Using the Cynefin Framework to make sense of it all

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Project Management Reality

- Bad news: Projects don't always go according to plan.

- Good news: We can learn from this.

- Bad news: What we "learn" may not be helpful. Or true.

- Good news: There is a way to make sense of it.

Lesson 1: More details

- We didn't go into enough detail in the plan and we didn't have enough status reports.

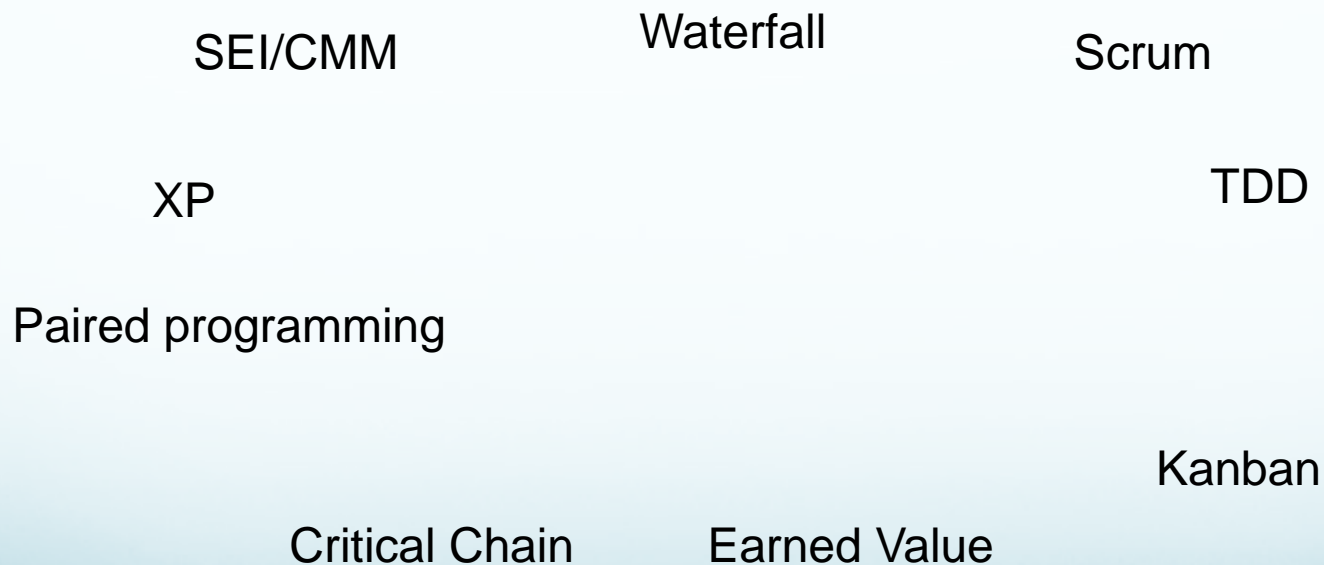- Next time: More detail, more status!

Lesson 2: Less detail

- Detailed planning is impossible. Stuff happens. Projects are about discovery. Planning is a waste of time.

- Next time: Be nimble. Be quick. Be flexible. Act fast

The result

- Many methods, techniques, and tools. All claiming to be right. All with successes….and failures

SEI/CMM   Waterfall   Scrum

XP   TDD

Paired programming

                                      Kanban

        Critical Chain   Earned Value

Learning from experience isn't that easy

James G. March, *The Ambiguities of Experience*

- **Low Intellect Learning**: Copying things that others do without figuring out why they work.

- **High Intellect Learning**: Copying things that others do only after studying them long enough to figure out why they work.

Setting up kanban

- Low Intellect Learning:
  - See another group's kanban board
  - Copy it exactly.
  - Implement just like they did it.
  - It works!

- High Intellect Learning:
  - See another group's kanban board
  - Watch how they use it
  - Recognize aspects of Queuing Theory and Theory of Constraints in the process.
  - Realize your group is a bit different and make changes.
  - It works!

Not learning

Operation Michael Spring 1918

- German offensive anticipated in late 1917

- German defenses had stood up well and British and French had captured documents on how to build them.

- Decision: Copy German defenses exactly.

- Result: Failed in 2 hours.

Fall of France to Blitzkrieg, May 1940

- French military spent 20 years planning defense against invasion.

- Complete agreement on the plan

- Decision: Defend border with Maginot Line

- Result: Failed in 2 weeks

How do we know what to do?

- We need to understand the <u>context</u>

- We need to understand the <u>theory</u> behind the methods and tools.

- If we understand the theory we can modify the method to match the context.

Identifying context

- Sense making: We can never know everything we want to know, but we need to be able to make sufficient sense of what's going on in the world so that we can act appropriately in it.

- That's where the Cynefin Framework comes in.
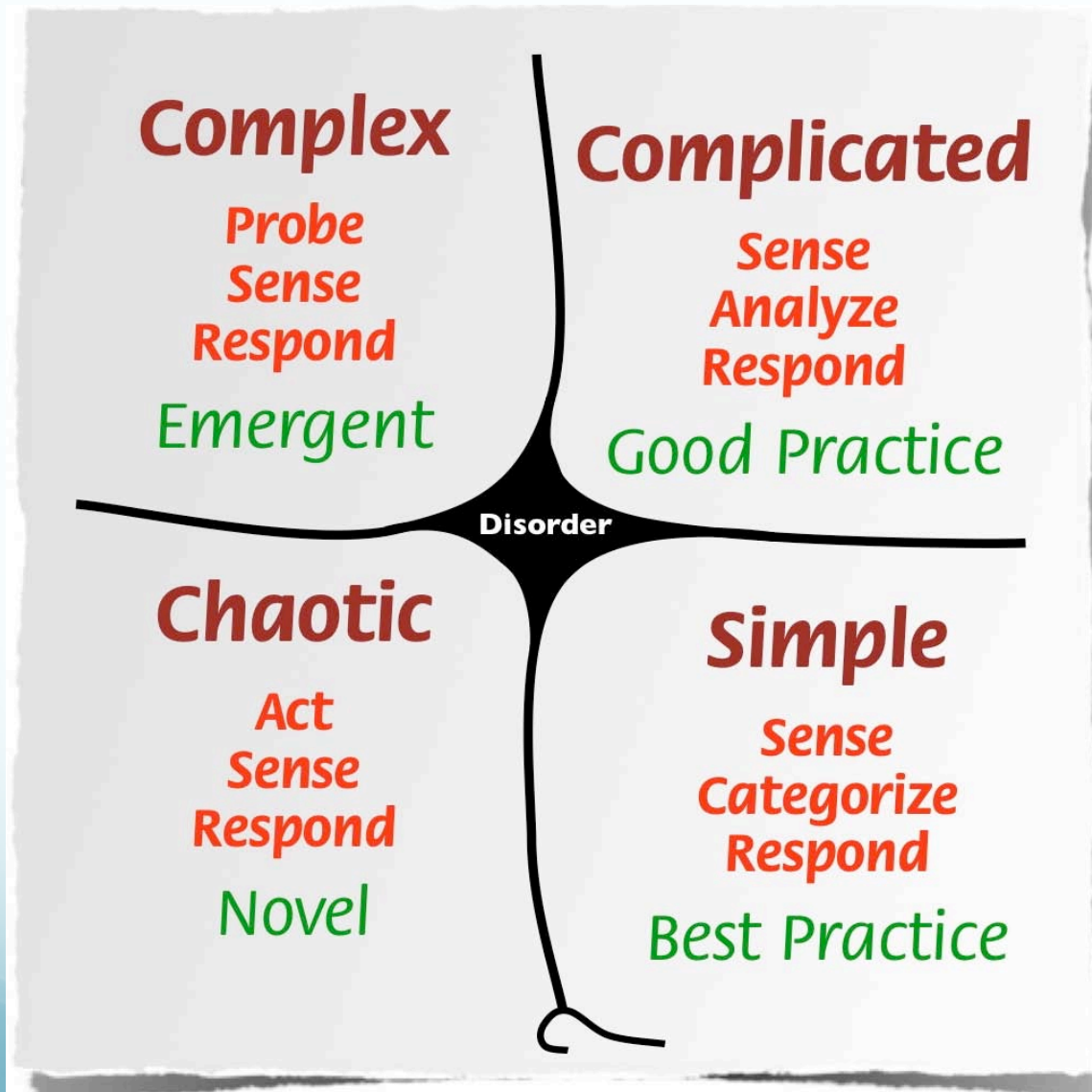
The Cynefin Framework

- Dave Snowden, founder and Chief Scientific Officer of Cognitive Edge (http://www.cognitive-edge.com)

- Welsh for "place of your multiple belongings of which you can only be partially aware."

- References:
  - http://www.cognitive-edge.com
  - http://en.wikipedia.org/wiki/Cynefin
  - "A Leader's Framework for Decision Making" Snowden and Boone, *Harvard Business Review*, November 2007.
  - @snowded

Three types of systems

- There is the system and the agents in the system

- Ordered systems
    - The system constrains all agent behavior
    - Agent behavior is predictable and obvious.

- Chaotic systems
    - There is no systemic cause/effect between system and agent.
    - Agent behavior predictable with probability and statistics.

- Complex systems
    - System lightly constrains agents and agents constantly modify the system.
    - Inherently unpredictable. Emergent positive and negative behavior

Cynefin Framework

Complex
Probe
Sense
Respond
Emergent

Complicated
Sense
Analyze
Respond
Good Practice

Disorder

Chaotic
Act
Sense
Respond
Novel

Simple
Sense
Categorize
Respond
Best Practice

- Not a "four square"
- Five domains
- No outer boundary
- Flexible lines
- Disorder: Not knowing which domain you are in.

http://en.wikipedia.org/wiki/File:Cynefin_framework_Feb_2011.jpeg

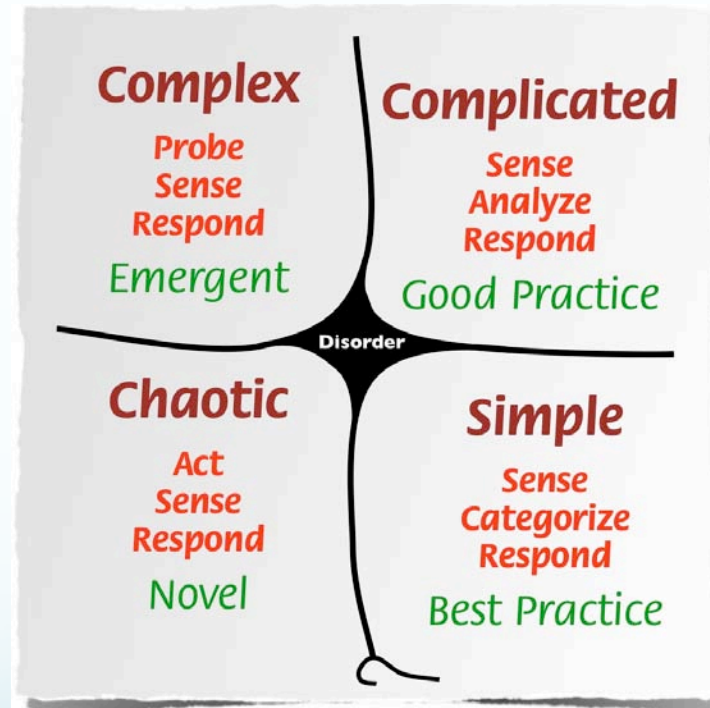# Context: Odd behavior

4

Zen Master tech support. Experiments and tests.

3

Elevated tech support, advanced problem solving analysis.

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Best Practice

1

Computer is deleting files and emailing a file to everyone in your address book.

2

Entry level tech support. Canned list of common problems.

http://en.wikipedia.org/wiki/File:Cynefin_framework_Feb_2011.jpeg

Role of Disorder

We'll know in hindsight

Experts know

No one knows

Everyone knows

Reaction to Disorder

Complex

"We should ask the users and try some things out."

Complicated

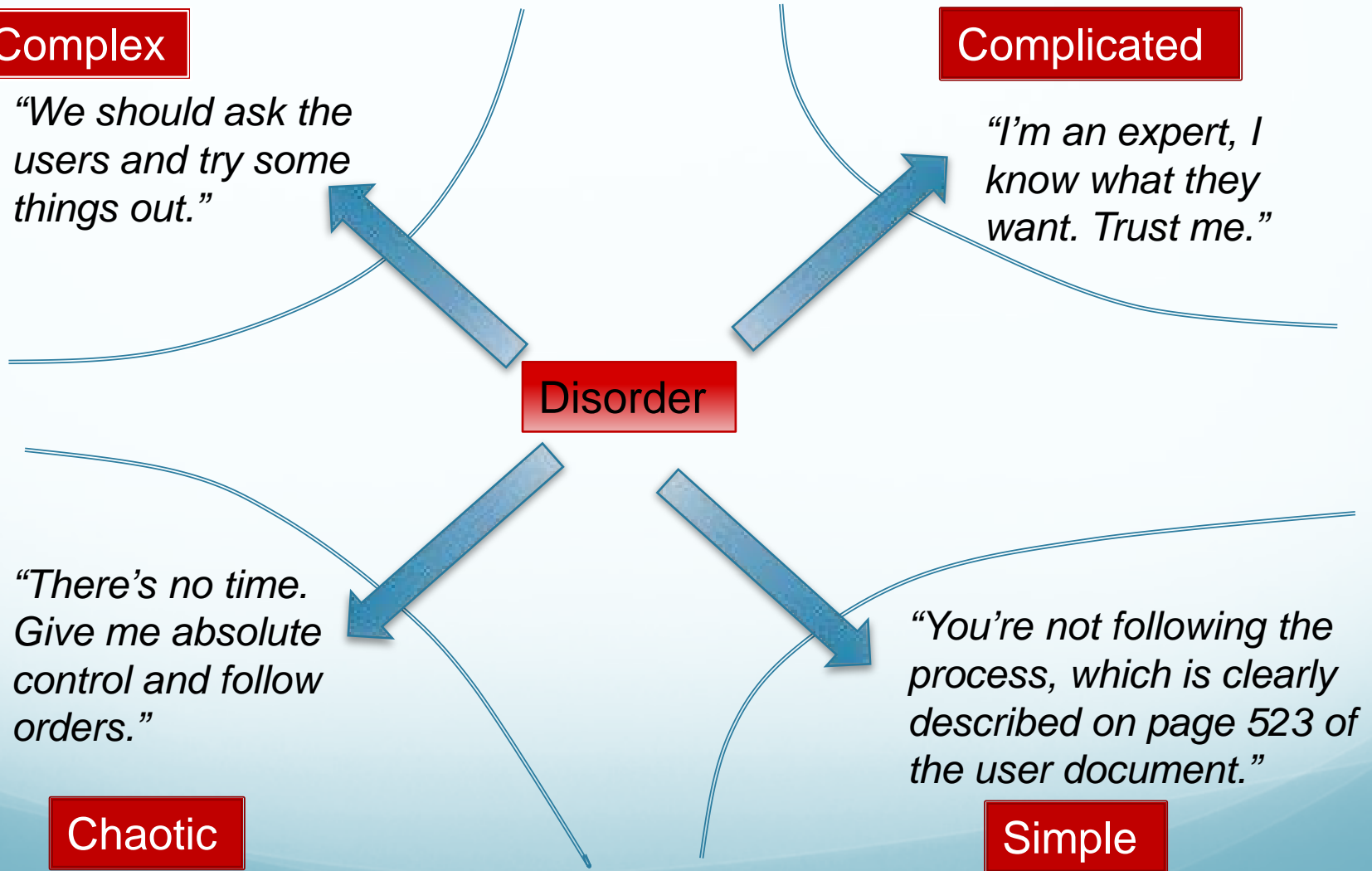*"I'm an expert, I know what they want. Trust me."*

Disorder

"There's no time. Give me absolute control and follow orders."

Chaotic

"You're not following the process, which is clearly described on page 523 of the user document."

Simple

Appropriate action

Complex

Collect coherent theories and ideas about what to do.
Propose Safe-to-Fail experiments.
Set boundaries.
Amplify successes, dampen failures.

Complicated

Assign to an expert to analyze and propose action.

Disorder

Chaotic

Avoid if possible.
If you can't, assign leader and act immediately to restore order.

Simple

The right action is obvious to all. Assign someone to do it.
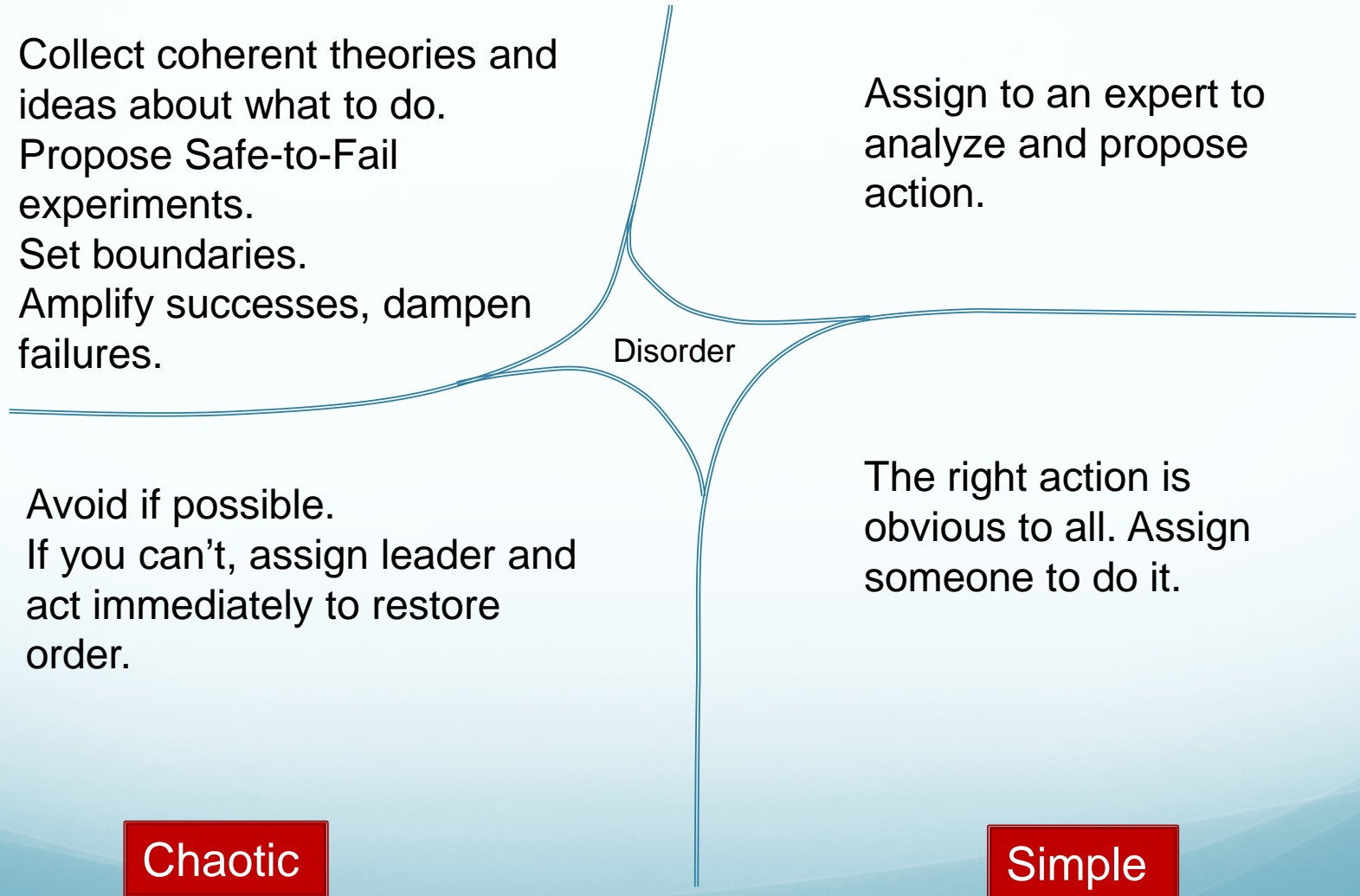
Methods in context

Complex

Complicated

SEI/CMM

XP

Pair Prog

Scrum

Waterfall

Kanban

Earned Value

Critical Chain

FDD/TDD

Right answer only clear in hindsight.
?

A precise answer possible
Six Sigma
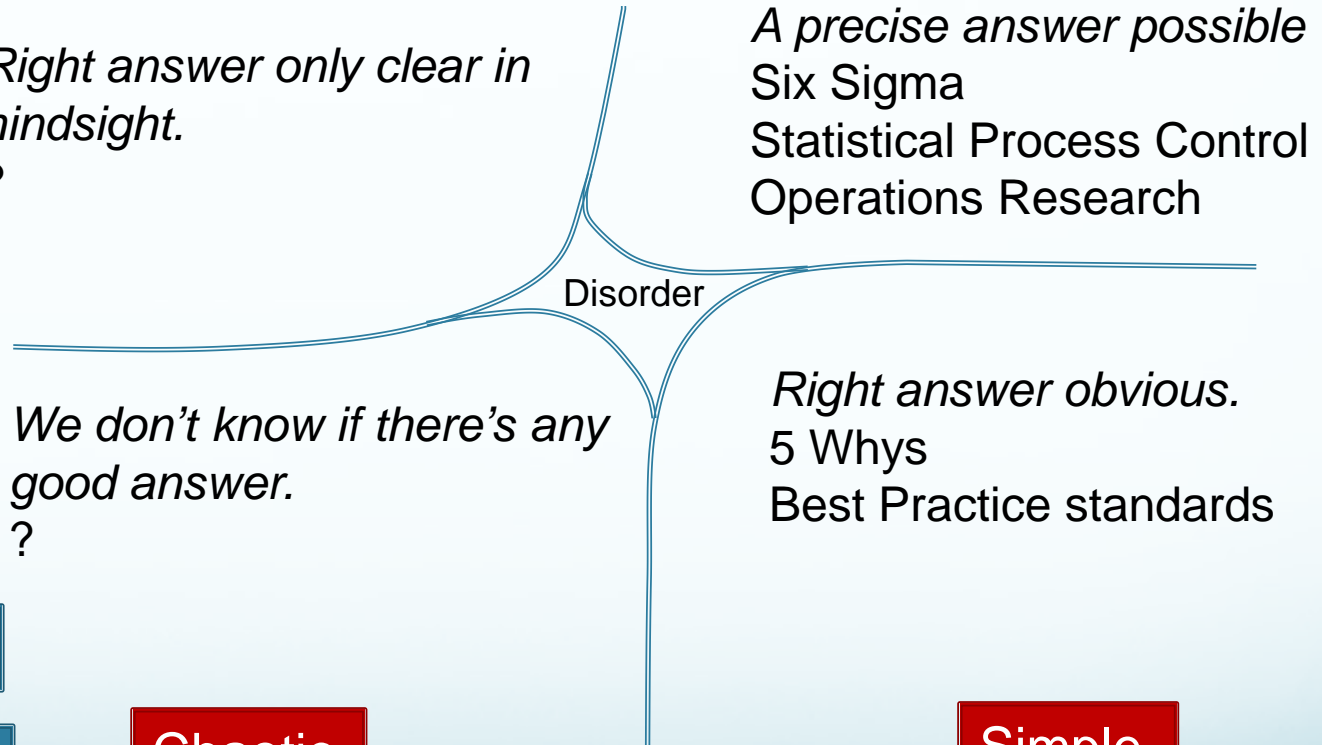Statistical Process Control
Operations Research

Disorder

We don't know if there's any good answer.
?

Right answer obvious.
5 Whys
Best Practice standards

Chaotic

Simple

Using Cynefin

- The Cynefin Framework won't give you the right answer but it will help you use your skills and experience to look for it in the right place.

- Sensemaking is a form of Orientation. And that's valuable.

Col. John Boyd

USAF Colonel
Possibly world's greatest fighter pilot. Literally wrote the book.
Military strategist
Business strategist
Creator of the OODA Loop

The OODA "Loop"

John Boyd's OODA Loop

http://en.wikipedia.org/wiki/File:OODA.Boyd.svg
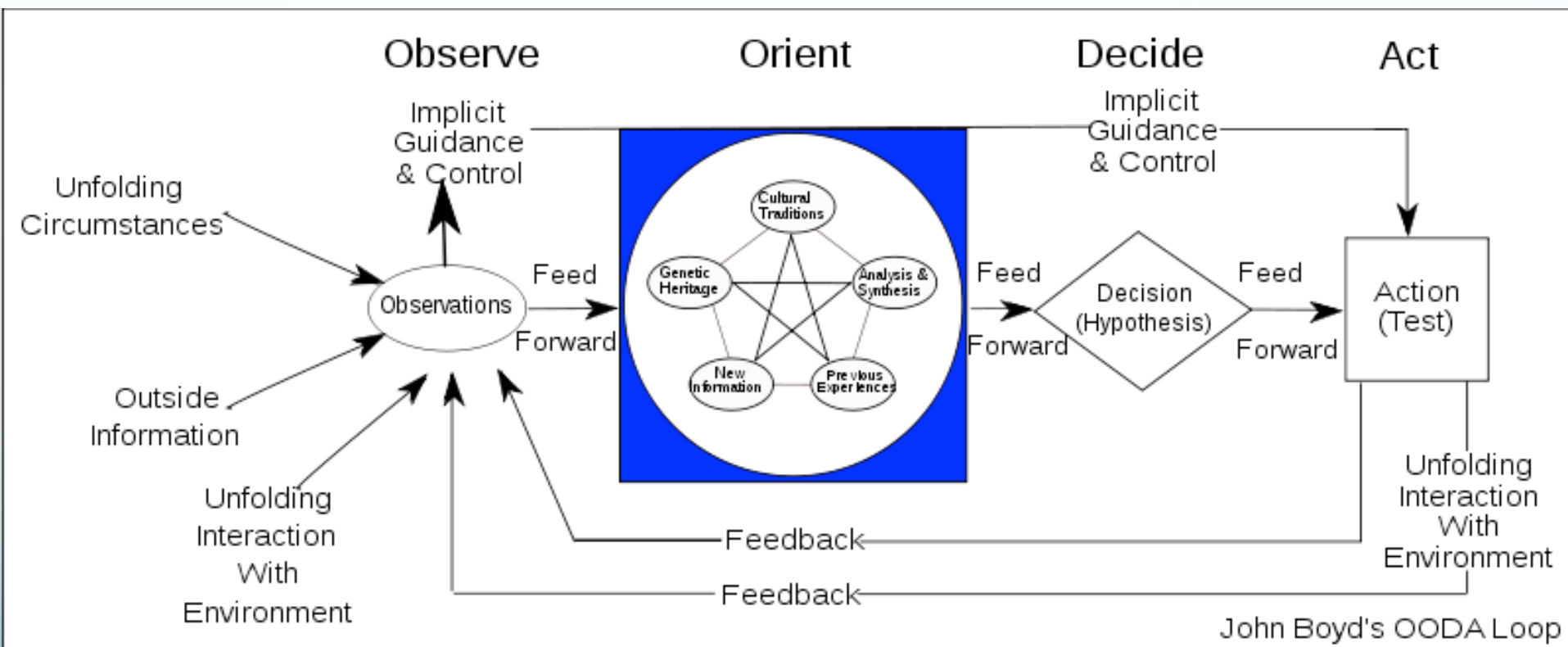
Boyd's Rules for Success

- Boyd's research showed that organizations that were successful had 4 characteristics:
  - Intuitive skill
  - Trust at all levels
  - Common focus
  - Mission Contracts (Auftragstaktik)

- Organizations with these characteristics can use the OODA approach to success.

- The sensemaking of the Cynefin Framework increases the ability to use the OODA Loop.

The Pre-Mortem

- Created by Gary Klein. A way to allow people's experience to help indicate emergence in time to help. Weak signal detection.

- Call new team together and tell them that there is a crystal ball in the CEO's office that shows the future. But it's just a snapshot in time, it doesn't explain anything.

- "We looked at the crystal ball and it showed this project will be an embarrassing failure. Write down on Post-it notes the reasons it failed."

- Create affinity groups and look for themes. Begin conversation and fix problems before they emerge.

Conclusion

- Skill isn't enough. Methods and tools aren't enough

- You must understand the theory behind the methods and the context of the system you're in. Then you can match method to context, adapting it as required.

- The Cynefin Framework is a simple, easy to understand way to help you make sense of the situation and help determine the appropriate action.

T'Rain and the WOR

- "*Reamde*" by Neal Stephenson includes T'Rain, a Massively Multi-player On-line Role Playing Game

- It has a backstory with "Good" and "Evil" characters determined in advance.

- A minor hack allows color palette changes

- War of Realignment—emergent behavior, unplanned
  - War between the Earthtone Coalition and the Forces of Brightness.

You may have written the code, but users may have other ideas.

References

- Cynefin
  - http://www.cognitive-edge.com
    - Videos, presentations, podcasts, methods
  - "A Leaders Framework for Decision Making" Boone and Snowden, Harvard Business Review, Nov 2007

- John Boyd
  - "Certain to Win: The Strategy of John Boyd Applied to Business" by Chet Richards
  - "Boyd" by Robert Coram
  - "Science, Strategy and War: The Strategic Theory of John Boyd" by Frans Osinga.

- Gary Klein
  - "Sources of Power: How people make decisions"
  - "Intuition at Work"
  - "Streetlights and Shadows: Searching for the keys to Adaptive Decision Making"