Data "Insanity": The Silent Improvement Killer

Part 1 – Systems and processes…and statistical / data implications

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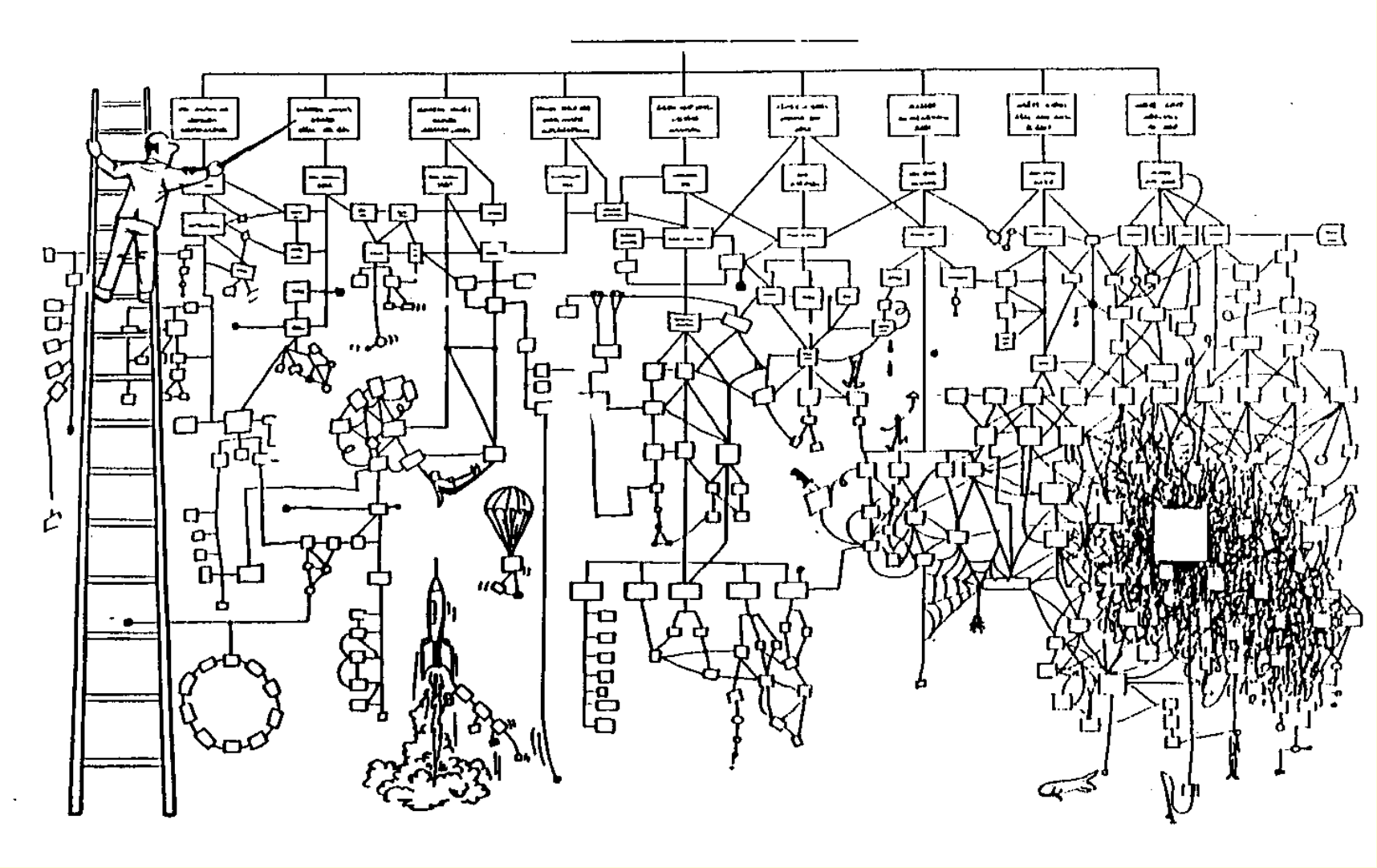
Overall: NEEDED Realizations

- People don't need statistics…they need to SOLVE THEIR PROBLEMS… through statistical *thinking*
- Whether or not people understand statistics, they are ALREADY using statistics
- It's NEITHER "number crunching" nor "massaging" reams and reams of data
- ***Data "sanity" is fundamental to a culture of safety—There is NO choice!***

Goal: Changed conversations!

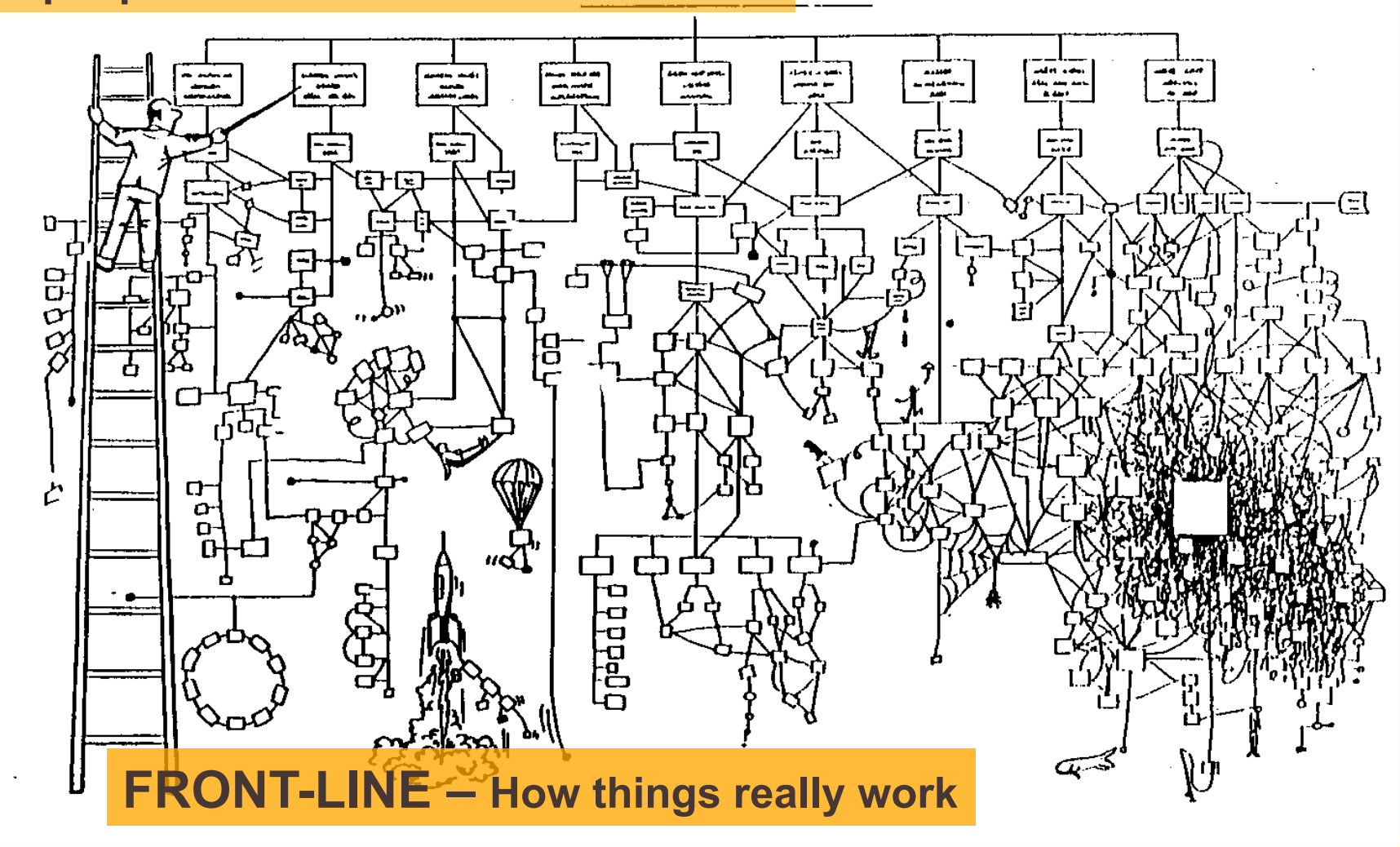
KEY framework: ALL Work is a Process!



Confusion…Conflict…Complexity…Chaos

KEY framework: ALL Work is a Process!

How people would like it to think it works



FRONT-LINE – How things really work

Confusion…Conflict…Complexity…Chaos

Process-oriented Thinking

- ***All work is a process***
- If a process does not "go right," that is variation
- Processes speak to us through data,
- There is benefit to understanding variation and reducing *inappropriate* & *unintended* variation [Better prediction],
- The use of data is a process—actually, *four* processes,
- **Any variation can be one of two types: ***Treating one as the other makes things worse***

Key to Process-oriented thinking

- Your current processes are *perfectly* designed to get the results they are already getting

  - Are you perfectly designed to get what you are observing (even if you "shouldn't")?

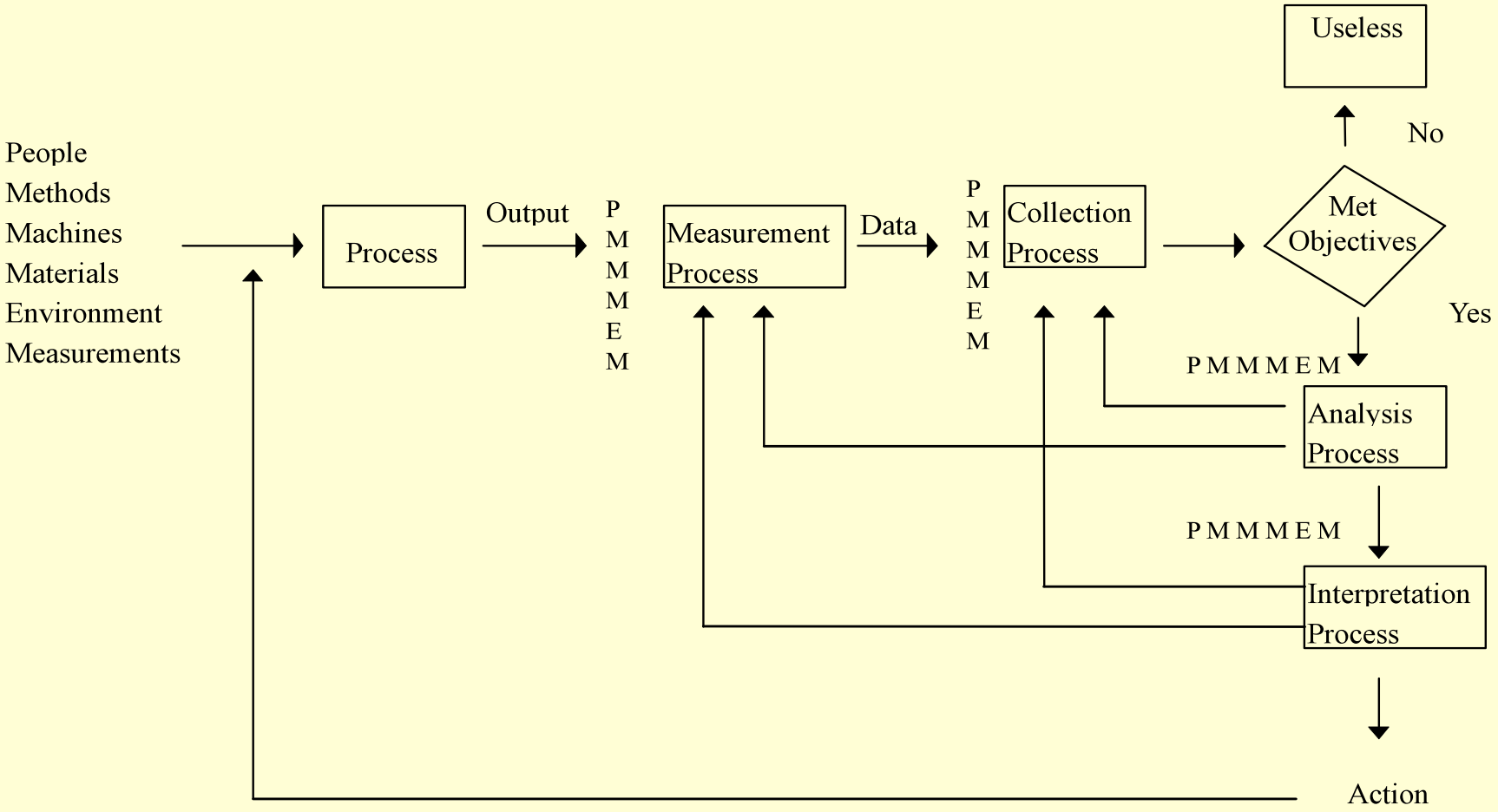
    - "NEVER" events

Let's get one thing out of the way: TQM, Six Sigma, Lean – In a nutshell

- ***Obsession* with waste… process thinking … using data… teamwork**
  - ***ALL work is a process,***
  - ***Toyota lean – obsession with "time" as inventory and process "flow"***
  - ***Improving quality = Improving Processes (Better Prediction)***

Use of Data as a Process

Definition, collection, analysis, interpretation



Analysis / Interpretation = MEETINGS

Define "Mortality" (or "Safety")

Hospital	Def'n A	Def'n D	Def'n E
104	9	8	7
105	4	3	2
107	3	6	4
113	7	7	8
115	5	4	9
118	8	10	6
119	10	2	3
122	2	5	5
123	6	9	10
126	1	1	1

Operational Definition

- Define “Smoking”
  - NHS: 14 different definitions
- Define “Stopped smoking”

No way is ever totally “right” – It all depends on your OBJECTIVE

"Incident": Baseball Terminology – "Save"

- **Credit a pitcher with a save when he meets all three of the following conditions:**

  (1) He is the finishing pitcher in a game won by his club; and

  (2) He is not the winning pitcher; and

  (3) He qualifies under one of the following conditions:

  - **(a) He enters the game with a lead of no more than three runs and pitches for at least one inning; or**
  - **(b) He enters the game, regardless of the count, with the potential tying run either on base, or at bat, or on deck (that is, the potential tying run is either already on base or is one of the first two batsmen he faces; or**
  - **(c) He pitches effectively for at least three innings. No more than one save may be credited in each game.**

"Let's make this public!"

- Physicians: "How am I doing?"
- Patients: "What are my chances?"
- Payers: "How much does it cost?"
- Society: "Is this the best use of resources?"

Let the "games" (ad hoc analysis / interpretation) begin!

What's the OBJECTIVE?

Guideline Issues

- **Reduce inappropriate and unintended CLINICAL variation**
  - **By the way, what was your "process" for creating the guideline?**
- **In addition, many of YOUR jobs:**
  - **Reduce inappropriate and unintended IMPLEMENTATION variation**

Implementing a Guideline is a Process

- There WILL be
  - Variation in how people interpret it
  - Variation in how people apply it
  - Uncontrollable variations in the environments in which it is applied
  - Variation in how people assess its value
- *Any collected data will contain this aggregated variation*
  - ***"How would you know" it's being used…and working?"***

Process Context

- Statistics on the number of incidents does not help to reduce the number of incidents
- ***"Is the process that produced the most recent number the same as the process that produced the previous number(s)?"***
- *Understand the process that produces your incidents*
- The presence of everyday variation generally *invalidates* most of the statistics you've learned in "basic" courses!

Different kind of statistics

- **Descriptive**: What can I say about this *patient*?
- **Enumerative**: What can I say about this *specific sample* of patients?
  - Goal: Estimation (of an underlying "population")
  - ***In medicine, there is no such thing as an underlying, stable population:***
    Part of the process of a clinical trial is to create one
- **Analytic**: What can I say about the *process* that produced ***BOTH*** this sample of patients **and** its results?
  - Goal: Prediction of the future

- Quality Improvement is analytic
  - Write me for the original article by David Kerridge: davis@dbharmony.com

BE CAREFUL with "common" data bases

- People assume that the exposed variation is due to "methods"
  - One is just exposing a different PROCESS
- Many times, it's simply variation in the "measurement" input
  - The operational definition is different
- What about their "sample" ("People" input) vs. your "sample" ("People" input)?
  - Is the (alleged) difference "appropriate?"

Benchmarking, Anyone?

"The target is for 90% of the bottom quartile to perform at the 2008 average by the end of 2009."

??????????????????????????

"Make it so!"

Using Data Bases to Benchmark

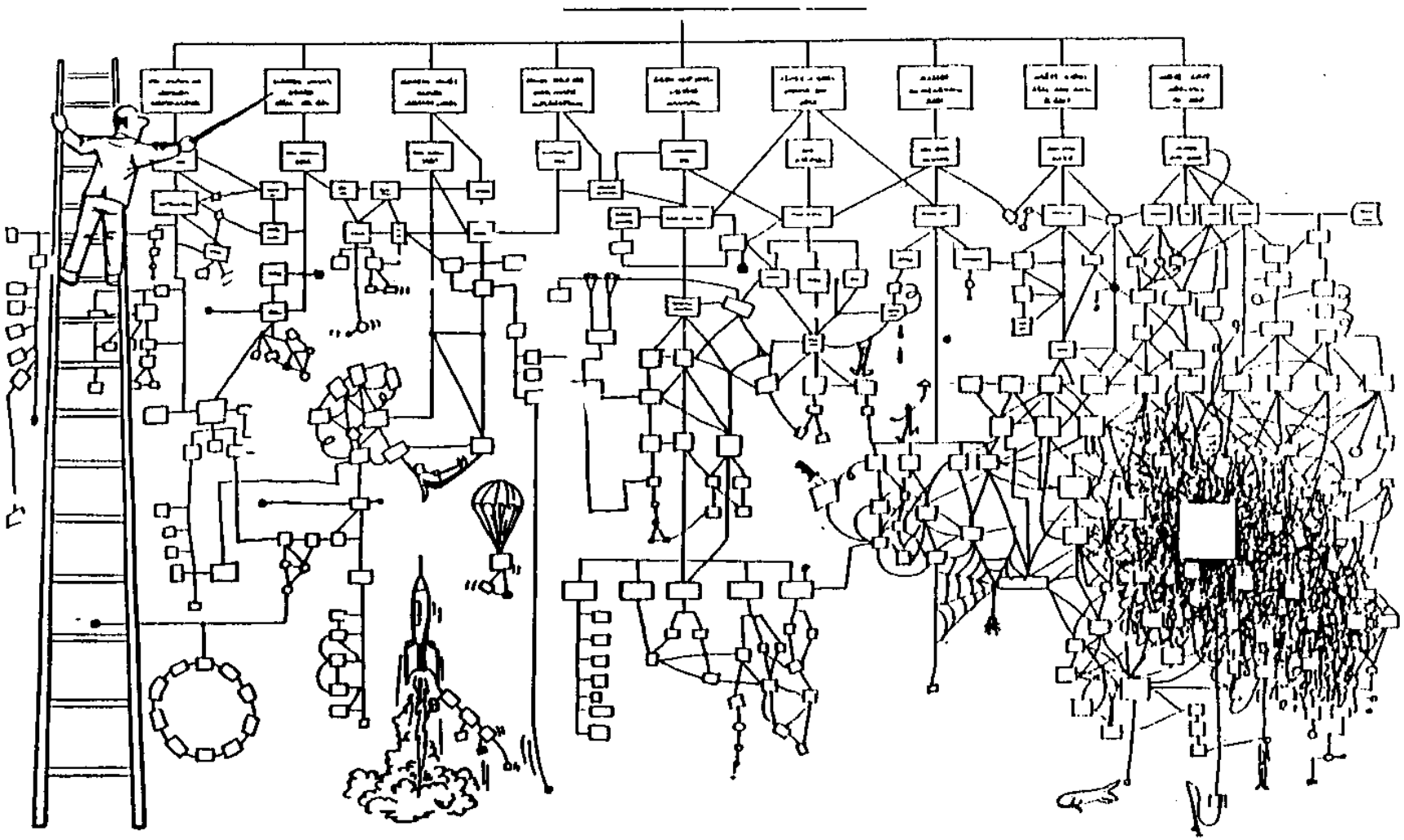
- **NOT: "We want to be there," but…**
- **The "art" of ASKING PROCESS-ORIENTED QUESTIONS**
  - ***"What works, for whom, under what circumstances?"***
- **Think of the gap between your performance and the chosen "benchmark" as VARIATION**
  - **Appropriate? Unintended?**
  - ***Are you even "statistically" different from the benchmark?***

Deeper Benchmarking Issues

- Whole systems transformation is complex change against a shifting baseline
- Findings reveal factors that *enable* or *constrain* the fortunes of a change effort
- Presence of enabling factors does not assure 'success' but their absence makes 'failure' more likely

"Process-oriented" definition of "incident"

- **"A hazardous situation that was unsuccessfully avoided."**



“Perfectly Designed?”

"Incident" = "Variation"

- Variation is one of TWO types

- Treating one as the other *will make things worse*

  - **Special cause**: Unique, "one off"
    - OR…intentionally created for improvement

  - **Common cause**: Inherent in the process – "perfectly designed" to happen

Sobering explanation of common cause

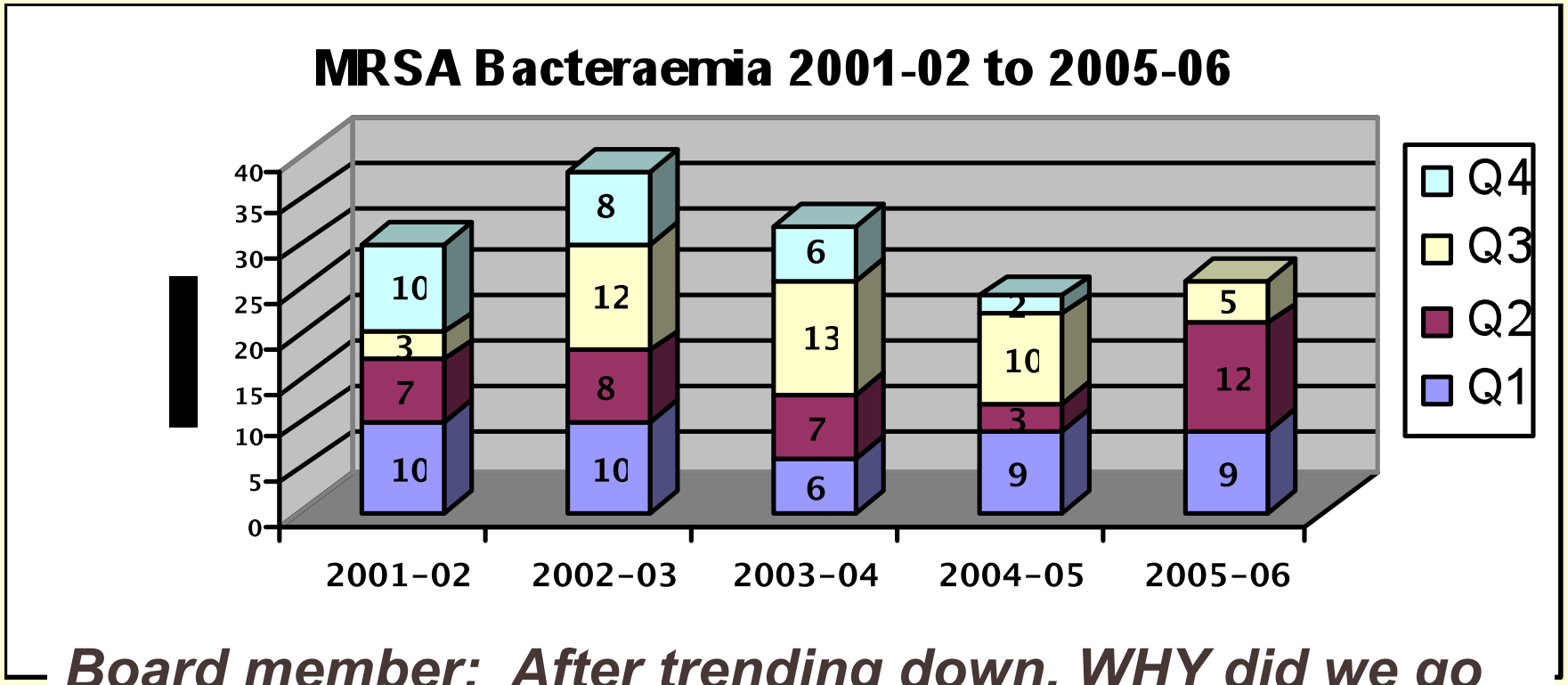
- **Say: Because of the current "design" of our processes, we are "perfectly designed" to kill 4 patients a year**
  - **The trouble is: It WILL happen randomly – You can't predict which 4 patients where events will conspire such that "*everything* in the process that can go wrong does go wrong" simultaneously (Lewis Blackman?)**
    - **"I was late for work today. Oh, it was because I had all the red lights."**
  - **Given this, in any one year, you *will* observe between 0 and 10**

Human tendency: "ALL variation is special!"

- **Sentinel event analysis, "near miss" analysis, root cause analysis (RCA), and, now, "Never" events**
  - **"But, Davis…we *shouldn't* have these incidents!"**
  - **"I know…but are you *perfectly designed* to have them?"**

Deming: "For every problem, there is a solution: Simple…obvious…and wrong!"

The Quarterly Bacteraemia Meeting – Look familiar?



Board member: After trending down, WHY did we go back up?!

(By the way…I *HATE* bar graphs!)

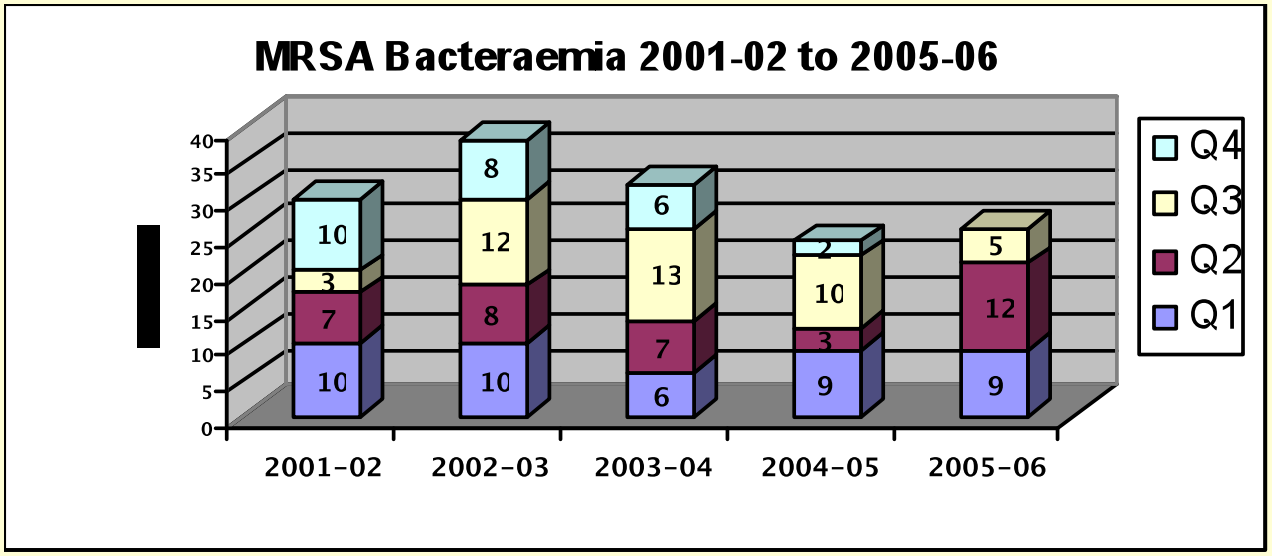
Do you need a "common cause" strategy?

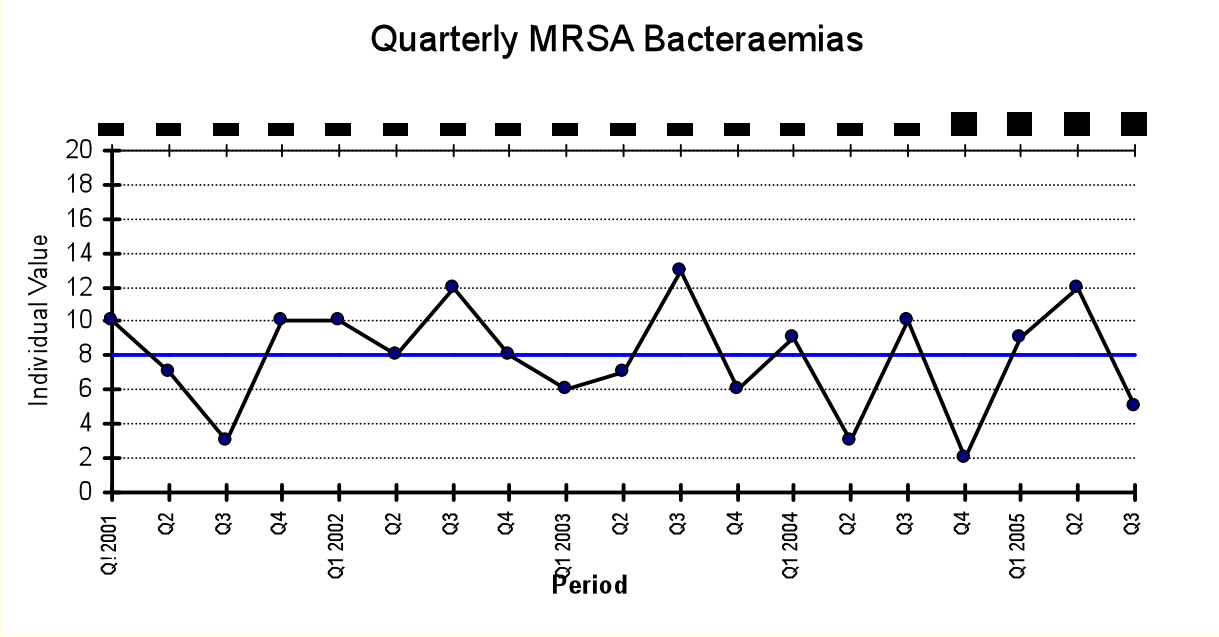
- Statistics on the number of incidents does not improve the occurrence of incidents
- You cannot treat data points individually or "dissect" an incident individually as THE analysis for 'root cause'
- You cannot compare two points
  - % change, "too big" a change…

"Perfectly designed" vs. Special cause

- I am talking about "hardwiring" safety
- More in Parts 2 & 3 on "common" vs. "special" cause
- Pandemic or epidemic is a "new process" entering your current process (special cause)
  - In this case, root cause analysis (special cause strategy) is appropriate
  - "Plotting the dots" (Part 2) will tell you if it worked

What to do in a boring meeting NOW?



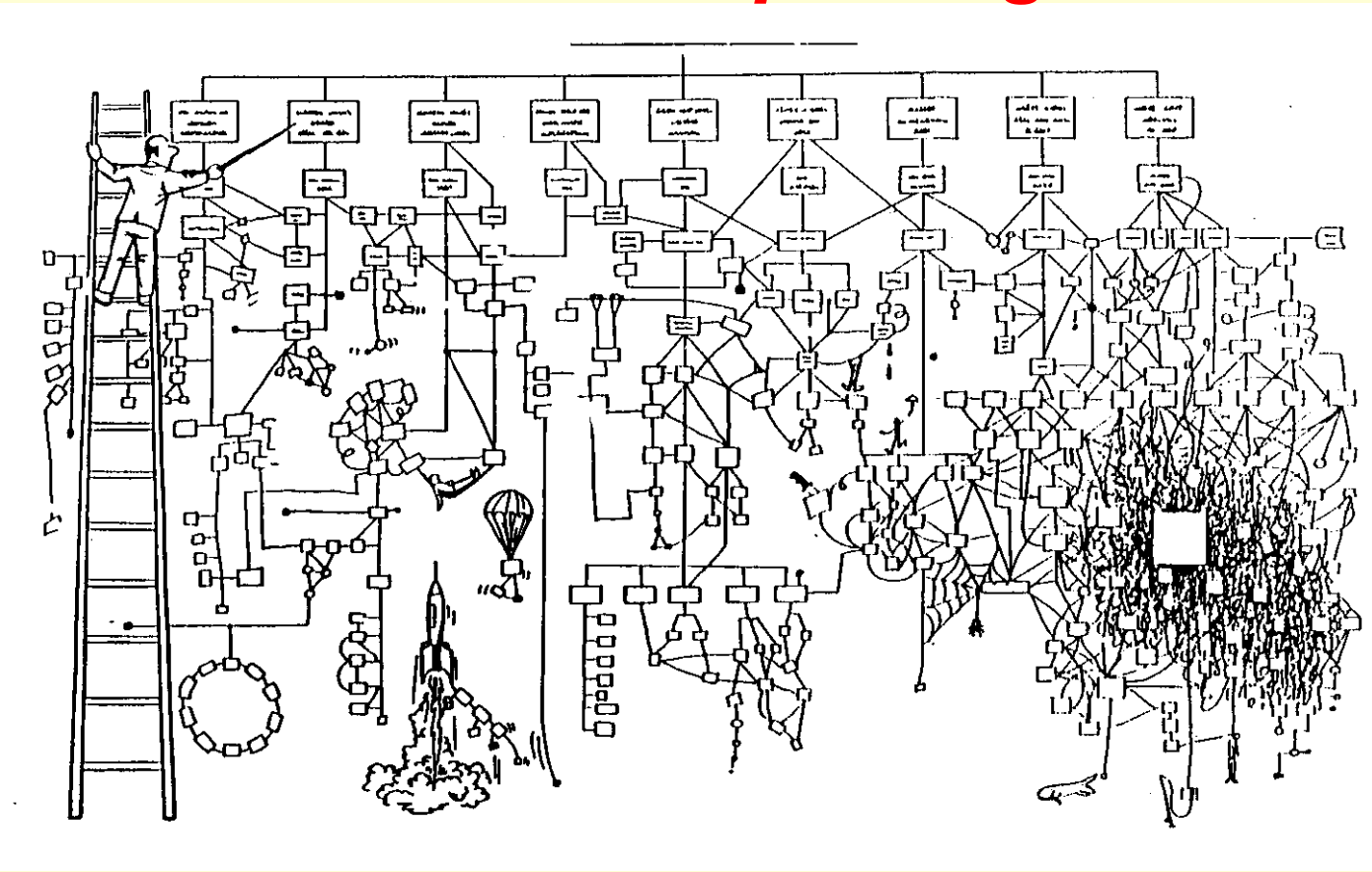


"Plot the Dots!" –

Part 2

It's not the problems that march into your office that are important. The most important problems are the ones *no one is aware of*.

Bears Repeating



“Gap” (variation):

What DOES happen vs. What SHOULD happen

Common or Special Cause?

Questions for Group Dialogue

- How does your organization react to, report, and analyze "incidents?"
- Do you have CLEAR definitions of specific "incidents?"
- Have you ever considered "safety" in a process-oriented context?
- Have you, with the best of intentions, been using "special cause" strategies?

  HOW DO YOU KNOW they're working?