A3 PROBLEM SOLVING

And Contexts
for
Problem Solving Methods

MARC PIERSON

Three Points

1. Doctors and Nurses are busy and often **frustrated with the workarounds** they must use.
2. **A3 Problem Solving** is simple and usable at the front line by clinicians. It is an engine of disruptive adaptation / innovation
3. There are **five problem solution spaces**—which are mutually exclusive—it is important to get it right.

Powerfully Simple

- From the front line, by the front line, at the front line
- Buy-in during problems solving, not after
- Visual
- Scoped right (11 X 17)
- SBAR + PDSA
- Problems to be solved are linked to the work—VSM
- *SIMPLICITY ON THE OTHER SIDE OF COMPLEXITY*

Supporting Front Line Problem Solvers

- Training (long and short courses)
- Coaching (organizational and unit based)
  - Local capacity
- Alignment--Bottom up & top down

Swamps & Strategy

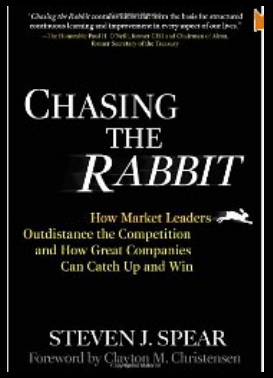
- **Frontline—value creation**
  - With the customer
  - Provide tools and time for them drain the process swamp of never designed work—workarounds
  - Go see it: Direct Observation
- **Executive function—strategy deployment**
  - From the environment
  - To the front line

Draining the (process) Swamp at the Front Line

- A good investment for customers and employee satisfaction
- A prerequisite to agility in implementing strategic initiatives

Four Capabilities of High Velocity Organizations

by Steven Spear



- ***Capability 1:*** Specifying Design to Capture Existing Knowledge and Building In Signals to Reveal Problems
- ***Capability 2:*** Swarming and Solving Problems to Build New Knowledge
- ***Capability 3:*** Sharing New Knowledge throughout the Organization
- ***Capability 4:*** Leading by Developing Capabilities 1, 2, and 3

The Problem with Names
(nouns vs. verbs)

- "Scientific method"
- "Lean"
- "Toyota production system"
- "Adaptive Design"
- **General Purpose Problem Solving (Rules and Method)**
  - *An engine for adaptation at all levels*
    - *(Chasing the Rabbit, S. Spear).*

Lean Health Care West

- 7 Week beginners course (3 hrs/wk min.)
- Ongoing coaching and sharing
- Value Stream Mapping
- **A3 Problem Solving**
- Usable useful skills AND real problems solved
- Resource (coach) to their peers

Current Status in Whatcom Region

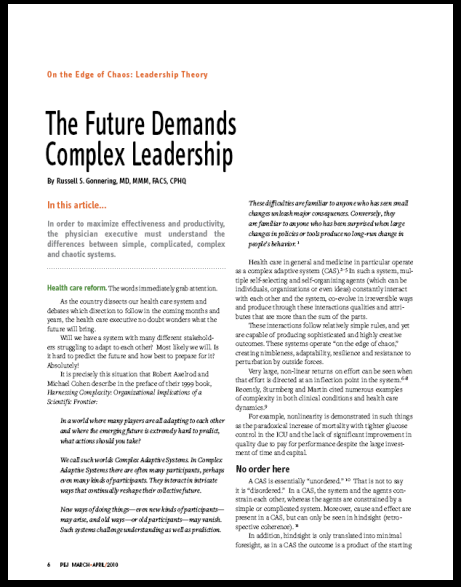
- Four certified and active trainers
- 110 trained
- Fourth cohort beginning in April
  - (2 groups of 16, 4/yr => 128/year)
- How (& why) to measure benefits (flavors of value)?
  - $, Efficiency, Safety, EBM, Pt. Experience, Population Health, Teamwork, Growth

What is Different This Time?

- Front line (customer) focused
- Tailored for clinicians
  - Helps them remove frustrations
  - Very light on tools
  - Coaching provided (“adult learning”)
  - Not “RPIs”

Resources:

- Whatcom CHI web page: http://crossroads/sc_quality_whatcom/A3/A3Home.htm
- List of PPT slides for class: http://crossroads/sc_quality_whatcom/A3/A3Resources.htm
- David Snowden: http://www.cognitive-edge.comhttp://www.cognitive-edge.com/



On the Edge of Chaos: Leadership Theory

The Future Demands Complex Leadership

By Russell S. Gonnering, MD, MMM, FACS, CPHQ

In this article...

In order to maximize effectiveness and productivity, the physician executive must understand the differences between simple, complicated, complex and chaotic systems.

Health care reform. The words immediately grab attention.

As the country dissects our health care system and debates which direction to follow in the coming months and years, the health care executive no doubt wonders what the future will bring.

Will we have a system with many different stakeholders struggling to adapt to each other? Most likely we will. It is hard to predict the future and how best to prepare for it! Absolutely!

It is precisely this situation that Robert Axelrod and Michael Cohen describe in the preface of their 1999 book, *Harnessing Complexity: Organizational Implications of a Scientific Frontier*:

In a world where many players are all adapting to each other and where the emerging future is extremely hard to predict, what actions should you take?

We call such worlds Complex Adaptive Systems. In Complex Adaptive Systems there are often many participants, perhaps even many kinds of participants. They interactive intricate ways that eventually reshape their collective future.

New ways of doing things—even new kinds of participants—may arise, and old ways—or old participants—may vanish. Such systems challenge understanding as well as prediction.

These difficulties are familiar to anyone who has seen small changes on knob major consequences. Conversely, they are familiar to anyone who has been surprised when large changes in policies or tools produce no long-run change in people's behavior.[1]

Health care in general and medicine in particular operate as a complex adaptive system (CAS).[2-5] In such a system, multiple self-selecting and self-organizing agents (which can be individuals, organizations or even ideas) constantly interact with each other and the system, co-evolve in irreversible ways and produce through these interactions qualities and attributes that are more than the sum of the parts.

These interactions follow relatively simple rules, and yet are capable of producing sophisticated and highly creative outcomes. These systems operate "on the edge of chaos," creating nimbleness, adaptability, resilience and resistance to perturbation by outside forces.

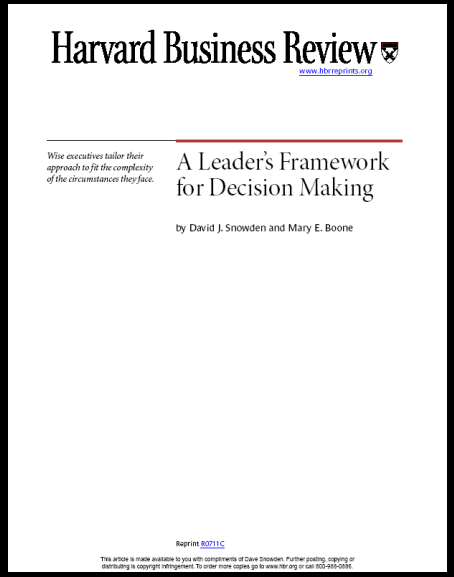
Very large, non-linear returns on effort can be seen when that effort is directed at an inflection point in the system.[6-8] Recently, Sturmberg and Martin cited numerous examples of complexity in both clinical conditions and health care dynamics.[9]

For example, nonlinearity is demonstrated in such things as the paradoxical increase of mortality with tighter glucose control in the ICU and the lack of significant improvement in quality due to pay for performance despite the large investment of time and capital.

No order here

A CAS is essentially "unordered."[10] That is not to say it is "disordered." In a CAS, the system and the agents constrain each other, whereas the agents are constrained by a simple or complicated system. Moreover, cause and effect are present in a CAS, but can only be seen in hindsight (retrospective coherence).[8]

In addition, hindsight is only translated into minimal foresight, as in a CAS the outcome is a product of the starting



Harvard Business Review

www.hbrreprints.org

Wise executives tailor their approach to fit the complexity of the circumstances they face.

A Leader's Framework for Decision Making

by David J. Snowden and Mary E. Boone

Reprint R0711C

The new dynamics of strategy: Sense-making in a complex and complicated world

by C. F. Kurtz
D. J. Snowden

In this paper, we challenge the universality of three basic assumptions prevalent in organizational decision support and strategy: assumptions of order, of rational choice, and of intent. We describe the Cynefin framework, a sense-making device we have developed to help people make sense of the complexities made visible by the relaxation of these assumptions. The Cynefin framework is derived from several years of action research into the use of narrative and complexity theory in organizational knowledge exchange, decision-making, strategy, and policy-making. The framework is explained, its conceptual underpinnings are outlined, and its use in group sense-making and discourse is described. Finally, the consequences of relaxing the three basic assumptions, using the Cynefin framework as a mechanism, are considered.

Over the past several years, our group has been conducting a program of disruptive action research using the methods of narrative and complexity theory to address critical business issues.[1] Action research has been defined as grounding theory in contextual exploration, emphasizing participation, and embracing change.

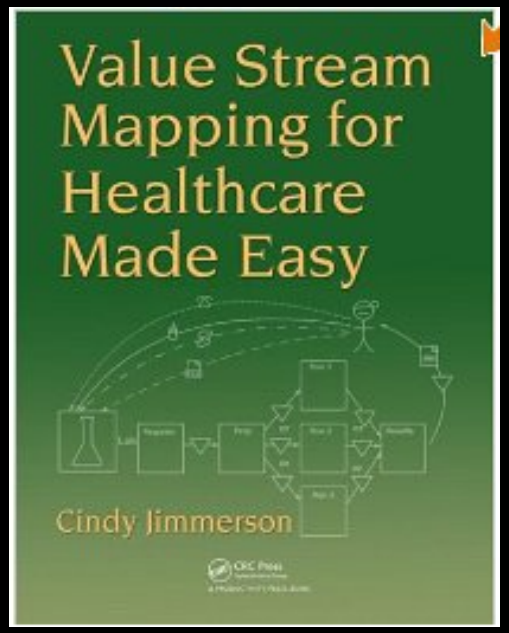
We started work in the areas of knowledge management, cultural change and community dynamics, then expanded into product development, market creation and branding, and in recent years have been working increasingly in the area of national and organizational strategy. Some of this work has been directly funded by the U.S. government through DARPA (Defense Advanced Research Project Agency) as well as by other government agencies (in particular in Singapore) which are interested in new approaches to supporting policy-making. The central element of our approach is the Cynefin framework for sense-making. In this paper we describe the framework and its conceptual basis, and we detail some of its uses for sense-making to support decision-making in varied dynamical contexts.

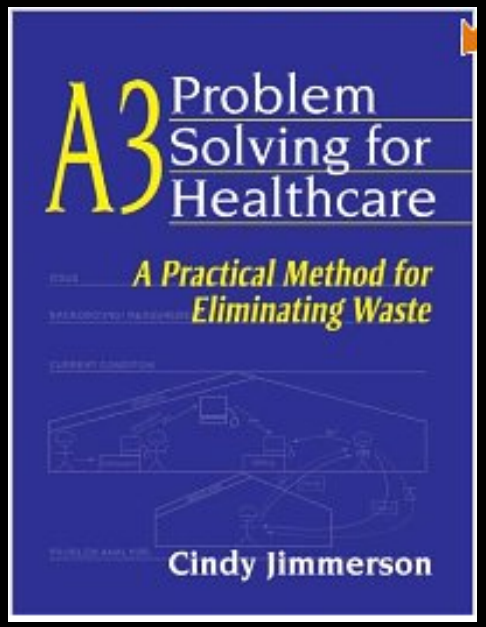
Conceptual approach. We begin by questioning the universality of three basic assumptions that pervade the practice and to a lesser degree the theory of decision-making and policy formulation in organizations. These are:

The assumption of order: that there are underlying relationships between cause and effect in human interactions and markets, which are capable of discovery and empirical verification. In consequence, it is possible to produce prescriptive and predictive models and design interventions that allow us to achieve goals. This implies that an understanding of the causal links in past behavior allows us to define "best practice" for future behavior. It also implies that there must be a right or ideal way of doing things.

The assumption of rational choice: that faced with a choice between one or more alternatives, human ac-

Amazon: VSM & A3

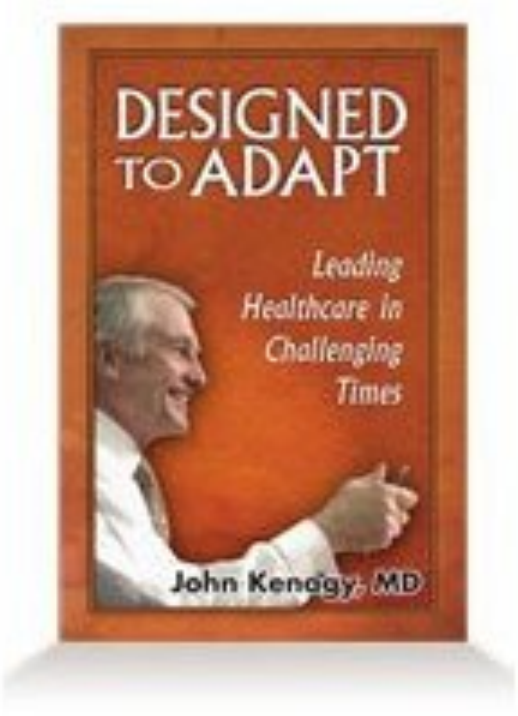




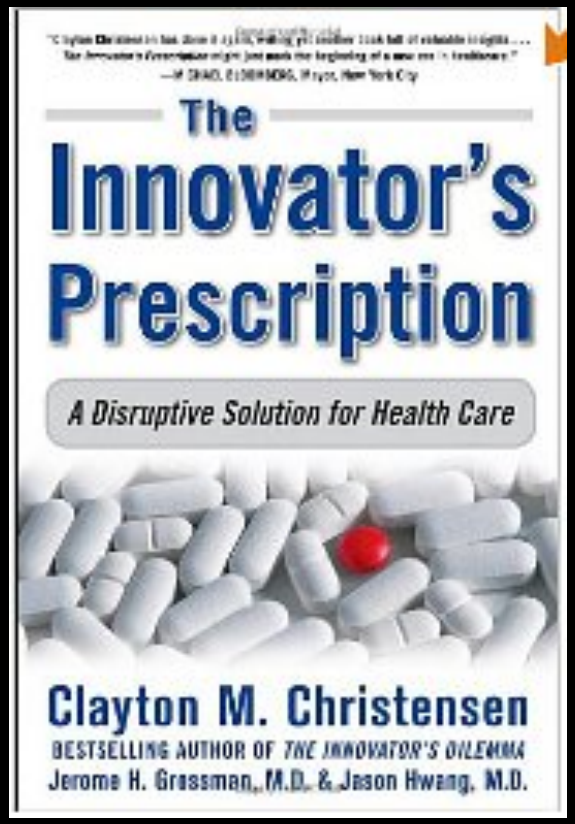
John Kenagy, MD

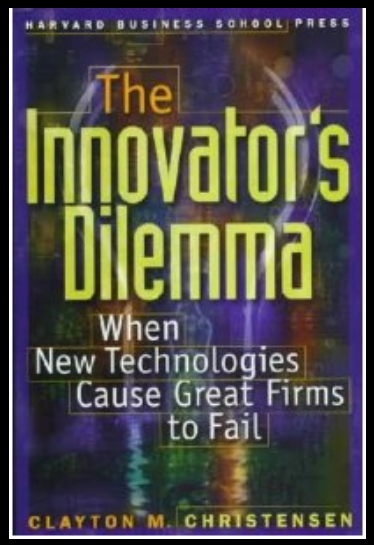
Designed to Adapt

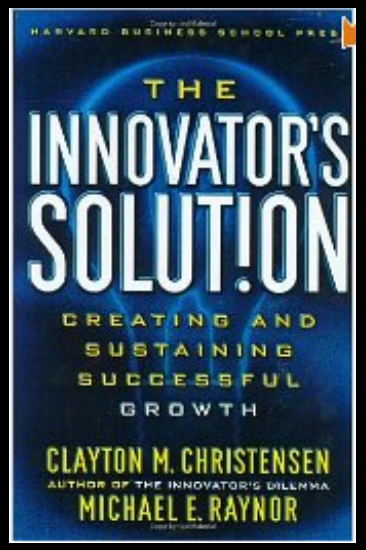
or to be Disrupted from Below

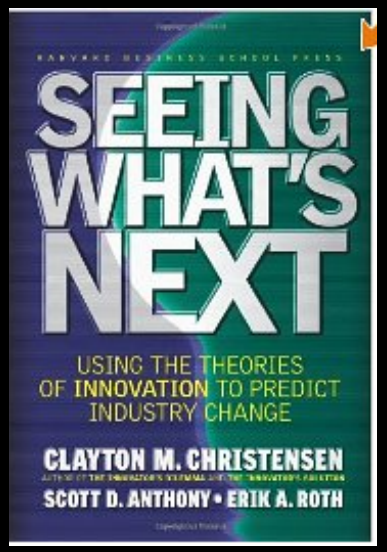


Clayton Christenson









Disruption or continuous adaptation?

Intel, SW Airlines, Apple.
PeaceHealth?

Application in Whatcom Region

reView Course => practicing with

- IDEAL care
- The Four Rules
- The Seven Mudas (wastes)
- The Power of Observation
- Value Stream Mapping
- A3 Problem Solving

IDEAL

- Exactly what the patient needs, Defect Free!
- One by One, customized to each individual patient
- On Demand, exactly as requested
- *Immediate response to problems or changes*
- *No Waste*
- *Safe for patients, staff and clinicians: physically, emotionally, and Professionally*

FOUR RULES

- Rule 1: All ACTIVITES are clearly specified by: content, sequence, timing, outcome.
- Rule 2: CONNECTIONS: Direct, Yes/No
- Rule 3: PATHWAYS: Simple, Each step is essential
- Rule 4: IMPROVEMENT:
  - Direct response to problem
  - As close to the problem as possible
  - As an experiment
  - By those doing the work
  - Supported by a Coach

7 MUDAS
(wastes)

Identify and remove
FRUSTRATIONS

for patients, families, and staff, including physicians

1. Confusion
2. Motion / Travel
3. Waiting
4. Processing
5. Inventory
6. Defects
7. Overproduction

PROBLEMS: Solved in Real Time

1. Problem occurs (non-ideal care)
2. Process observed and studied
3. Participants interviewed
4. All by front line staff and mgr
5. A3 Problem Solving

The Power of OBSERVATION

- Observe Process
- Observe the Data
- Observe Timing
- Observe Defects
- Observe Wastes
- Interview the observed
- By the frontline staff

Value Stream Mapping

- Graphic map of:
  - Steps in request
  - Steps in Work Flow

    (with variation measured & displayed)
  - Pathway to Satisfy the Request
- Current State Map
- Future State Map
- Future State Plan

Value Stream Maps (VSM)

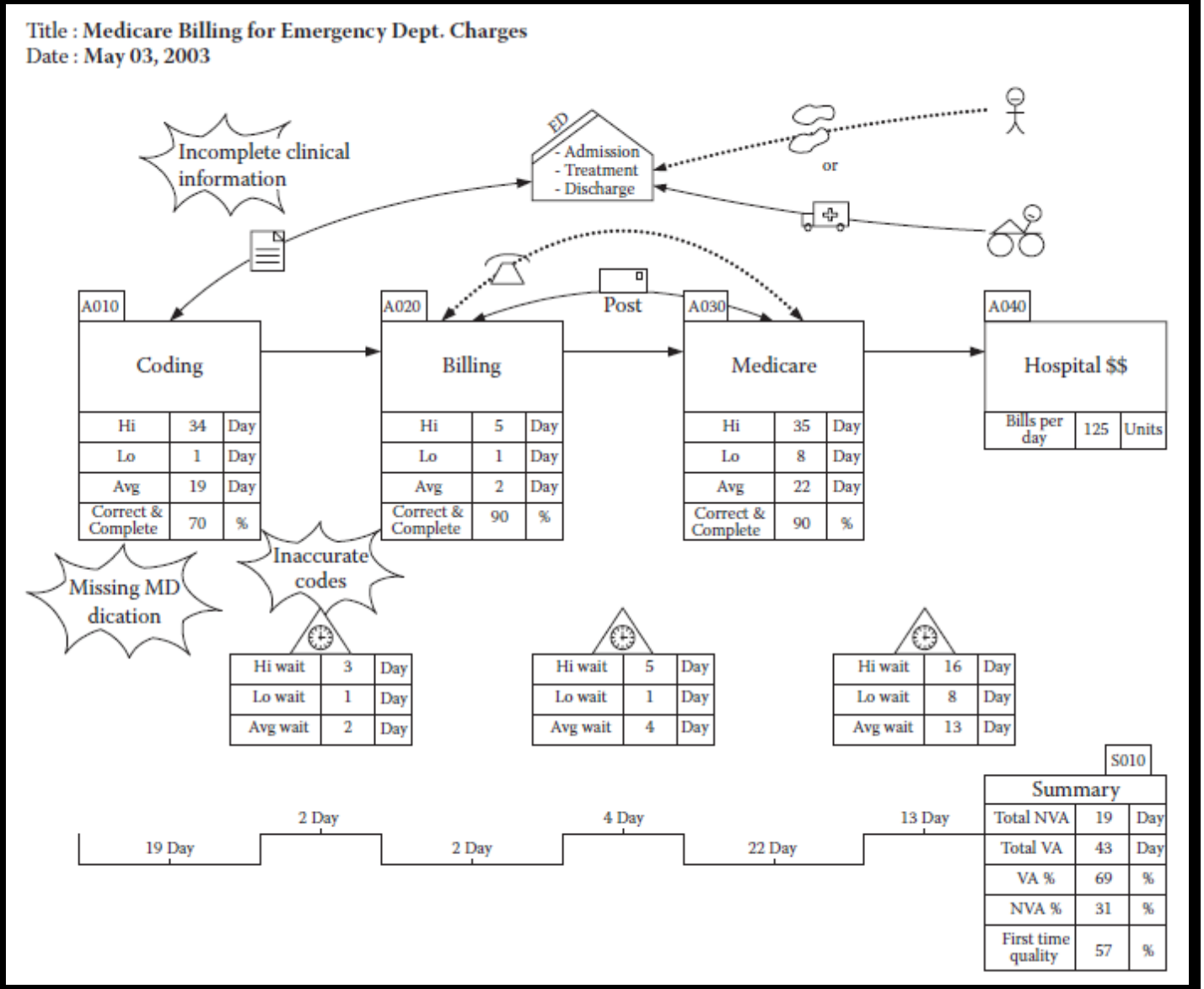
- Customer with a request is the only starting point—and only ending point
- Requests are mapped as a process
- Delays and variation are measured
- Frustrations, barriers, & waste = “storm clouds”
- Shared & validated publically = buy in up front
- *It seems the whole system map is emerging from the problem solving of the front line.*

VSM

High Level

-Customer
-Request
-Value Add
-Non Value
-Delays
-Customer satisfaction

-Targeted problems



A3 Problem Solving

- Hand out blank A3 forms & provide MS Word documents
- Share examples

ISSUE:

BACKGROUND:

CURRENT CONDITION:

PROBLEM ANALYSIS:

TARGET CONDITION: TITLE:
TO:
BY:
DATE:

COUNTER MEASURES:

IMPLEMENTATION PLAN:

WHAT	WHO	WHEN	OUTCOME:

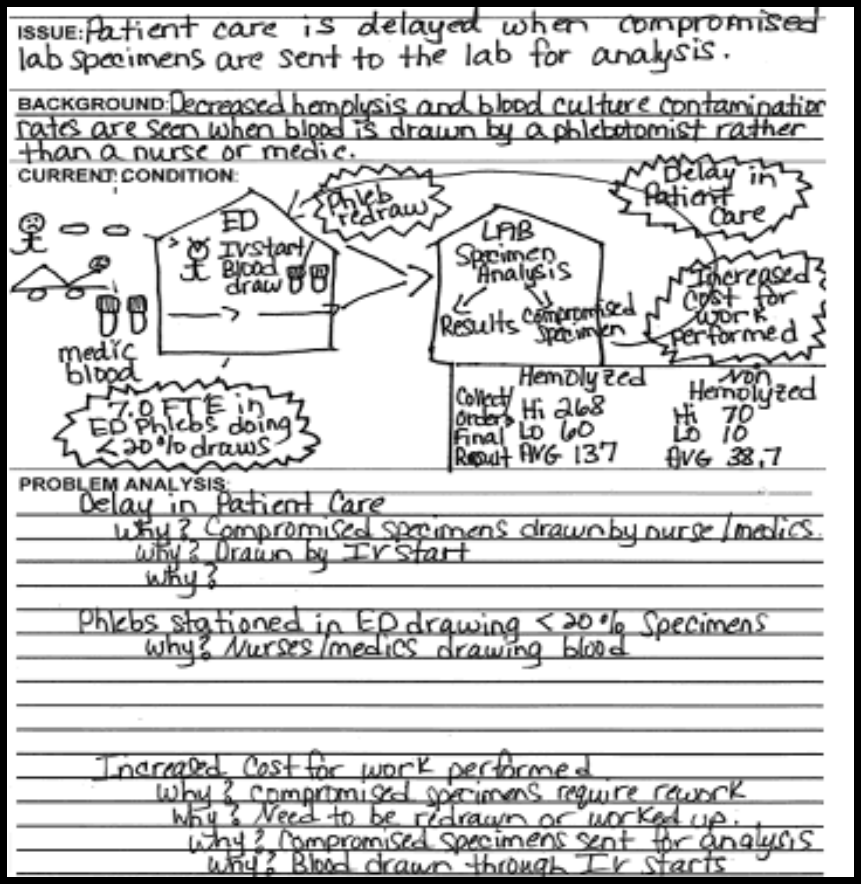
COST:

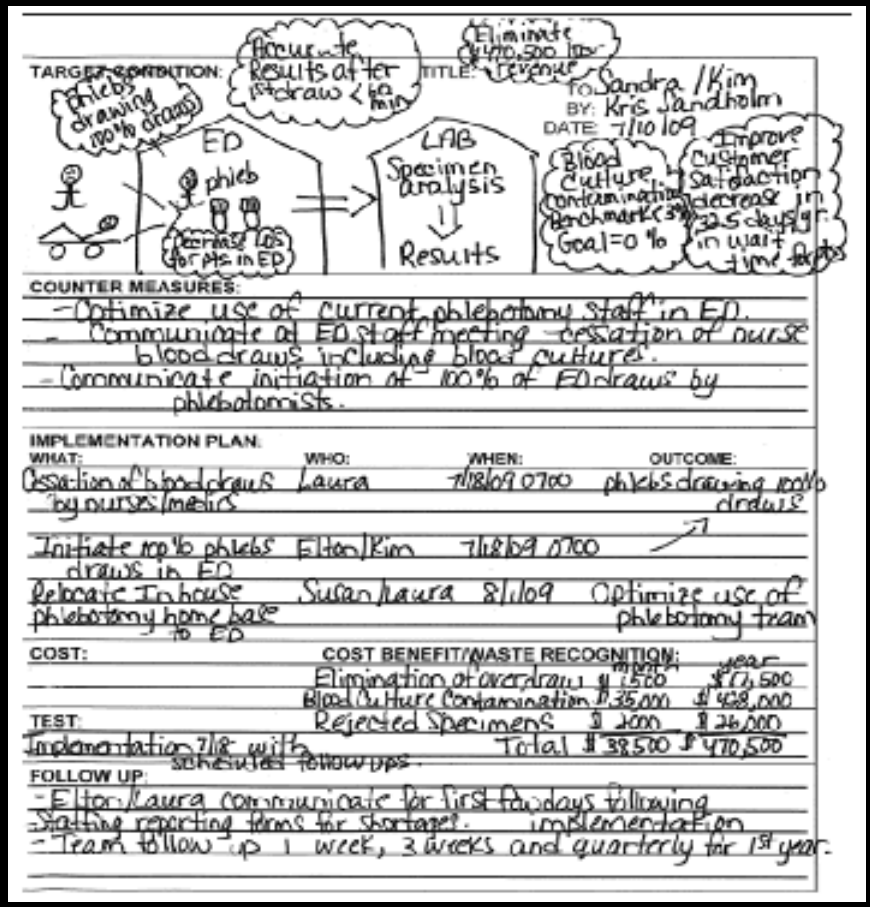
COST BENEFIT/WASTE RECOGNITION:

TEST:

FOLLOW UP:

A3 Lab Blood Draws in ED





QUICK REFERENCE A3 TEMPLATE

ISSUE: what is the issue through the eyes of the customer/patient?

BACKGROUND
- information for understanding the problem
- importance of the problem

CURRENT CONDITION
- diagram of how the work happens now
- highlight problems with storm clouds
- what about the problem is NOT defect-free?
- Can you measure the waste?

CAUSE ANALYSIS
- List problems identified in box above (storm clouds)
- Ask WHY? 5 times to get to most likely direct cause

TARGET CONDITION

TITLE:
TO:
BY:
DATE:

- Diagram of a better way to do the work
- Good features highlighted as fluffy clouds
- measurable targets (quantity/time)

COUNTERMEASURE(S)
- WHAT are we going to do to get to the Target Condition

IMPLEMENTATION PLAN
- (HOW are we going to get there?)
  _Action _Who _When _Outcome

Cost: Cost benefit/waste reduction:

TEST: can you design an experiment to test your implementation plan?

FOLLOW-UP:
- use a red box for easy visibility
- date the follow-up was done
- actual results compared to anticipated results

(this becomes the NEW current condition)

Another Conversation?

CONTEXTS

Whole System
&
Problem Solving Spaces

COMPLEXITY—problem solving under conditions of:

- Uncertainty
  - Cause and effect not predictable
- People with choice
  - Customers
  - Partners
  - Staff
- Environmental change

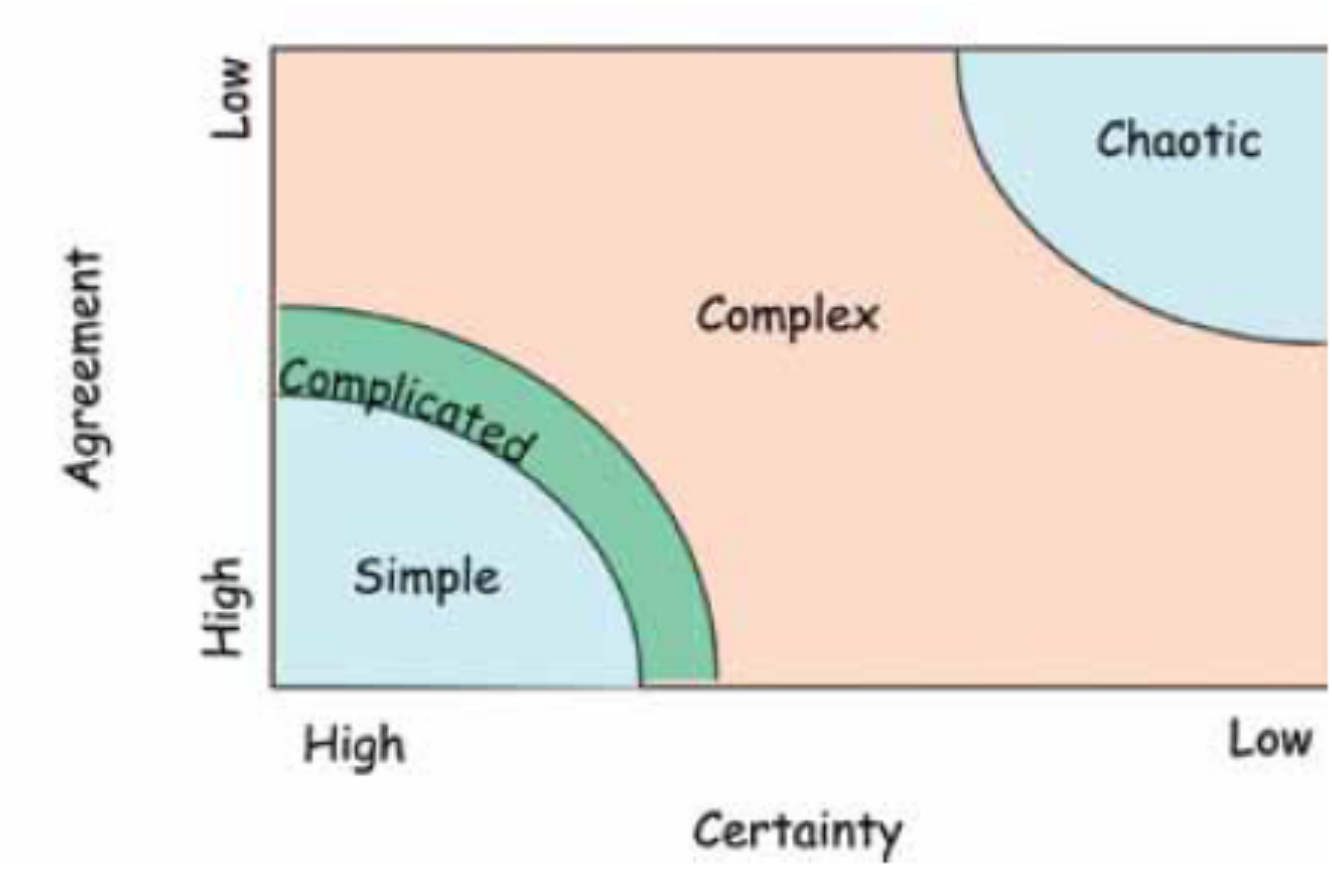
David Snowden's Contribution

- Released from the impasses of
  - control/autonomy
  - centralization/federation
  - certainty/uncertainty

Stacey Diagram

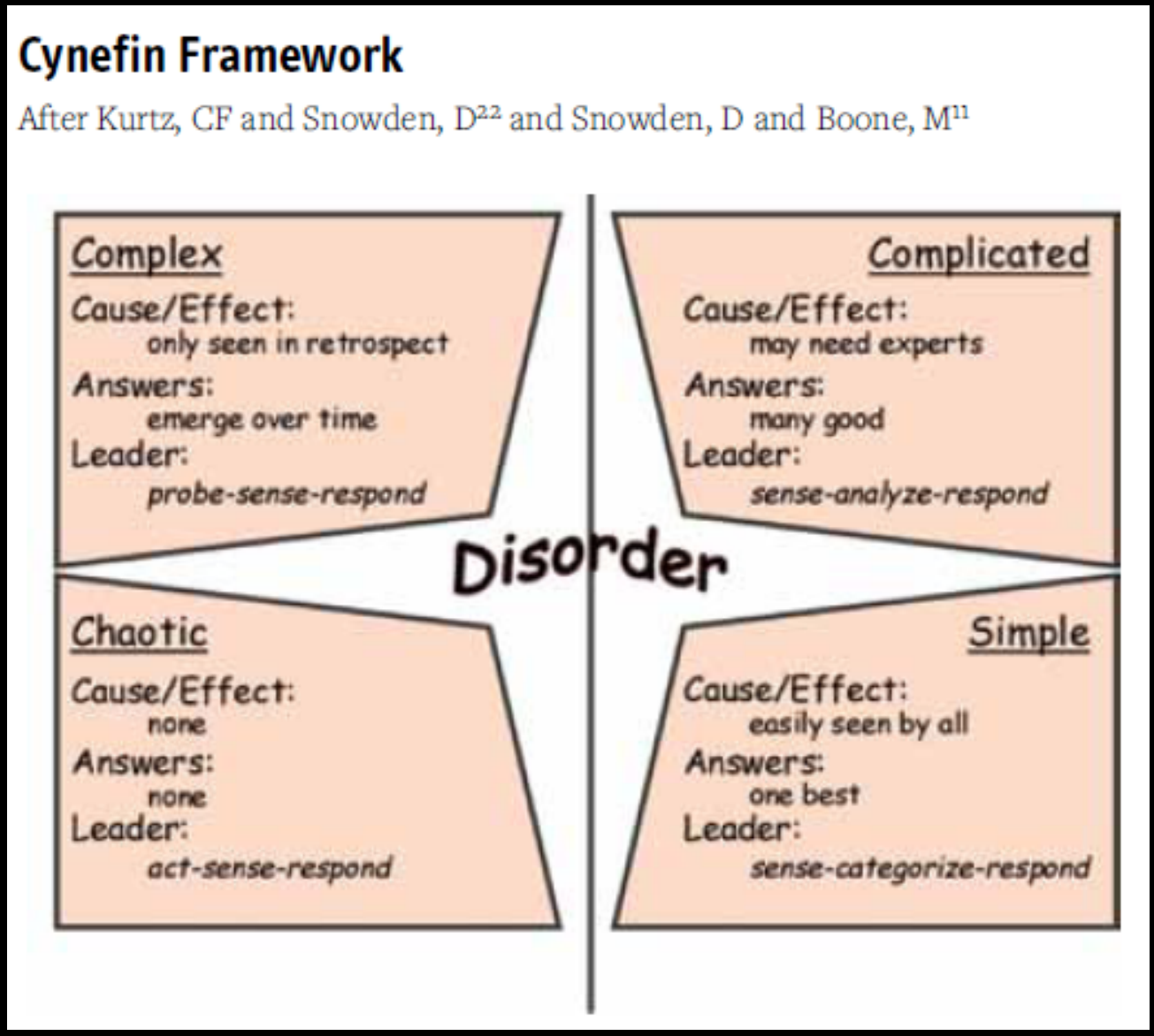
Demonstrating continuum from simple to chaotic

Drawn after Stacey, R. [21]



Leadership under conditions of uncertainty:

5 problem solution spaces, each very, very different



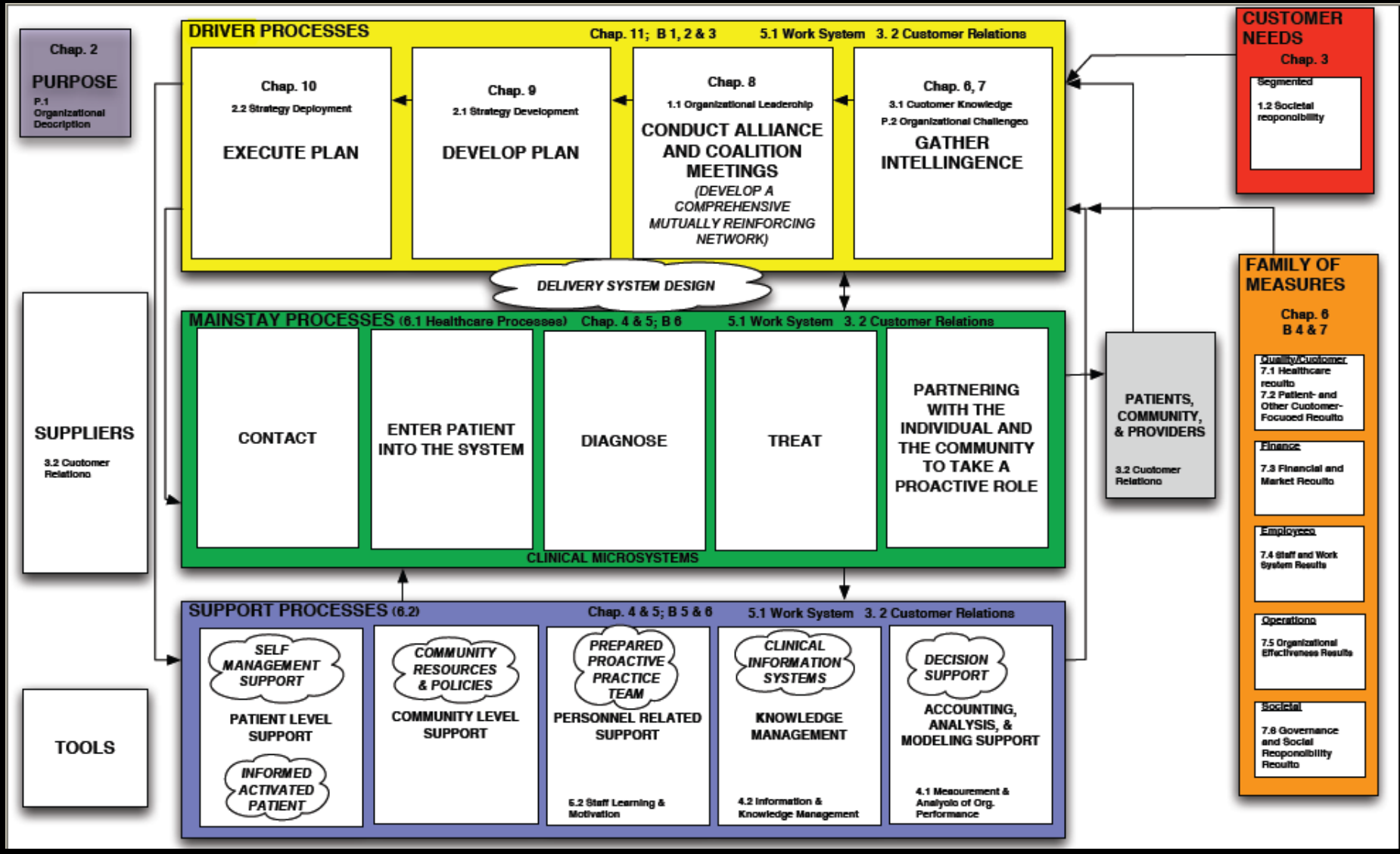
Five Solution Spaces

1. Known (automate)--Sense, categorize, respond
2. Knowable (analyze)--Sense, analyze, respond
3. Complex (ask)--Probe, sense, respond
4. Chaotic (act)--Act, sense, respond
5. Disorder (assume?)--when all else fails, Check your own assumptions (paradigm)

Levels of the Enterprise

- Quality as a Business Strategy:
  - Driver - Support - Mainstay / Customer / Supplier
- SOFI
  - Add people to QBS

Quality as a Business Strategy



Whole System View:

Let's help the front line drain the process swamp!