

# Designing Government

— Robert A. Knisely, J.D.

The Problem: designing  
government is not a lost art —  
it's an undiscovered science.

*a little history...*



# **Toward a Science of Program Design**

— Robert A Knisely, J.D.

**Originally prepared for delivery at the ORSA-TIMS meeting  
in Atlanta, Georgia, on November 9th, 1977**

**(Now available at [www. government-reform.info](http://www.government-reform.info))**

“It’s easier to get forgiveness  
than permission.”

— RADM Grace Hopper

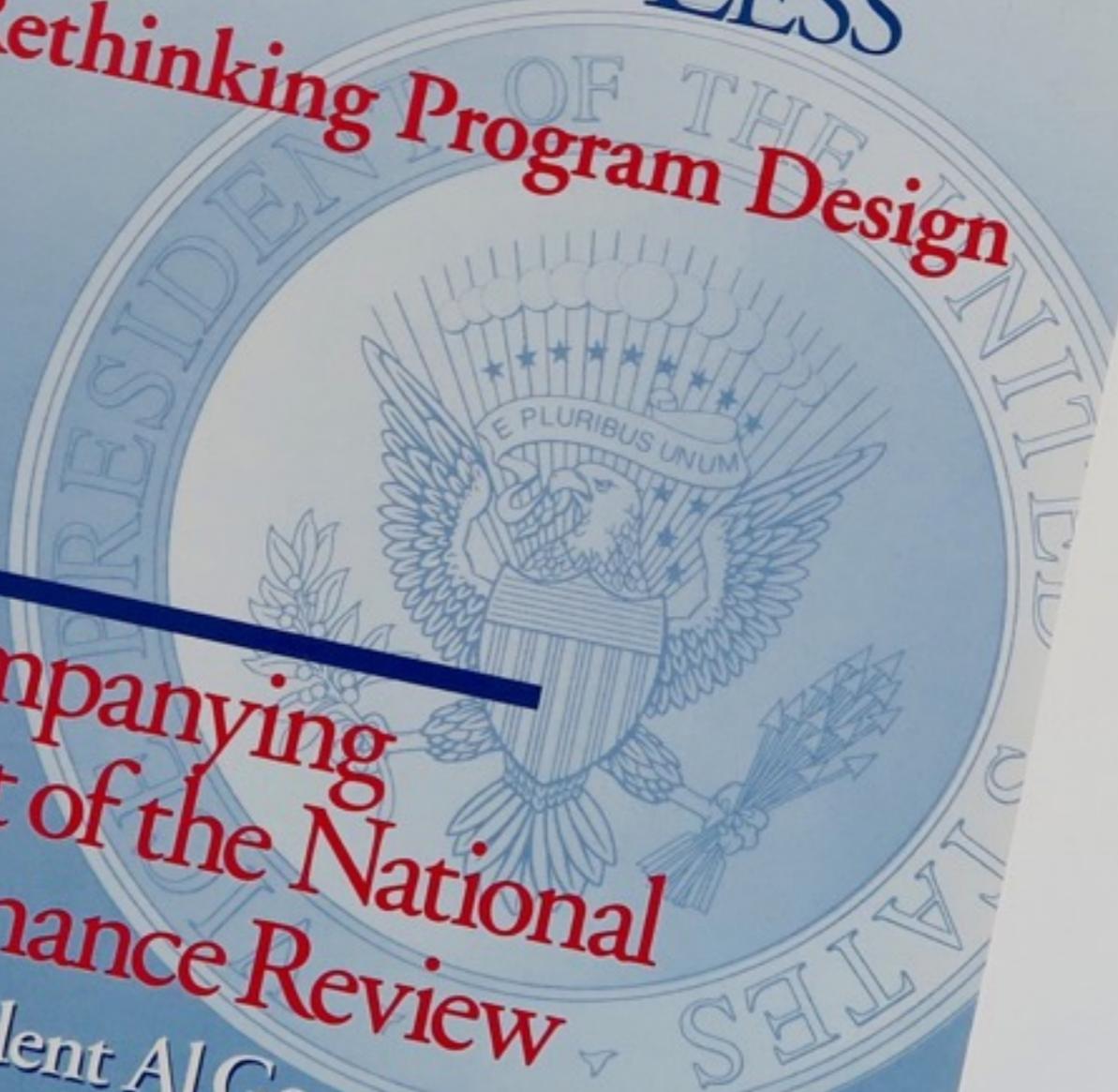
FROM RED TAPE TO RESULTS

# CREATING A GOVERNMENT THAT WORKS BETTER & COSTS LESS

*Rethinking Program Design*

*Accompanying  
Report of the National  
Performance Review*

Vice President Al Gore



- 39 *Accompanying Reports*
- 4 “*Actions*” listed
- *No followup*

**HANDBOOK  
OF PUBLIC  
ADMINISTRATION**

**SECOND EDITION**



**JAMES I.**

The Handbook had 8 parts, 42 chapters, and 745 pages. Chapter 13, “Designing Effective Programs,” by Carson Eoyang & Peter Spencer, got 18 pages that included the following:

“Despite the best intentions of successive administrations, the federal government has spawned a burgeoning number of public programs that are badly designed, ill conceived, and fatally flawed.” p 232

“Unfortunately, the lack of well-developed program design principles and techniques within government may still cause fundamental issues of program structure and process to receive inadequate attention.” p 233

GPPRA:

Government

Performance &

Results

Act (1993)

GPRAMA:

Government

Performance &

Results

Act

Modernization

Act (2010)

- Both GPRA and GPRAMA take their subject matter — the programs — as “given”
- Neither stresses feedback to the Congress about what works and what doesn’t
- Neither talks about “program design”

Program Design would include inquiry, innovation, and analysis, as well as performance evaluation, with the results fed back to Congress.

DIAPER:

**D**esign

**I**nnovation

**A**nalysis

**P**erformance

**E**valuation &

**R**esults Act

The Federal government does not address  
The Design of Government.

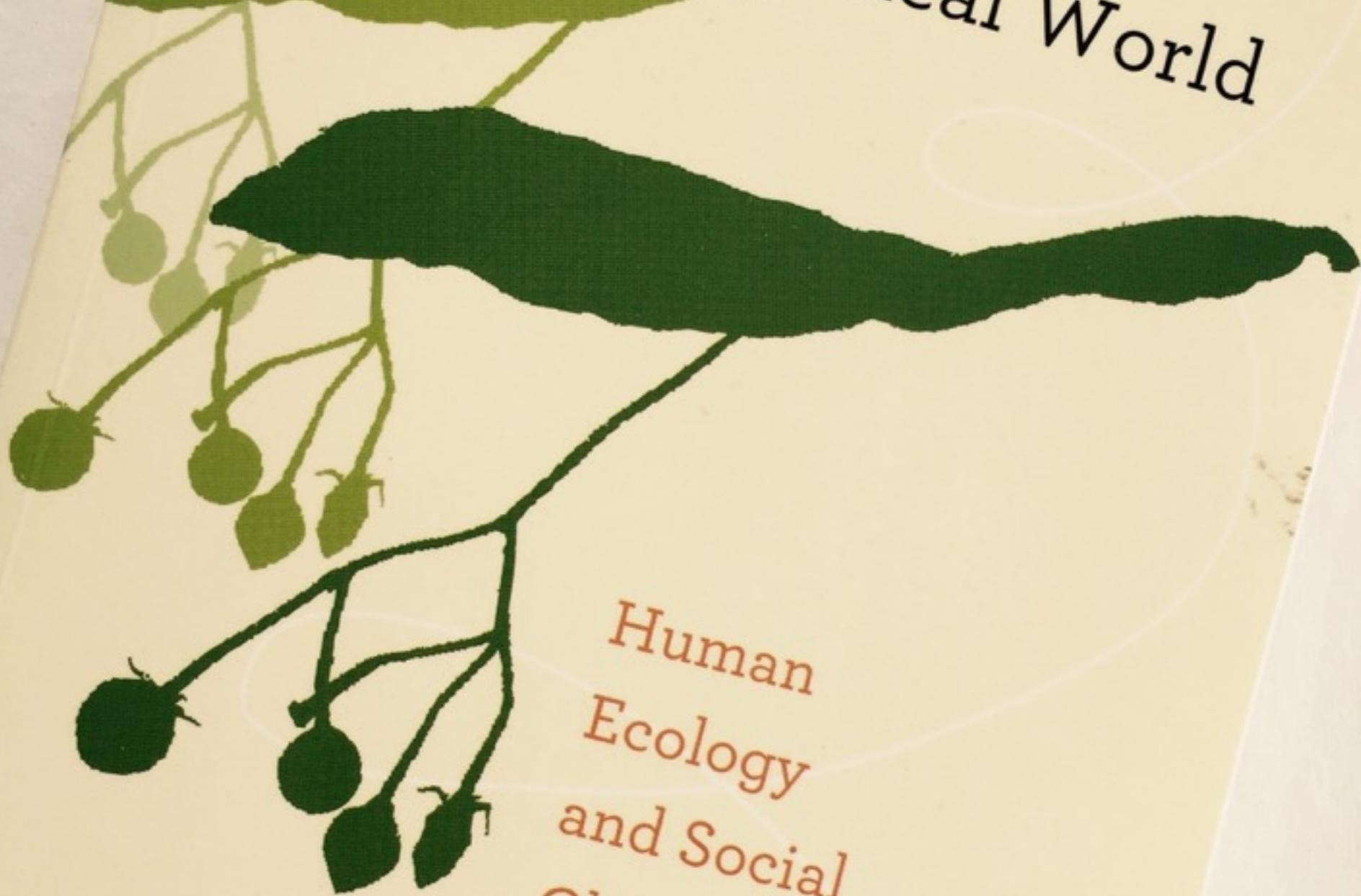
The Solution(s)

**Design**  
**The Tools of Government**  
**Systems Thinking**  
**Design Mainstreaming**  
**The Information Explosion**

What is “design”?

Design

for the Real World



Human  
Ecology  
and Social  
Change

Victor D

“Design is basic to all human activities — the placing and patterning of any act towards a desired goal constitutes a design process.” p. 23

Victor Papanek,

Design for the Real World (1972)

IN THE BUBBLE  
DESIGNING IN A COMPLEX WORLD



JOHN THACKARA

"I eagerly devoured every last page of John Thackara's lofty, captivating book."  
—Bruce Sterling, author of *The Hacker Crackdown*, *Tomorrow Now: Envisioning the Next*

“Complex systems are shaped by all the people who use them, and in this new era of collaborative innovation, designers are having to evolve from being the individual authors of objects, or buildings, to being the facilitators of change among large groups of people.” p. 7

John Thakara, In the Bubble, 2006

**Artifact:** Something created by humans — usually for a practical purpose. (Merriam Webster)

Laws, programs, bureaucracy, etc., are human artifacts.  
We made them.

Government is an artifact.

- The creation of artifacts requires the use of tools.
- The first tool may well have been a rock, used as a hammer.

“By the latter part of the 19th century, some 500 different types of hammers were being produced in Birmingham, England, alone.” p. 2

— Henry Petroski, Success through Failure (2006)

What are the Tools of Government?

# The Tools of Government



A GUIDE TO THE  
NEW GOVERNANCE

Lester M. Salamon  
*Editor*



*The Tools of Government*

A GUIDE TO THE  
NEW GOVERNANCE

Lester M. Salamon  
Editor



*The Tools of Government*



A GUIDE  
TO THE NEW  
GOVERNANCE

OXFORD

SALAMON

# **The Tools of Government**

**-- per Lester Salamon**

- 1. Direct Government**
- 2. Government Corporations  
& Government-Sponsored Enterprises**
- 3. Economic Regulation**
- 4. Social Regulation**
- 5. Government Insurance**
- 6. Public Information**
- 7. Corrective Taxes, Charges,  
& Tradable Permits**
- 8. Contracting**
- 9. Purchase-of-Service Contracting**
- 10. Grants**
- 11. Loans & Loan Guarantees**
- 12. Tax Expenditures**
- 13. Vouchers**
- 14. Tort Liability**

## Evaluating the Tools:

Effectiveness

Efficiency

Equity

Manageability

Legitimacy & Political Feasibility

## Key Tool Dimensions:

Degree of Coerciveness

Degree of Directness

Degree of Automaticity

Degree of Visibility

But the **Contracting Tool** includes:

- Buying copying paper
- Buying support services of all kinds
- Buying F35 Lightning Fighter Jets  
(or the \$400,000 helmets for their pilots)
- Creating incentive prize competitions

“Incentive prizes seem deceptively simple: Identify a problem, create and publicize a prize-based challenge for solving that problem, sign up diverse participants, and offer a reward to the winner. In practice, designing prizes that target the right problem, attract the most capable participants, and capture the imagination of the public to successfully achieve a desired outcome involves a complex set of design choices.”

from the Executive Summary, The Craft of Incentive Prize Design  
(Deloitte Consulting): 82 pages with 2 pages of acronyms and 159 footnotes

# Extending the Tool Set

- Establishing subcategories for each tool
  - Noting their key tool dimensions
  - Detailing their design features
  - Exploring their applicability
    - Evaluating their use

And developing a “Pattern Language” for government

# A Pattern Language

Towns · Buildings · Construction



Christopher Alexander  
Sara Ishikawa · Murray Silverstein  
*WITH*  
Max Jacobson · Ingrid Fiksdahl-King  
Shlomo Angel

# *A Pattern Language*

Towns · Buildings · Construction



*Christopher Alexander*  
*Sara Ishikawa · Murray Silverstein*  
*WITH*  
*Max Jacobson · Ingrid Fiksdahl-King*  
*Shlomo Angel*

*A Pattern Language*

Alexander · Ishikawa · Silverstein · Jacobson · Fiksdahl-King · Angel

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Oxford

A **pattern language** is a method of describing good design practices within a field of expertise. The term was coined by architect **Christopher Alexander** and popularized by his book *A Pattern Language*. (...) Some advocates of this design approach claim that ordinary people can use it to successfully solve very large, complex design problems. (Pattern Language, Wikipedia)

The elements of this language are entities called **patterns**. Each pattern describes a problem that occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice.

— Christopher Alexander  
(Design Pattern, Wikipedia)

**Design paradigms** can be used either to describe a design solution, or as an approach to design problem solving. Problem solving occurs through a process of abstraction and characterization of design solutions, with subsequent categorization into problem solving types. The approach is akin to the use of metaphor in language; metaphors are used to help explain concepts that are new or unfamiliar, and to bridge between a problem we understand and a problem we don't.

(Design Paradigm, Wikipedia)

# Two Patterns

## **159: Light on two sides of every room**

When they have a choice, people will always gravitate to those rooms which have light on two sides, and leave the rooms which are lit only from one side unused and empty.

## **167: Six-foot balcony**

Balconies and porches which are less than six feet deep are hardly ever used.

# Systems Thinking

“We must insist on solving more than one problem at a time and on tackling multiple interrelated challenges at the same time. **We need the resolve to address systems rather than symptoms.** A solution will not be effective or enduring if it creates new problems. And so, we need new business models, new technologies, new policy frameworks, and most importantly, new ways of engaging with each other.” — Quoted on Facebook by the Donella Meadows Institute (emphasis added)

*"Beyond the Limits is a book of stunning intelligence."  
— Barry Lopez*

# BEYOND



CONFRONTING GLOBAL COLLAPSE

# THE

ENVISIONING A SUSTAINABLE FUTURE

# LIMITS

*Sequel to the international bestseller **The Limits to Growth***

DONELLA H. MEADOWS, DENNIS L. MEADOWS

Donella (“Dana”) Meadows, (1941- 2001) left us all with an enormous legacy of thought and writing on systems thinking. Her “Places to Intervene in a System” will be highlighted in our practicum.

# Places to Intervene in a System

— Donella Meadows (Whole Earth, 1997)

9. Numbers (subsidies, taxes, standards)
8. Material stocks and flows
7. Regulating negative feedback loops
6. Driving positive feedback loops
5. Information flows
4. The rules of the system (incentives, punishment, constraints)
3. The power of self-organization
2. The goals of the system
1. The mindset or paradigm out of which the goals, rules, feedback structure arise

URBAN DYNAMICS

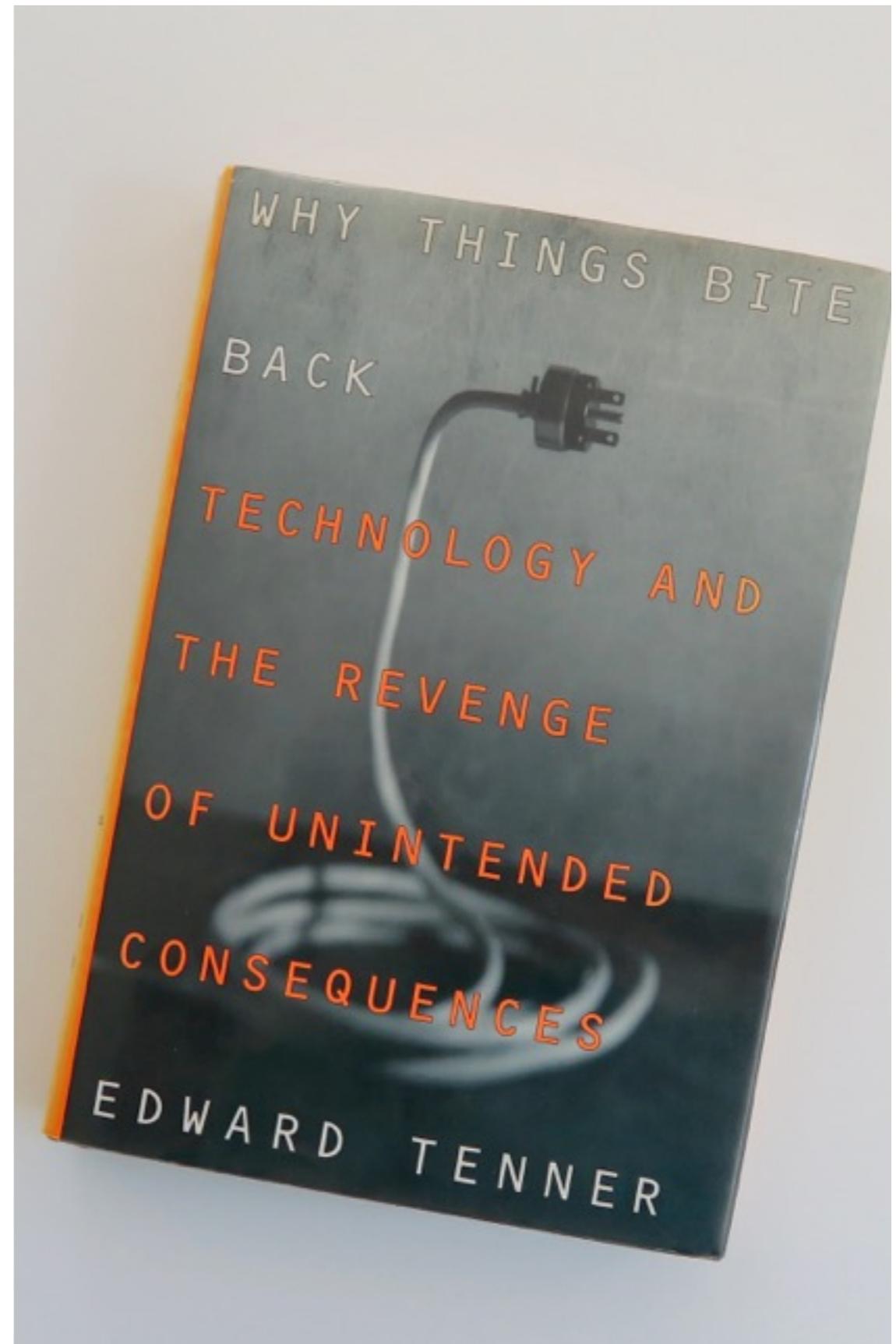
*Jay W. Forrester*

The M.I.T. Press  
*Massachusetts Institute of Technology*  
*Cambridge, Massachusetts, and London, England*

Jay Forrester is the father of System Dynamics and the author of Industrial Dynamics (1961), Urban Dynamics (1969), and World Dynamics (1971) among other works.

“Unintended consequences” are a common feature of our complex civilization.

Jay Forrester distinguished them from the “counter-intuitive behavior” of complex systems: e.g., “...past programs designed to solve urban problems may well be making matters worse.” (Urban Dynamics, page 109)



The “Stop-and-frisk” policy in American policing was developed in response to the “broken windows theory.” It was designed to produce safe streets, and thus reduce crime and vandalism.

As we saw last month, stop-and-frisk actions by the Baltimore police actually led to rioting and property destruction.

“Chicago paid a whopping \$500m in claims related to police misdeeds between 2004 and 2014.” Quoted in *The Economist*, April 25th, 2015, p 28. Chicago had better uses that \$1m a week.

**We need the resolve to address systems rather than symptoms.**

**System dynamics** is an approach to understanding the **nonlinear** behaviour of **complex systems** over time using **stocks and flows**, internal **feedback loops** and time delays. (Wikipedia)

Complex adaptive systems (CAS) are special cases of complex systems. They are **complex** in that they are diverse and made up of multiple interconnected elements and **adaptive** in that they have the capacity to change and learn from experience. Examples of complex adaptive systems include the **stock market**, the **biosphere** and the **ecosystem**, **manufacturing businesses** and any human social group-based endeavor in a cultural and **social system** such as **political parties** or **communities**.  
(Wikipedia, edited)

System Dynamics models are an excellent tool to help understand the past and anticipate possible futures.

“All models are wrong, but some are useful.”  
– George E. P. Box (1919 – 2013)

In *An Introduction to Cybernetics*, Ross Ashby (1903 - 1972) formulated his Law of Requisite [Variety](#)<sup>[9]</sup> stating that "variety absorbs variety, [and] defines the minimum number of states necessary for a controller to control a system of a given number of states." (Wikipedia)

The Law of Requisite Variety (LRV) has many applications across governance.

# “Phase Four Souvlaki”

President Nixon's wage & price controls (1971 - 1973) were unenforceable:

The price of the souvlaki at a greek restaurant on Capitol Hill was held constant, but my friends and I found that the portions steadily diminished in size. There was NO WAY that the Federal government could keep track of portion sizes across America.

Governments should not pass unenforceable laws. See “Prohibition.”

## Partnering with the Internet

An office with ten attorneys at Social Security has prosecuted cases of mail fraud since 1988. In 2011, when Internet fraud began swamping them, they initiated partnerships with firms such as Google, Microsoft, Apple, Facebook, Visa, Mastercard, and Paypal to block both ads and payments — thus preventing victimization before it occurs. Their partners have shut down websites, mobile apps, social media accounts, and advertisements — both within America and in foreign countries.

Although Ashby's Law cannot be violated, the attorneys successfully changed their *modus operandi* by enlisting a substantial number of additional controllers of the system.

They redesigned their program.

 International Library of Systems Theory and Philosophy

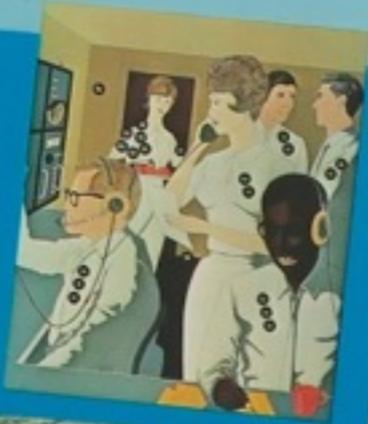
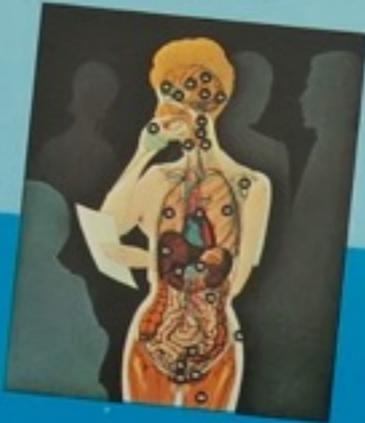
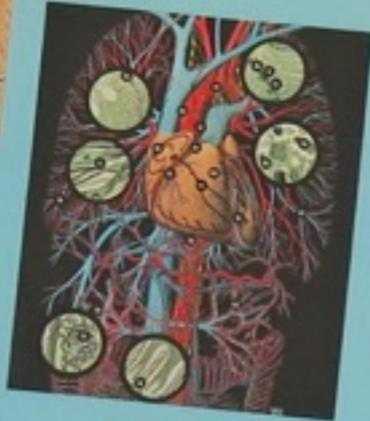
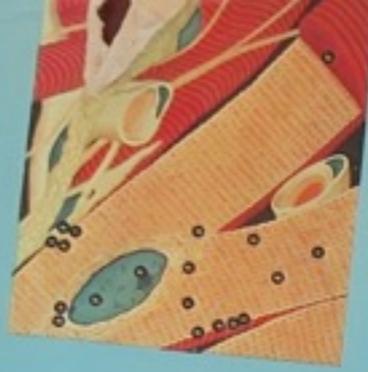
# *DESIGN for* *EVOLUTION*

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Self-Organization and Planning in the Life of Human Systems

*Erich Jantsch*

**JAMES GRIER MILLER**



# **LIVING SYSTEMS**

JAMES GRIER MILLER

# LIVING SYSTEMS



MILLER

# LIVING SYSTEMS



Stafford Beer

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**BRAIN  
OF  
THE  
FIRM**

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**SECOND EDITION**

I had the pleasure of meeting Stafford Beer at an  
American Society for Cybernetics conference,  
in Virginia Beach in 1986.



# **DESIGN**

“Design” has gone mainstream in the 21st Century.  
Design has also gone “generic.”

"Engineers are not the only professional designers. Everyone designs who devises courses of action aimed at changing existing situations into preferred ones. The intellectual activity that produces material artifacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devises a new sales plan for a company or a social welfare policy for a state. Design, so construed, is the core of all professional training; it is the principal mark that distinguishes the professions from the sciences. Schools of engineering, as well as schools of architecture, business, education, law, and medicine, are all centrally concerned with the process of design."

— Herbert A. Simon, in The Sciences of the Artificial (1969)

The Hasso Plattner Institute of Design at Stanford  
([www.dschool.stanford.edu](http://www.dschool.stanford.edu))

dschool president George Kembel's speech at Chautauqua in 2009 is an excellent introduction to "design" today: [http://library.fora.tv/2009/08/14/George\\_Kembel\\_Awakening\\_Creativity](http://library.fora.tv/2009/08/14/George_Kembel_Awakening_Creativity)

*...and there are books aplenty!*

REVISED & EXPANDED EDITION

*The* DESIGN  
of EVERYDAY  
THINGS

DON  
NORMAN



*New, revised and  
enlarged edition*

**UNDER**

Kees Dorst

**STANDING**

**DESIGN**

175  
Reflections  
on Being a Designer

# INVENTION by DESIGN

How Engineers Get  
from Thought  
to Thing



Henry  
**PETROSKI**  
author of *The Evolution of Useful Things*

In Washington, we are lucky enough to have a meet-up group, Design Thinking DC, that meets regularly to discuss design issues, both generic and applied. Come join us.

The meetings are always fun and thought-provoking. That's where I first saw the movie, "Design & Thinking."

The website is:

<http://www.meetup.com/Design-Thinking-DC/>

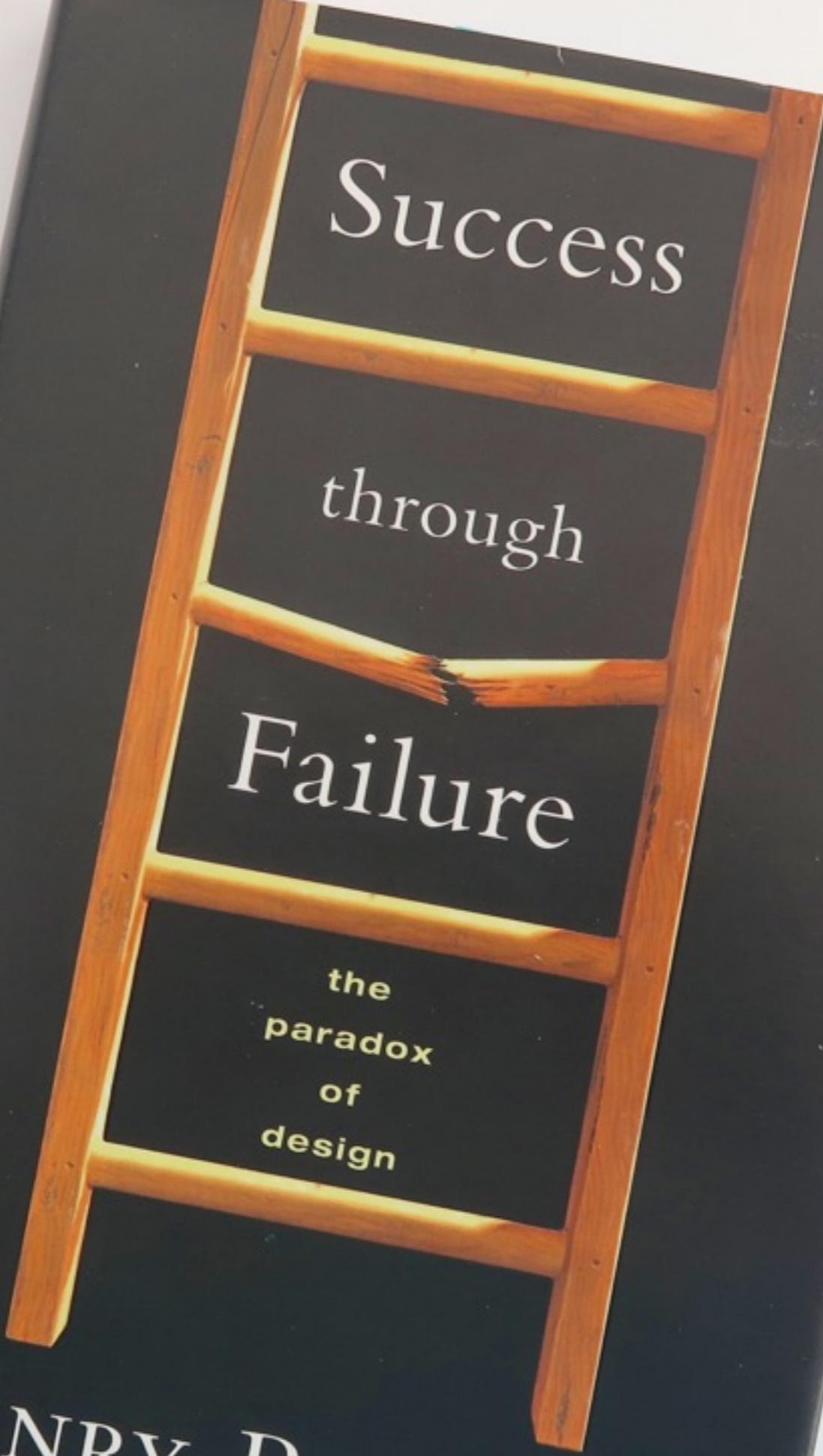
- Perhaps the best way to learn about “generic” design is to watch the movie. It’s available online. (surprise!)



Henry Petroski, my favorite engineer, provides the key insight into design: Good design requires both understanding and anticipating failure.

“Failure is an unacceptable difference between expected and observed performance. Good design is thus proactive failure analysis, something that both a designer and a chooser among designs ought to practice. Anticipating and identifying how a design can fail — or even just be perceived to fail — is the first step in making it a success.” p. 51

—Henry Petroski, Success Through Failure (2006)

A wooden ladder is positioned vertically against a dark, textured background. The ladder's rungs are horizontal, and the top rung is broken, with the wood splintered and hanging down. The text is printed in white on the dark background.

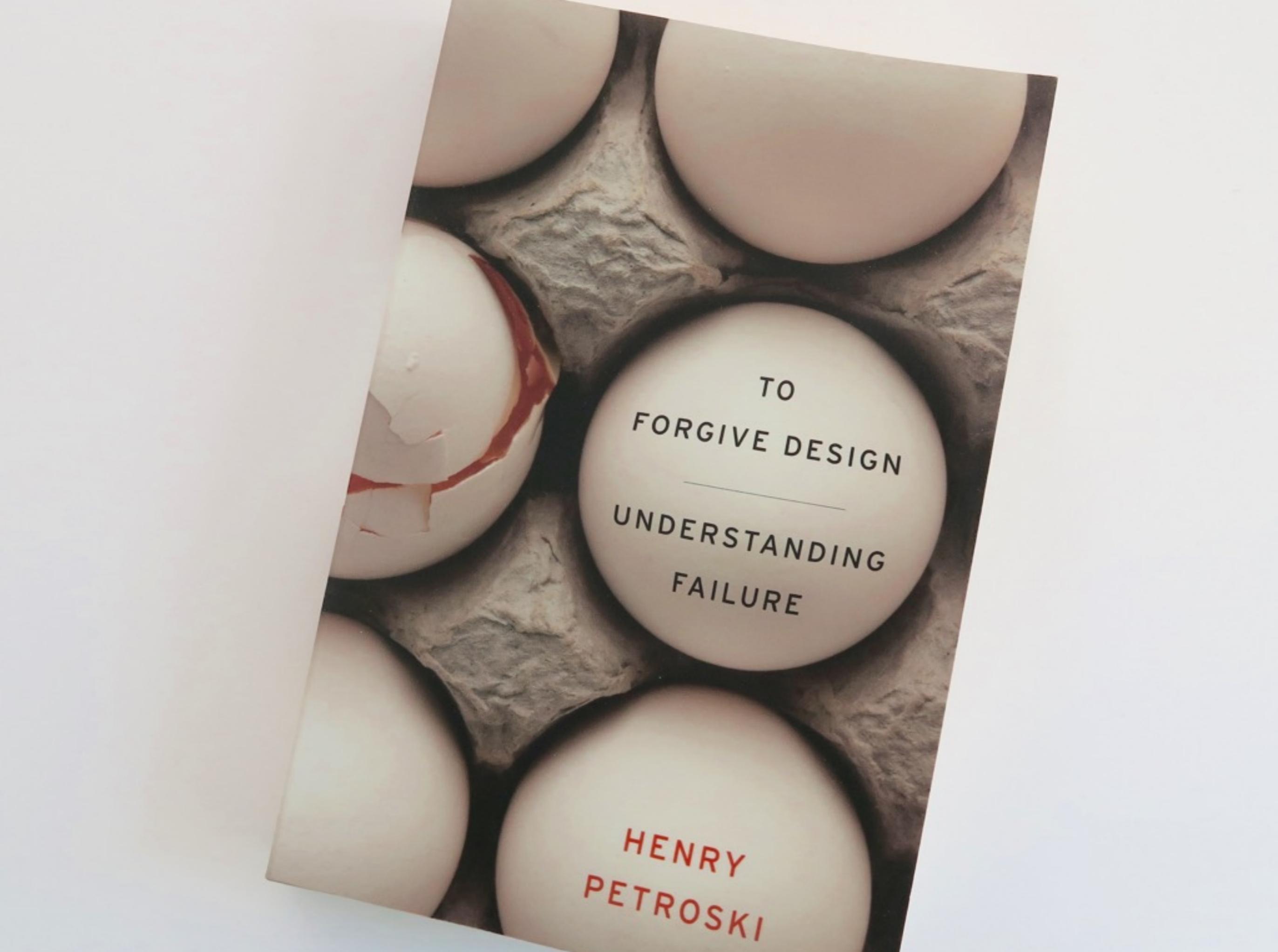
Success

through

Failure

the  
paradox  
of  
design

HENRY PETROSKI

The image shows the front cover of a book. The cover is a photograph of a brown egg carton with several white eggs. One egg in the middle-left position is cracked, with a jagged red line indicating the break. The title is printed in black, sans-serif, all-caps font on the cracked egg. The author's name is printed in red, sans-serif, all-caps font on the egg directly below it. The book is placed on a white surface, and a white page is visible on the left side.

TO  
FORGIVE DESIGN  
—  
UNDERSTANDING  
FAILURE

HENRY  
PETROSKI

We have Federal programs that are considered failures (or “less than successful”).

But in Washington we seldom distinguish between the program’s design and its implementation.

During economic downturns, the Economic Development Administration (EDA) in Commerce for years got money to spend on construction projects to alleviate recessions (a negative feedback loop).

Often these projects took so long to get approvals that they got underway just in time to reinforce the next economic recovery (a positive feedback loop).

This was noted in 1976 by Commerce's new Office of Program Evaluation (which I had just started up), and the program was modified to request and approve only "Shovel-Ready" projects.

The program's counter-cyclical purpose was regained.

We changed the program's design.

“Successful change comes not from emulating success and trying to better it but from learning from and anticipating failure, whether actually experienced or hypothetically imagined.” p. 329

— Henry Petroski, To Forgive Design (2012)

Some positive persisting fops we know,  
Who, if once wrong, will needs be always so;  
But you, with pleasure own your errors past,  
And make each day a critic on the last.

— Alexander Pope, *An Essay on Criticism* (1709)

“Congress never gets anything right the first time – after five or six years we have to revisit our ‘solutions’ and correct them.” — John Brademus

John Brademus was the president of New York University for 11 years and a Congressman from Indiana for 22 years. He served as Majority Whip under Tip O’Neill.

# The Information Explosion

**Like, “Duh!”**

# “Crowdsourcing”

**Crowdsourcing** is an “online, distributed problem-solving and production model.” — Daren C. Brabham, author of Crowdsourcing (2013)

**Crowdsourcing** is the process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an [online community](#), rather than from traditional [employees](#) or suppliers. Merriam-Webster.com

## Examples of Crowdsourcing:

1714 – The **Longitude Prize**: When the British government was trying to find a way to measure a ship's longitude, they offered the public a monetary prize to whomever came up with the best solution.

2001 – Launch of **Wikipedia**: “Free-access, free content Internet encyclopedia”

2011: Participatory Budgeting in NYC ([www.pbnyc.org](http://www.pbnyc.org))

2012: Oregon's Kitchen Table ([www.oregonskitchentable.org](http://www.oregonskitchentable.org))

Gavin Newsom, California's Lieutenant Governor, has laid out five themes for connecting people and government in his new book, Citizenville.

They're in the Introduction. And they are all tied to the information explosion.

# CITIZENVILLE

GAVIN  
NEWSOM  
WITH LISA DICKEY

HOW TO  
TAKE THE  
TOWN SQUARE  
DIGITAL AND  
REINVENT  
GOVERNMENT

“First, government has to be absolutely transparent — every agency, across the board, with exceptions only to protect public safety or personal privacy.

“Second, we must encourage people to use that data to create useful apps, devices, tools — anything they want.

“Third, we must learn to engage people on their own terms.

“Fourth, we need to allow people to bypass government.

“Fifth, we must inject a more innovative, entrepreneurial mind-set into government.”

— Gavin Newsom, Citizenville (2013)

"People are speaking to their government with 21st century technology, we are listening with 20th century technology and responding with 19th century policy." -Madeleine Albright

So why must we improve the way that our government intervenes in both our economy and the activities of our people?

Two of the senior editors at *The Economist* have given us the answer, in The Fourth Revolution — The Global Race to Reinvent the State (2014).

# The Fourth Revolution

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The Global  
Race to Reinvent  
the State

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John Micklethwait  
& Adrian Wooldridge



Micklethwait and Wooldridge say that the first three revolutions were:

1. Thomas Hobbes and the Rise of the Nation-State
2. John Stuart Mill and the Liberal State
3. Beatrice Webb and the Welfare State

They are calling for governments to do less, but also to modernize what is done (pp 193-194):

“ Government’s problem is that it is stuck in the age of Sloan’s GM, with four assumptions:

1. Organizations should do as much as possible in-house;
2. Decision making should be centralized;
3. Public institutions should be as uniform as possible; and
4. Change is always for the worse.”

The challenges from the East — Singapore & China —mean we must do better.

“Liberal democracy remains the best system for dealing with the challenges of modernity, and there is little reason to believe that Chinese, Russian or Islamist alternatives can provide the diverse range of economic, social and political goods that all humans crave. But unless liberal democracies can somehow manage to reform themselves and combat institutional decay, history will end not with a bang but with a resounding whimper.” — NYT review (September 14, 2014) of Francis Fukuyama’s recent book, Political Order and Political Decay

So — how do we design the design of government?

And who should be involved?

As noted earlier:

“Design... is the core of all professional training; it is the principal mark that distinguishes the professions from the sciences. Schools of engineering, as well as schools of architecture, business, education, law, and medicine, are all centrally concerned with the process of design.”

— Herbert A. Simon, in The Sciences of the Artificial (1969)

“It is not the strongest or the most intelligent who will survive but those who can best manage change.” — Charles Darwin

If not us, who?  
If not now, when?