

Where to find more about these topics 

www.ctlab.org



Research into cognition and work to improve safety


home | **publications** | events | related links | search | about

CTL Cognitive Technologies Laboratory

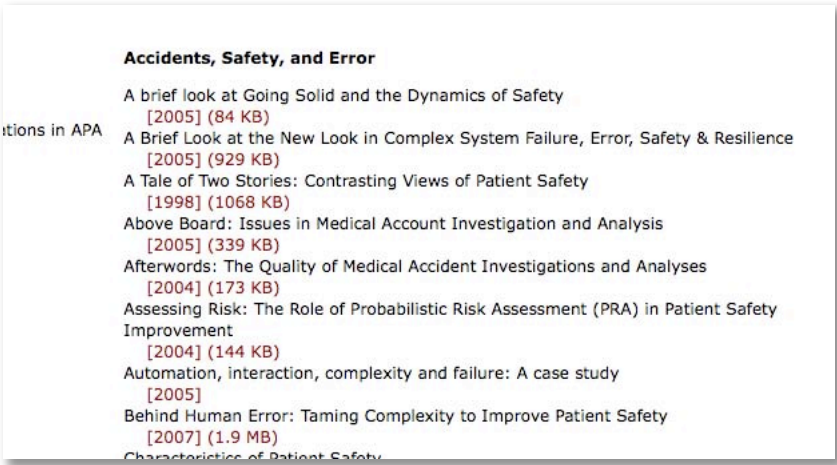
Medicare Payment Changes
Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2009

Recent Publications
2008
A Healthcare Team Commun [2008] (698 KB)
Anesthesia for Electroconvul Make a Difference?

Copyright © 2006 by R.I.Cook for CTL

Where to find more about these topics 

www.ctlab.org



Accidents, Safety, and Error

A brief look at Going Solid and the Dynamics of Safety
[2005] (84 KB)

ations in APA A Brief Look at the New Look in Complex System Failure, Error, Safety & Resilience
[2005] (929 KB)

A Tale of Two Stories: Contrasting Views of Patient Safety
[1998] (1068 KB)

Above Board: Issues in Medical Account Investigation and Analysis
[2005] (339 KB)

Afterwords: The Quality of Medical Accident Investigations and Analyses
[2004] (173 KB)

Assessing Risk: The Role of Probabilistic Risk Assessment (PRA) in Patient Safety Improvement
[2004] (144 KB)

Automation, interaction, complexity and failure: A case study
[2005]

Behind Human Error: Taming Complexity to Improve Patient Safety
[2007] (1.9 MB)

Characteristics of Patient Safety

Copyright © 2006 by R.I.Cook for CTL

Calibration time

<i>Annual expenditures</i>	<i>2007 US\$ (Billions)</i>
<i>NASA</i>	<i>\$17</i>
<i>U.S. dialysis</i>	<i>\$13</i>
<i>Boeing</i>	<i>\$65</i>
<i>U.S. DM*</i>	<i>\$58</i>
<i>DOD</i>	<i>\$498</i>
<i>U.S. Medicare</i>	<i>\$440</i>
<i>China GDP</i>	<i>\$2,300</i>
<i>U.S. Healthcare</i>	<i>\$2,300</i>

Paradox

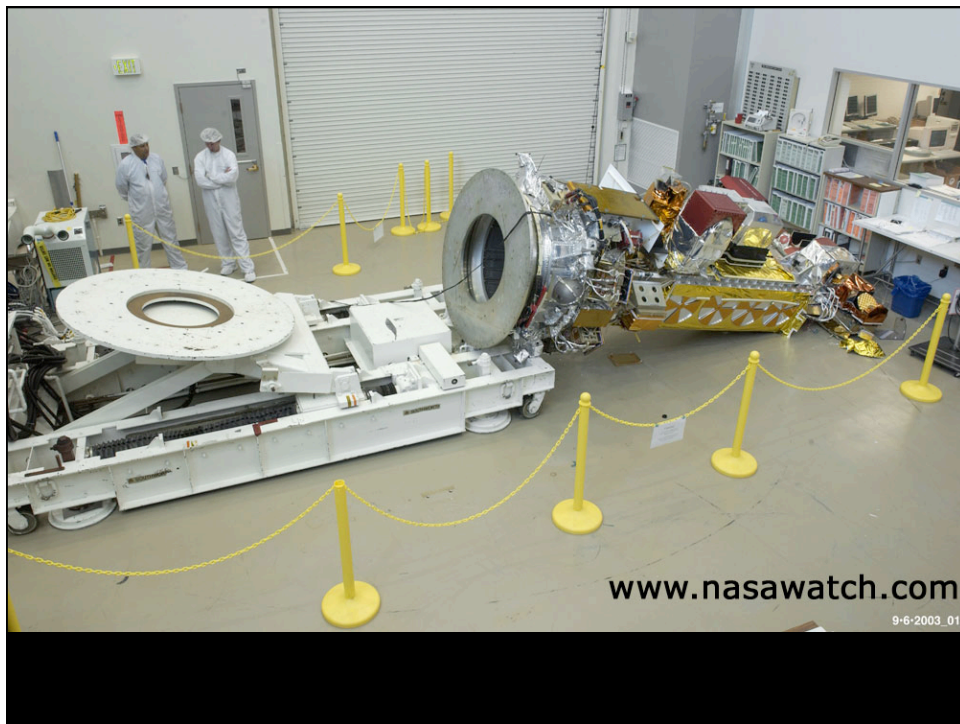


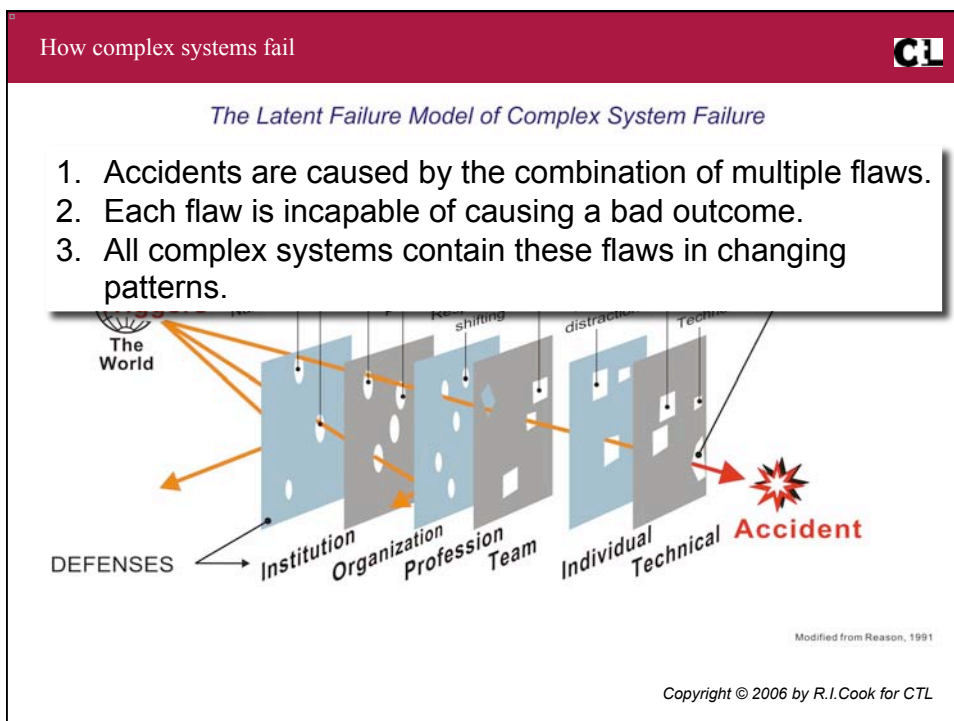
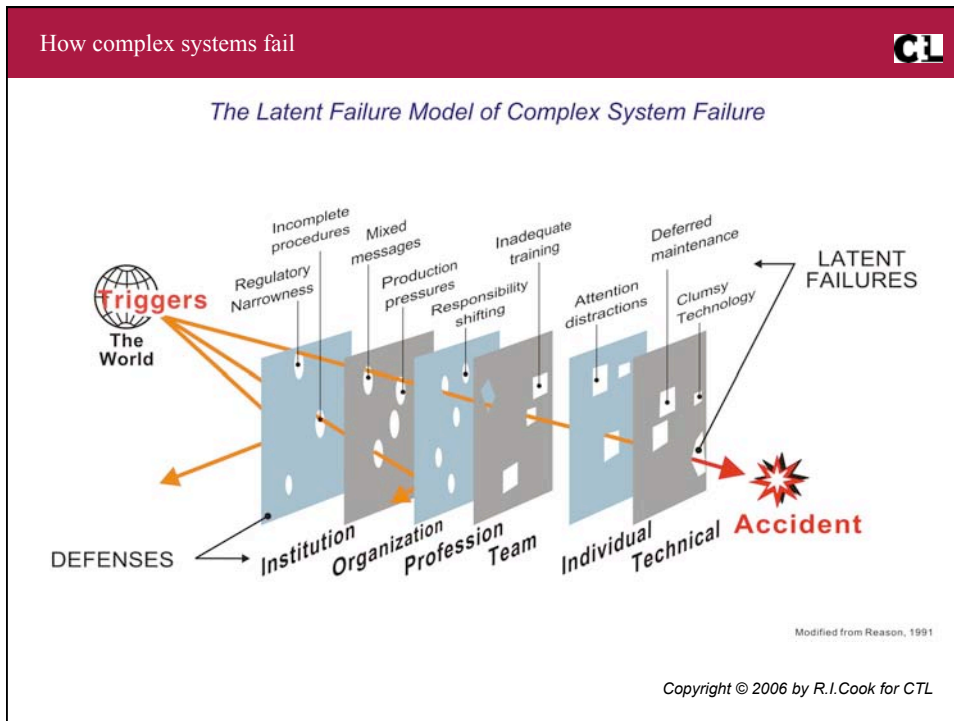
We *know* that accidents arise
from multiple contributors.

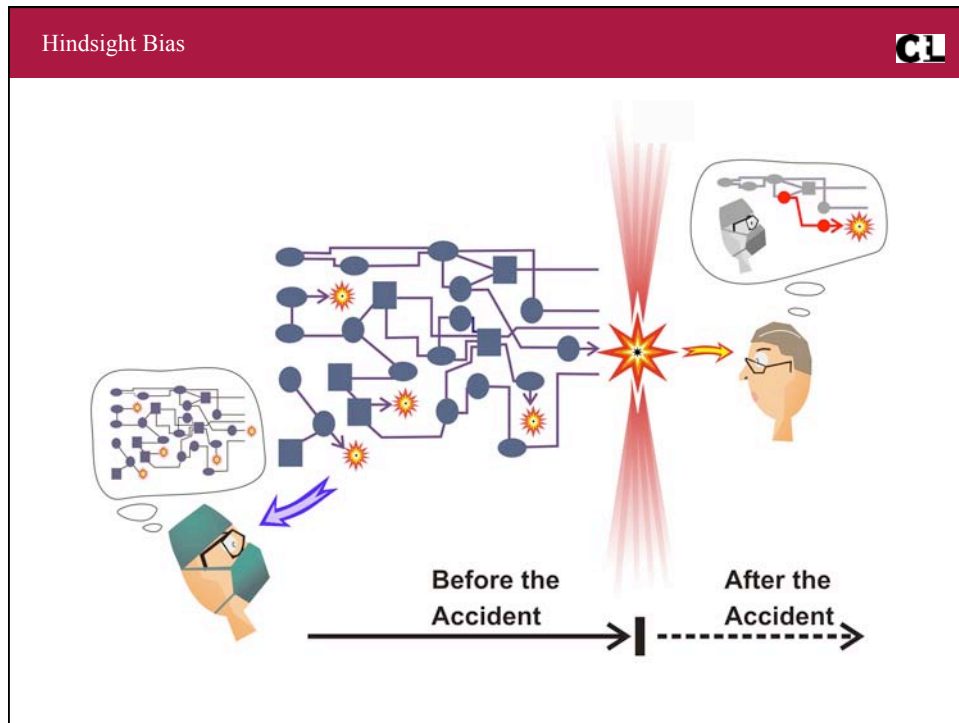
BUT


We see accidents as
blunders by the operators.

Copyright © 2006 by R.I.Cook for CTL







Hindsight Bias 

If the end brings me out all right,
nothing will be said against me.
If the end brings me out wrong,
a hundred angels swearing I was right
will make no difference.

-- Abraham Lincoln

Paradox



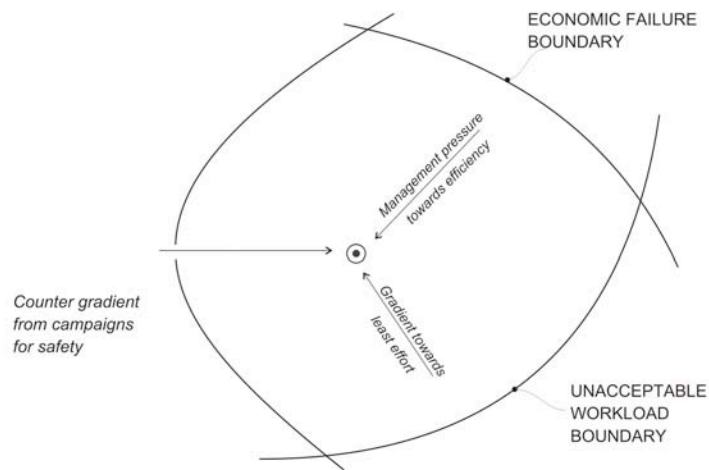
We *know* that socio-technical systems are dynamic.

BUT

We *treat* them as static.

Copyright © 2006 by R.I.Cook for CTL

Rasmussen's system model



Modified from Rasmussen, 1997

Copyright © 2006 by R.I.Cook for CTL

Rasmussen's system model CI

...we are talking about a law of systems development which is: *every system always operates at its capacity. As soon as there is some improvement, some new technology, we stretch it...*

Larry Hirschhorn
 quoted in Cook & Woods,
 A Tale of Two Stories, 1997.

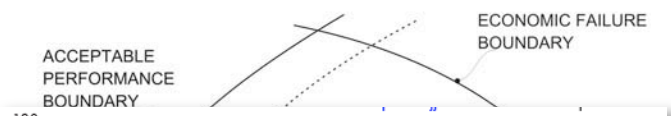
Copyright © 2006 by R.I.Cook for CTL

Rasmussen's system model CI

Modified from Rasmussen, 1997

Copyright © 2006 by R.I.Cook for CTL

Rasmussen's system model CTL



DEVELOPING RESEARCH AND PRACTICE

“Going solid”: a model of system dynamics consequences for patient safety

R Cook, J Rasmussen

Qual Saf Health Care 2005;14:130-134

Rather than being a static property of hospitals and other healthcare facilities, safety is dynamic and often on short time scales. In the past most healthcare delivery systems were loosely coupled—that is, activities and conditions in one part of the system had only limited effect on those

condition. The and had become routine of resources waiting for them would have required after the procedure to halt the operat

Copyright © 2006 by R.I.Cook for CTL

Some thoughts on resilience CTL

The real surprise is not that there are so many accidents...
...it is that there are so few!




Copyright © 2006 by R.I.Cook for CTL

Some thoughts on resilience



Features of resilient performance

- Unusual but not unknown
- Departure from normal
- Traversing the goal-means hierarchy
- Changing the definition of success
- Return to normal

Some thoughts on resilience



Features of resilient performance



Some thoughts on resilience



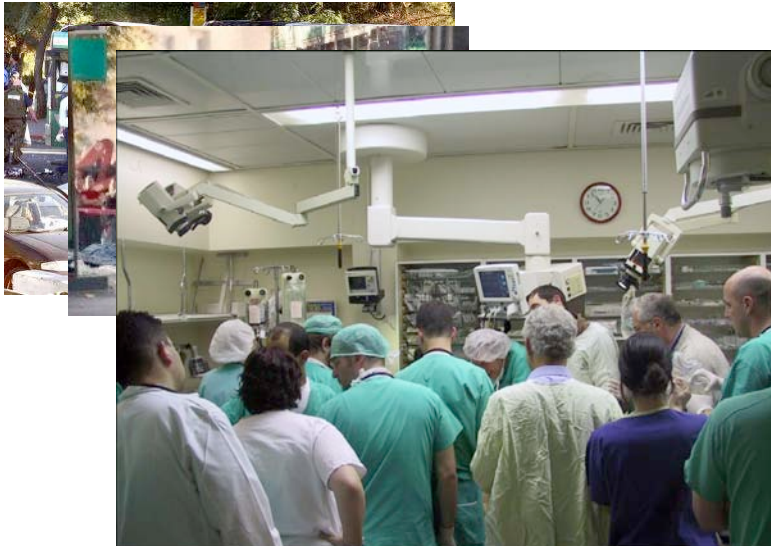
Features of resilient performance




Some thoughts on resilience




Features of resilient performance




Some thoughts on resilience 

Features of resilient performance

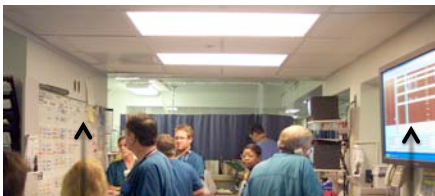


Whiteboard

Computer based
Schedule board

Some thoughts on resilience 

Features of resilient performance




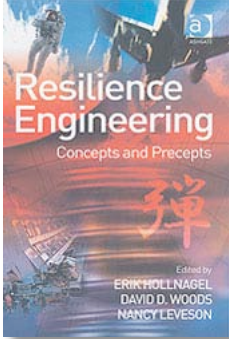
The Master Schedule

How Cognitive Artifacts Affect Distributed Cognition in Acute Care

Christopher Nemeth, Ph.D., CHFP

Dissertation Abstract: Much of the cognitive activity in complex, high hazard, high tempo work settings such as air traffic control and military operational commands is directed toward anticipation of future requirements, deadlock prediction, reaction to evolving situations, and resource reallocation. These complex cognitive activities are difficult to study because they involve both deep domain knowledge and a detailed understanding of the myriad local details and contingencies that offer opportunities for action and

Some thoughts on resilience 



Chapter 13

**Taking Things in One's Stride:
Cognitive Features of Two
Resilient Performances**

Richard I. Cook
Christopher Nemeth


*"If you can keep your head when all about you
Are losing theirs and blaming it on you..."*
Rudyard Kipling, 1909

Introduction

Resilience is a *feature* of some systems that allows them to respond to sudden, unanticipated demands for performance and then to return to their normal operating condition quickly and with a minimum decrement in their performance.

Our approach to resilience comes from the perspective of practitioner researchers, that is, as people engaged directly with sharp-end work and sharp end workers. Regarding human performance in complex systems, we take two things for granted:

- The *mean-to-end mapping* that characterizes a system's goal –

Some last words 

Resilience matters.

Resilience can be enhanced or degraded.

Failure and success come from the same sources.

Less well behaved *systems* are the future.

Safety is *continuously* created and destroyed.

