Complexity: The Crucial Ingredient in Your Kitchen

@CaseyRosenthalal
What could go wrong in a complex system?

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All components could be 100% correct, and yet the system exhibits undesirable behavior.

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How do we survive the undesirable effects of complex systems?

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How do we make systems reliable?

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Redundancy

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• Functionality has redundancy.

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● Functionality has redundancy.
● Deviation is within experience base.
● Functionality has redundancy.
● Deviation is within experience base.
● Issue is self-limiting.
How do we make systems reliable?

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Avoiding Risk

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Simplicity

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How do we make systems reliable?

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PRINCIPLES OF CHAOS ENGINEERING

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Chaos Engineering is the discipline of experimenting on a distributed system in order to build confidence in the system’s capability to withstand turbulent conditions in production.
the facilitation of EXPERIMENTS to uncover systemic WEAKNESS
ECONOMICS

WORKLOAD

SAFETY
How do we make systems reliable?

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Economic Pillars of Complexity

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How do we make systems reliable?

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“The chief merit of [software engineering] is its technical efficiency, with a premium placed on precision, speed, expert control, continuity, discretion, and optimal returns on input.”

-Merton
s/bureaucracy/software engineering/
“The chief merit of bureaucracy is its technical efficiency, with a premium placed on precision, speed, expert control, continuity, discretion, and optimal returns on input.”

-Merton
Software Engineering: the Bureaucratic Profession

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RELATIONSHIPS

STATES

WORKLOAD

AVAILABILITY

ENVIRONMENT

SAFETY

REVERSIBILITY

PERFORMANCE

FAULT TOLERANCE

ECONOMICS
KMO: Kitchen Model of Organization

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Think of a well-run kitchen.

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How do we make systems reliable?

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● Embrace complexity and navigate it.

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● Provide opportunities for teams to practice working together.

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- Tolerate inefficiencies.

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• Embrace complexity and navigate it.
• Provide opportunities for teams to practice working together.
• Tolerate inefficiencies.
• Optimize for reversibility.
• Communicate the safety margin.

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Tools don’t create reliability. Humans do.

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Tools don’t create reliability. Humans do. [But tools can help.]
Chaos Engineering
Building Confidence in System Behavior through Experiments