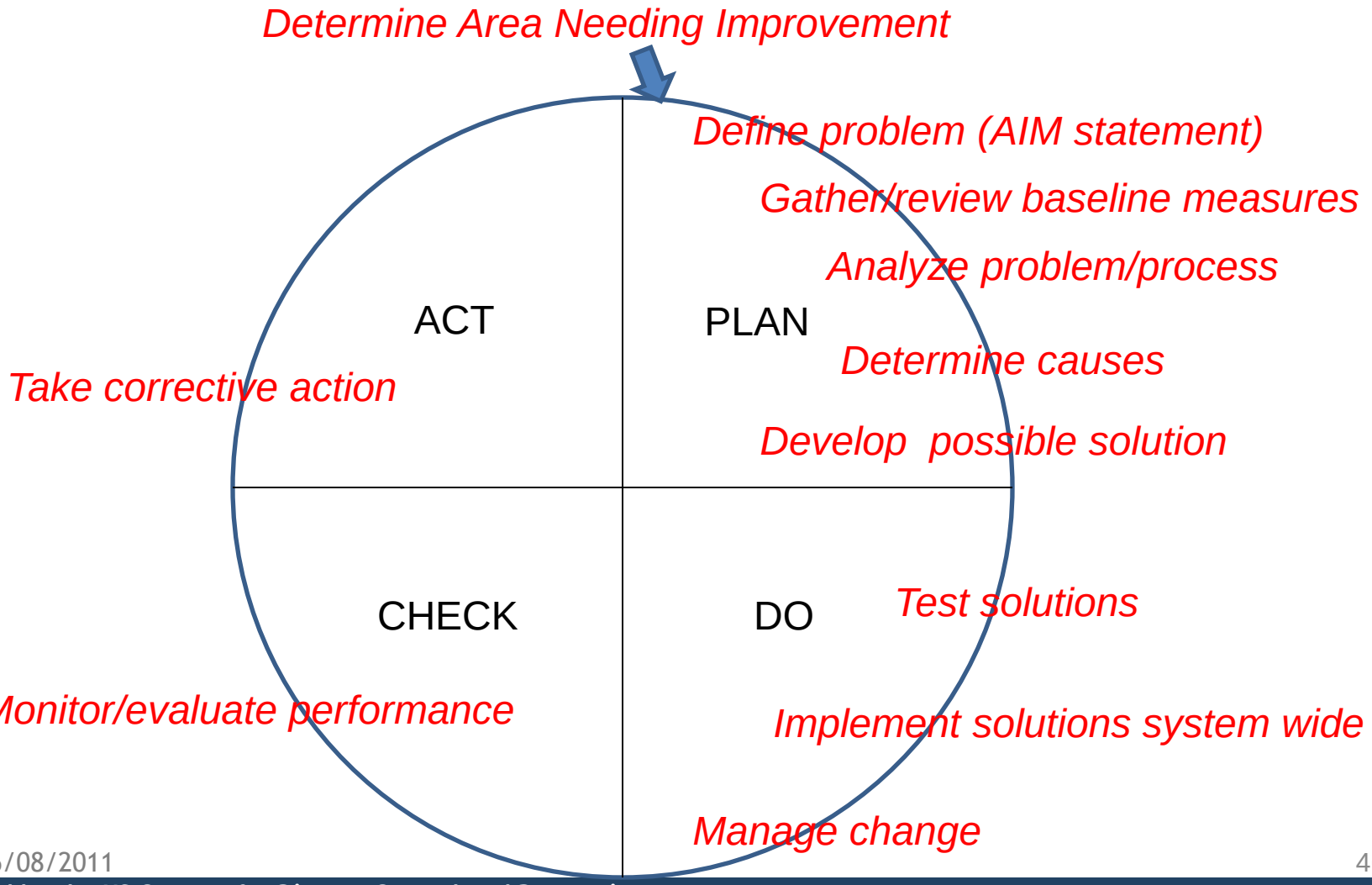
PDCA for Improvement



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PDCA for Process Design?

- Some say "YES"
  - Modify the steps within "Plan" & "Do" to achieve needs of a design process
- Some say "NO"
  - Use a different planning/design method
  - E.g., Appreciative Inquiry or other

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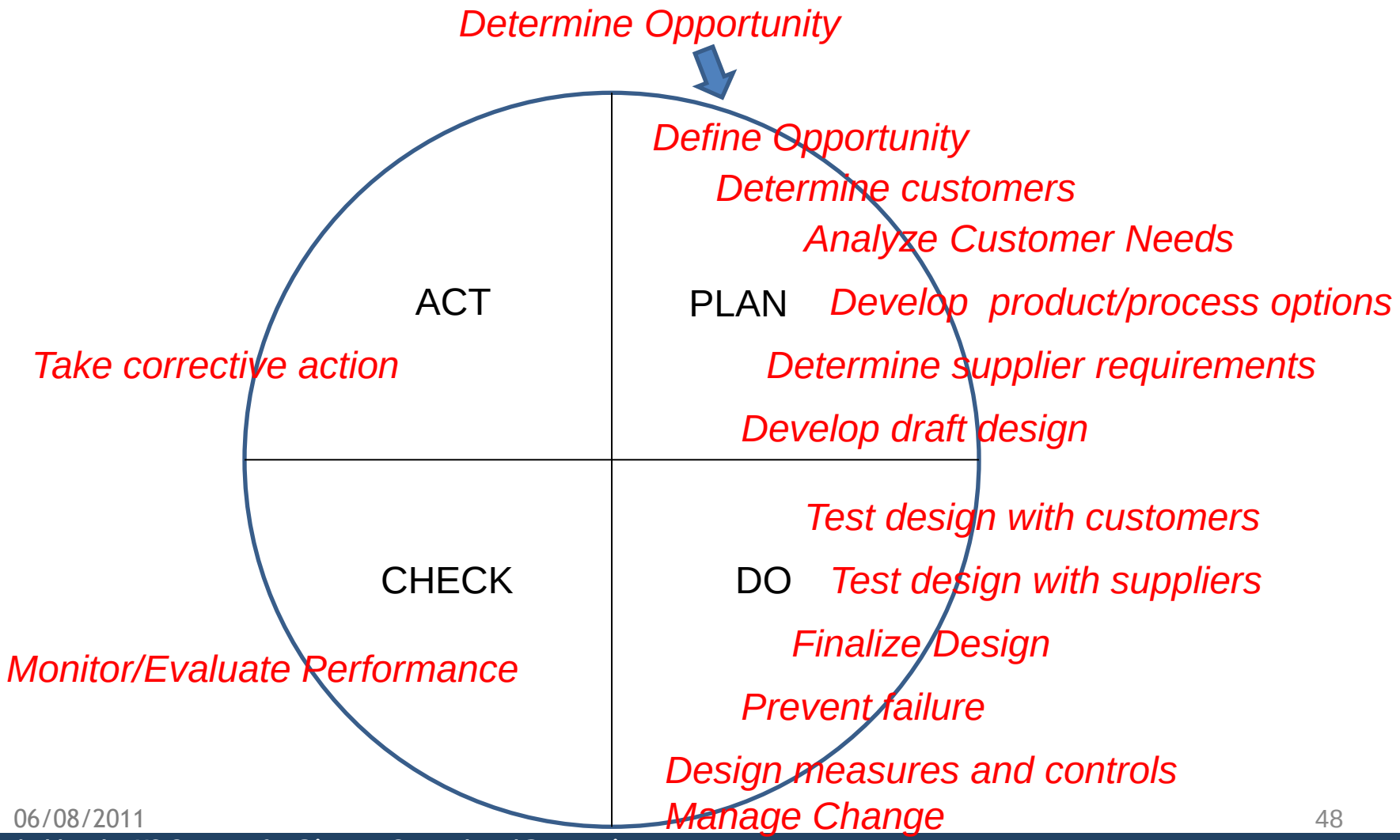
PDCA for QP/Process Design



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Appreciative Inquiry, an option for a separate process design method

Define

Discover

Dream

Design

Deliver

Cooperrider and Srivastva, Appreciative Inquiry in Organizational Life, 1987

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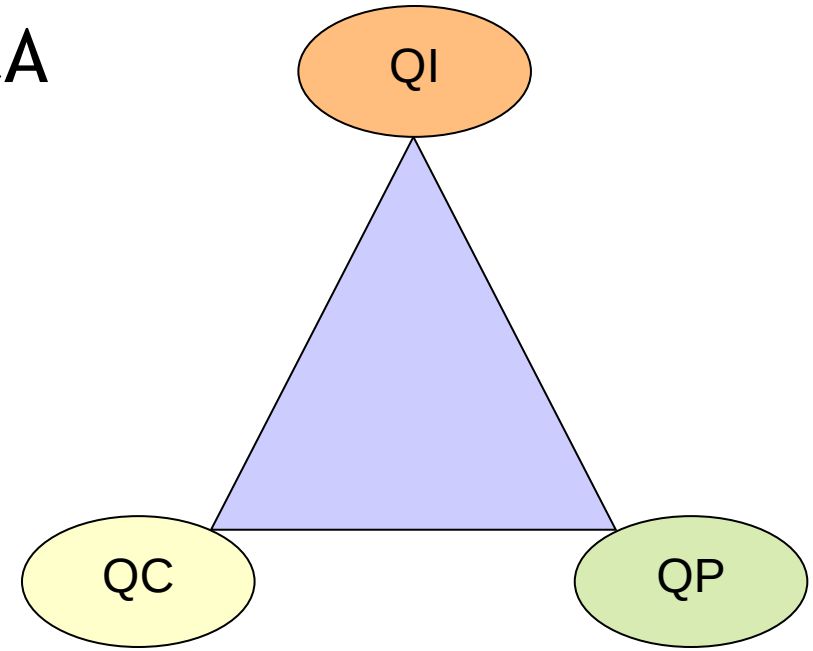
Juran Articulation of Trilogy

- QI - define, diagnose, implement, control
- QP - define, understand, design, implement, control
- QC - PDCA



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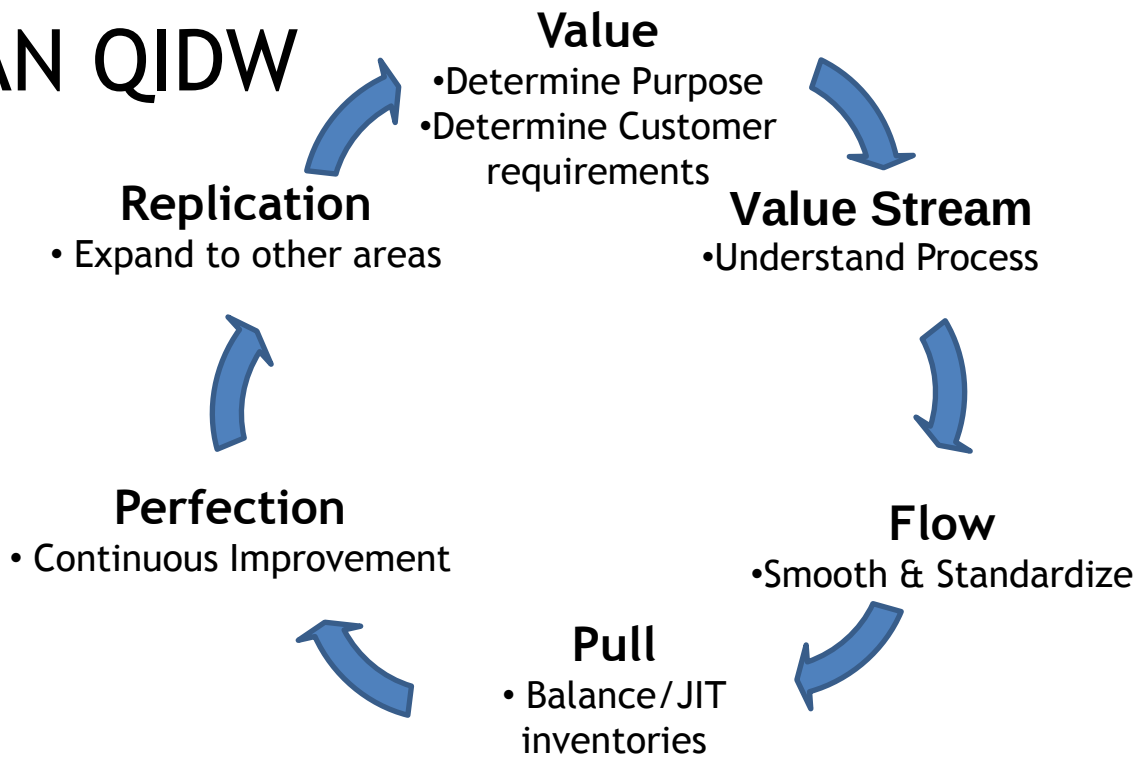
Lean-Six Sigma Articulation of Trilogy

- QI – DMAIC (define, measure, analyze, improve, control)
- QP – DMADV (define, measure, analyze, design, verify)
- QC – LEAN QIDW



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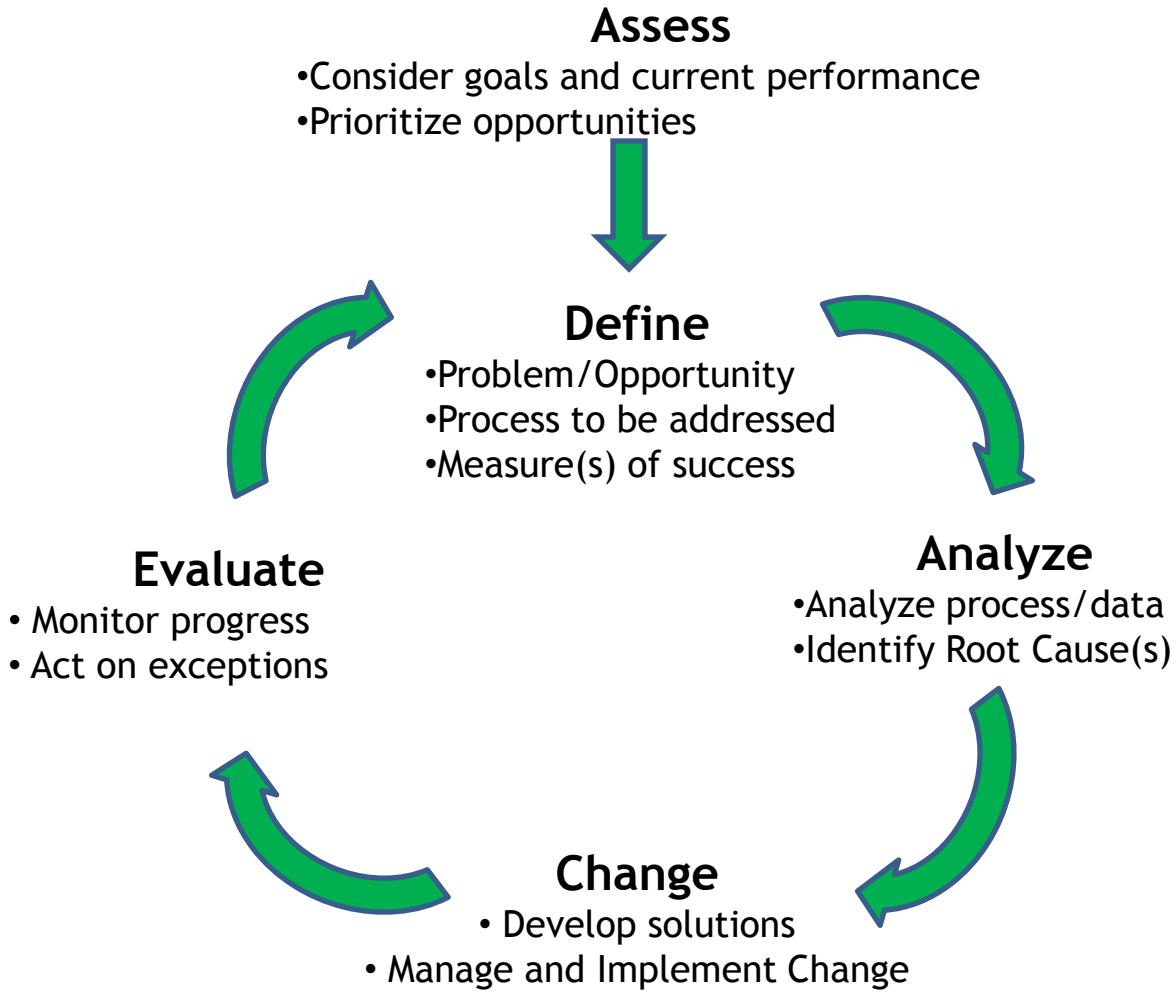
Public Health Improvement Model



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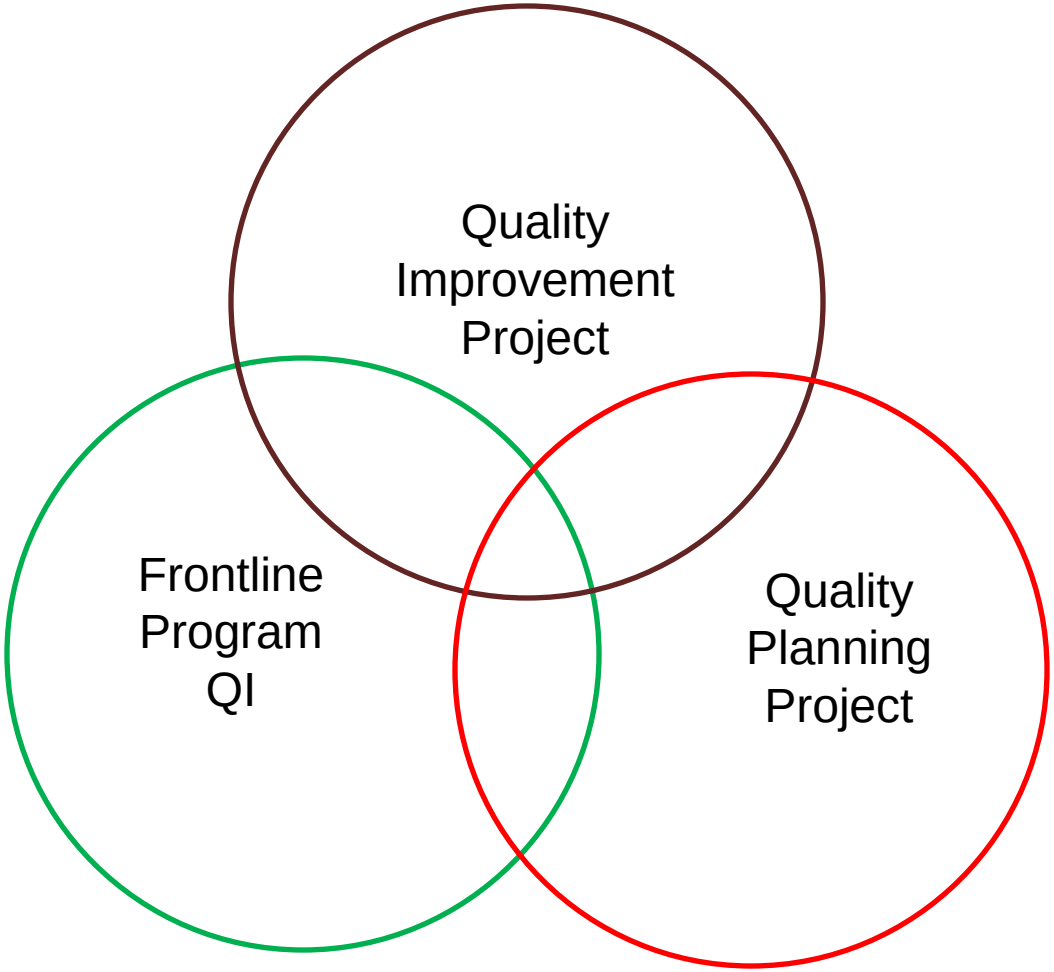
Same Basic Method…Different Applications



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Quality Improvement Project Steps

Assess

1. Assess organizational goals and current performance
2. Determine most important problems/biggest opportunities

Define

3. Define problem/opportunity
4. Define process(es) /service to be addressed
5. Define measure(s) of success
6. Define Stakeholders, Customers and Team

Analyze

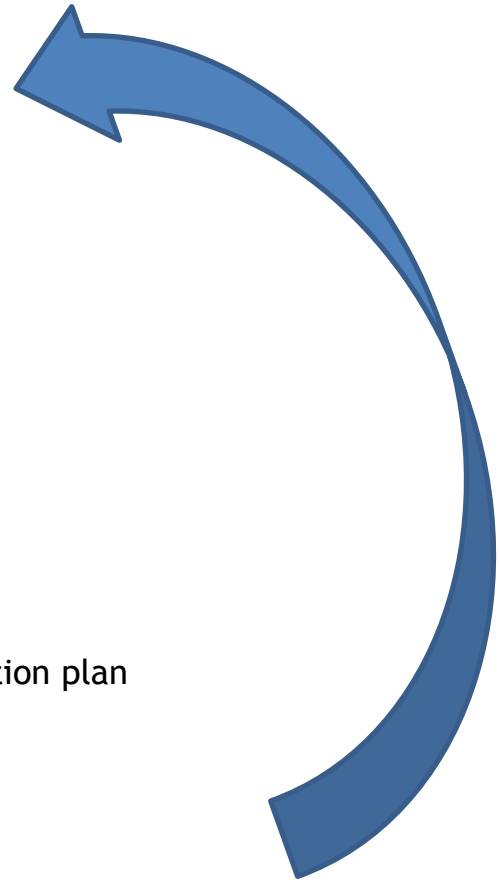
7. Analyze process(es) and data
8. Determine potential causes
9. Determine "root" causes

Change

10. Consider solution options
11. Determine "best" solution(s)
12. Test Solutions
13. Manage Change
    - Social
    - Technical
14. "Hand-off" to operations – including Evaluation plan

Evaluate

15. Monitor performance against measures
16. Maintain solution(s) (if working)
17. Re-enter Improvement Cycle



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Quality Planning Project Steps

Assess

1. Assess organizational goals and current performance
2. Determine most important problems/biggest opportunities

Define

3. Define problem/opportunity
4. Define process(s)/service to be addressed
5. Define measures of success
6. Define stakeholders, customers and team

Analyze

7. Determine customer needs
8. Translate customer needs into service features
9. "Benchmark" other service providers

Change

10. Consider service/process design options
11. Determine supplier requirements
12. Determine "best" integrated design
13. Prevent Failure
14. Manage Change
    - Social
    - Technical
15. "Hand-off" to operations – including Evaluation plan

Evaluate

16. Monitor performance against measures
17. Maintain process (if working)
18. Enter Improvement Cycle

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The QI-QP "Hybrid" Project

- Projects can start with a QI approach and not find narrow "root" causes.
- Large portions or even all of the process may need to be re-designed.
- You may start a project and realize you don't really know what customer needs.
- Even standard QI projects can sometimes benefit by "borrowing" from the QP toolbox.

"The Liger is pretty much my favorite animal"

-- Napoleon Dynamite

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Program QI

Assess

1. Assess department goals, customer needs, and current performance
2. Define Departmental measures of success
3. Put measurement system in place

Define

4. Define specific problem & process to be addressed
5. Define specific measures of success

Analyze

6. Analyze current process and environment
7. Determine potential causes
8. Determine most likely “root” causes

Change

9. Consider solution options
10. Determine “best” solution
11. Implement solution

Evaluate

12. Monitor performance against measures
13. Maintain solution(s) (if working)
14. Re-enter Improvement Cycle

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Program QI vs. Project QI

- QI Projects are time-limited.
- Program QI efforts are on-going.
- QI Projects "hand-off" to operations.
- Program QI *IS* operations.

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What else is different about Program QI?

- Less meeting intensive
- A little less data driven (at least to start)
  - Start with the obvious ("nuggets on the ground")
- Involves everyone in the Program
- Uses shop floor tools and techniques
  - "LEAN" style emphasis on space, flow, and inventories

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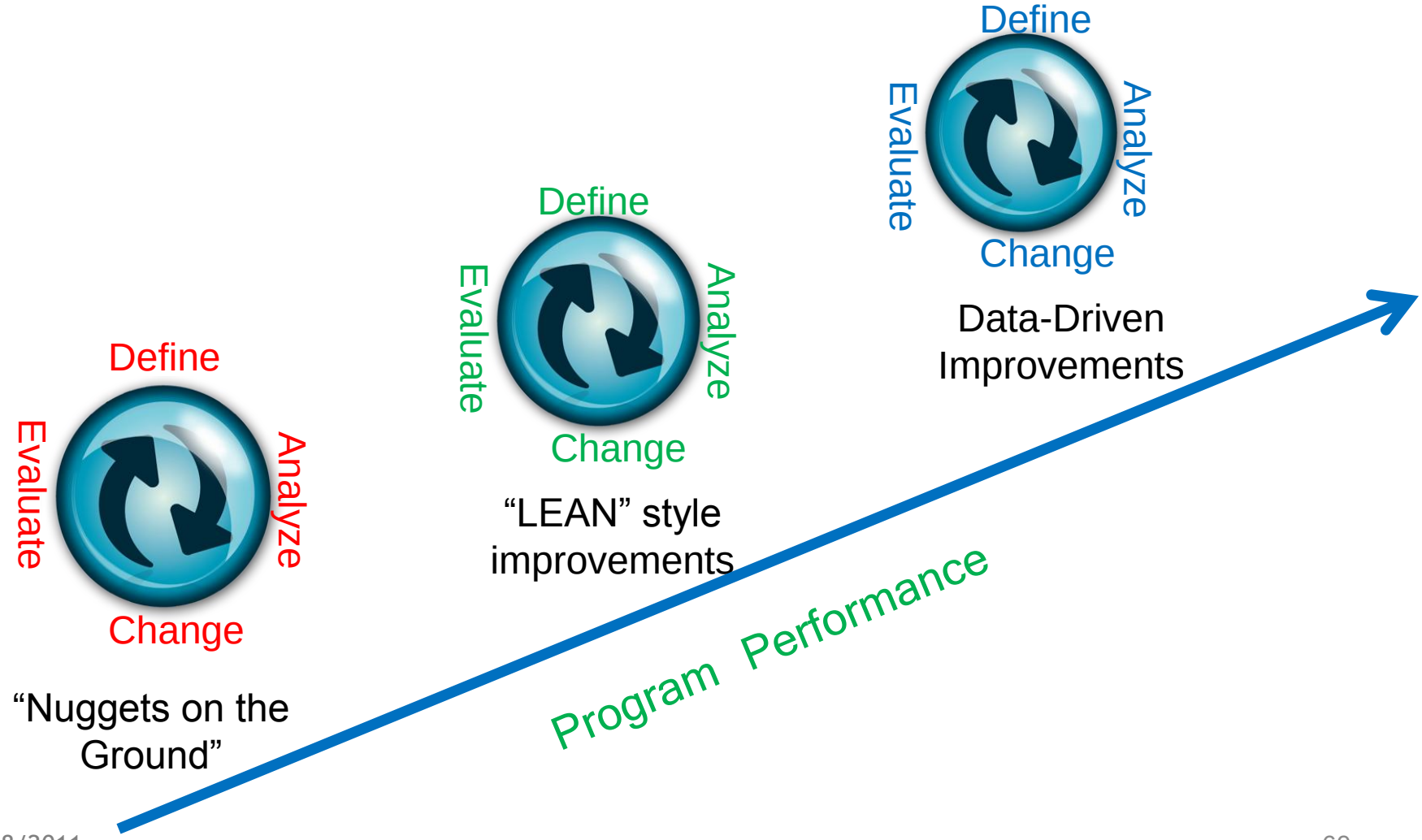
Program QI cycles (A typical pattern)



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Programs especially well suited to QIDW/Program QI (characteristics)

- High volume
- Time / Error Rates/ Productivity
- Transactional
- Stable (reasonably)
- Variation factors within group's influence

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Discussion

- Programs you might consider for such an approach?

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Learning Objectives Revisited

- Explain difference between Quality Control, Quality Improvement, and Quality Planning.
- Map QC, QI, QP approaches to different quality models (languages).
- Apply key criteria to determine if best approach to start is QC, QI, QP .
- List 1 possible area/process within your organization for each of the 3 approaches.

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