

**Systems design explains the world: volume 1** by Avery Pennarun

<https://apenwarr.ca/log/20201227>

- **Introduction, led by Tammy Troup** / Mastodon: tltroup@digipres.club / [www.linkedin.com/in/tltroup](http://www.linkedin.com/in/tltroup)
  - Housekeeping -- Code of Conduct
  - Communication -- Miro and Zoom Chat
  - Timeline with half an hour to wrap up
  - General structure of topics as co-creation exercises (thanks Dawn Ahukanna)
    - Intro to section - 2m
    - Contribute to board - 5m
    - Summarize (paper did/did not say) - 3m
  - Transition to next section / continue conversation in Miro
- **What is systems design? led by Yvonne Lam**
- **Systems of control: hierarchies and decentralization, led by Tammy Troup**
- **Chicken-egg problems, led by Dawn Ahukanna**
- **Second-system effect, led by Andrea Magnorsky**
- **Innovator's dilemmas, led by Shaun Greene** / Mastodon: ductape@mastodon.social / [linkedin.com/in/ductape/](http://linkedin.com/in/ductape/)
- **Wrap**

## **Art of Gathering** Priya Parker <https://www.priyaparker.com/book-art-of-gathering>

Intentional communication

1. Decide why
2. Close doors
3. Create temp alternative world
4. Never start a funeral without logistics
5. Come as you are
6. Cause good controversy
7. Accept the ending



### Being Glue - No Idea Blog

Slides and notes for the Being Glue talk.



mitpress.mit.edu

### Control and Freedom

A work that bridges media archaeology and visual culture studies argues that the internet has emerged as a new medium by linking control with freedom and...  
details

A comprehensive program to help groups of all sizes:  
Align missions • Foster cooperation • Achieve shared goals

### PROSOCIAL



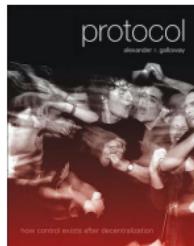
USING EVOLUTIONARY SCIENCE  
TO BUILD PRODUCTIVE, EQUITABLE,  
AND COLLABORATIVE GROUPS

PATRICK W. A. STEIN, PH.D.  
DAVID M. SLOAN WILSON, PH.D.  
AND STEVEN C. HAYES, PH.D.  
FOREWORD BY RICHARD M. RYAN, PH.D.

davidslawsonwilson.world

### Prosocial

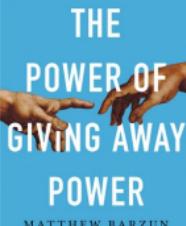
This book, coauthored with two leaders in Contextual Behavioral Science, provides a comprehensive guide to ProsocialWorld, a practical framework for working with single groups and multi-group cultural ecosystems to become more prosocial and adaptable...



mitpress.mit.edu

### Protocol

A WORK FROM MIT'S SCHOOL OF DESIGN PRESS  
HOW THE BEST LEADERS  
LEARN TO LET GO



www.penguinrandomhouse.com

The Power of Giving  
Away Power by  
Matthew Barzun;  
9780525541042 |  
PenguinRandomHouse.com  
Books

This book is a breakthrough. It's beautifully written, perfectly timed and heralds a new way forward. I'm buying a dozen copies to share with friends and colleagues. - Seth Godin,...

www.goodreads...



### Maverick: The Success Story Behind the World's Most Unusual Thinker

The international bestseller that tells how Semler tore...



cuttlefish.substack.com

### 20 Things I've Learned as a Systems (Over) Thinker

This list has received positive feedback. It seems to be most effective when it coincides with Monday morning to help folks navigate their week. Take care of yourself. Your brain is working overtime all the time. Practice "radical" recovery.

openwarr.ca

### What do executives do, anyway?

An executive with 8,000 indirect reports and 2000 hours of work in a year can afford to spend, at most, 15 minutes per year per person in th...

en.wikipedia.org



### Race After Technology - Wikipedia

From Wikipedia, the free encyclopedia  
Race After Technology: Attention Tools for the Information Age (2013)  
American book focusing on a range of ways in which social hierarchies, political power, and culture are embedded in the logical layer of internet-base...

### goodreads

www.goodreads.com

### Goodreads

Discover and share books you love on Goodreads.



### SORTING THINGS OUT

CLASSIFICATION AND ITS CONSEQUENCES  
SETHREY C. BONNER AND SUSAN LEIGH STAR

direct.mit.edu

### Sorting Things Out: Classification and Its Consequences

A revealing and surprising look at how classification systems can shape both worldviews and social interactions. What does a seventeenth-century morality tale te...

## Chicken and egg problems

Archetypal systems design question - Which one comes first? Alternative question - Where do we begin and where does "it" begin?

Nick Sousanis - Unflatten(n/r)ing



The answer to the riddle is "neither".

Some chicken-egg problems:

- Electrical distribution networks
- Phone and fax technologies
- The Internet
- IPv6
- Every social network (who will use it if nobody is using it?)
- CDs, DVDs, and Blu-Ray vs HD DVD
- HDTV (1080p etc), 4K TV, 8K TV, 3D TV
- Interstate highways
- Company towns (usually built around a single industry)
- Ivy league universities (could you start a new one?)
- Every new video game console
- Every desktop OS, phone OS, and app store

The defining characteristic of a chicken-egg technology or product is that it's not useful to you unless other people use it. Since adopting new technology isn't free (in dollars, or time, or both), people aren't likely to adopt it unless they can see some value, but until they do, the value isn't there, so they don't. A conundrum - (to who?).

It's remarkable to me how many dreamers think they can simply outwait the problem ("it'll catch on eventually") or outspend the problem ("my new mobile OS will be great, we'll just subsidize a few million phones"). And how many people think getting past a chicken-egg problem, or not, is just luck.

If you're building a one-sided, two-sided, or three-sided market, you'd better understand systems design, chickens, and eggs.



[mastodon.social](https://mastodon.social)

Nick Sousanis  
(@nsousanis@mastodon.s

Attached: 1 image Been reading, thinking, planning, composing, and thinking about nothing (and beginnings) for about a year now. I'm not sure it's good to make drawings about it finally... Onward. #nostos #unflattening 2



isn't this just the cold start problem?

Who benefits?

nonprofitquarterly...

Building Adaptive Communities through Network Weaving - Non Profit News | Nonprofit Quarterly

This is an article that focuses on the basic principles of building adaptive networks, using one grounded example to bring the theory to life. We recommend reading this back at Carl Sussman's article (see Winter 2003, "Making Change: How to Build...

what is the 'minimum viable network' that is needed for a certain number of people who can use the tool and find value?

## Other questions



How to deal with the co-dependency?

## Answers

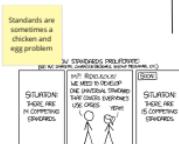


## Examples



Maybe in some cases there are some already existing and "similar enough" chickens or eggs you may use to convince people to use your technology?

But not just like with real chickens and real eggs, there's a way to do it by bootstrapping from something smaller. The main techniques are to lower the cost of adoption, and to deliver more value even when there are fewer users.



Call for help! What is the best way to build a platform that can support multiple standards? It's a challenge, but it's also an opportunity to serve more people and encourage others to do the same.

Boundariesless: Enabler for the future of Organizing



nonprofitquarterly...

Boundaryless: Enabler for the future of Organizing

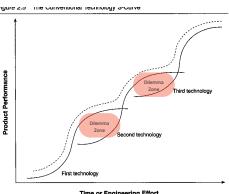
Community of practise is the real value of standards

## Types of Chicken and egg systems

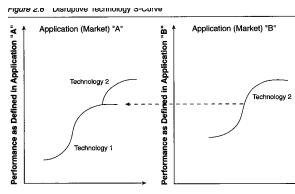
- 1 market
- 2 market
- 3 market

## Innovator's Dilemma

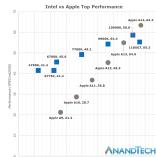
S-Curves



Source: Clayton M. Christensen, "Exploring the Limits of the Technology S-Curve, Part I: Component Technologies," *Production and Operations Management*, no. 4 (Fall 1992): 341. Reproduced by permission.



Source: Clayton M. Christensen, "Exploring the Limits of the Technology S-Curve, Part II: Component Technologies," *Production and Operations Management*, no. 4 (Fall 1992): 341. Reproduced by permission.



A dilemma is a **difficult choice between two or more unfavorable alternatives**. In the concept of technology, the choice is often for leaders to decide to continue investing in the current technology, or if the time is right to invest in a new technology.

Wait too long to invest and your product/technology gets left behind and loses competitiveness, i.e., Intel vs Apple silicon. Or invest in new technology that might cannibalize existing product. Jump too soon (immature technology) and lose your existing market, jump to fast and get beaten by competitors in current curve.

## Dilemmas you have experienced

supporting  
SOAP/SOA  
services

investing in  
Flash/Flex for  
rich internet  
experiences

working on BMW's  
microdrive (quarter-sized  
hard-drive) tech in  
late 90s as flash  
began to appear

Making CV algorithm  
work with black and  
white (easy to  
develop) or colorful  
(more beneficial but  
difficult to develop)  
images

Investing in  
preventing failures  
from happening in a  
system.  
Preventive vs.  
Reactive

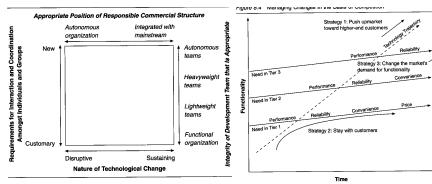
## Discussion area

Like paradigm  
shifts (Kuhn)?  
but for  
business

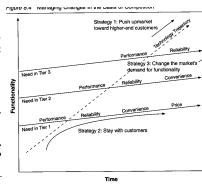
capitalism  
forces the  
incumbent  
to retreat up

Many  
competitors  
fail

Incumbent  
buys  
competitor



[PDF] The Innovator's Dilemma | Semantic Scholar  
My research search for an answer to the puzzle of why firms can't seem to do what they need to do to succeed. "Those who study genetics avoid the question of how genes are passed along. Those who study markets come along only years later."



## What is systems design?

What is systems design? led by Yvonne Lam

### Labor issue

Who does it?

How is it  
accomplished?

By its nature, it  
can come from  
anywhere



When does the  
system cross the  
threshold where it  
needs explicit  
"design"?

How do we get  
better at detecting  
this threshold and  
identifying when it  
happens?

Systems  
work can  
"come from  
anywhere"



### Glue work

Dealing with  
components  
ownership &  
system "grey  
areas"

system  
designer &  
institutional  
power

a person without  
the title, but with  
other kind of  
influential power?

Once you reach a certain  
level, your job description  
doesn't tell you what to do  
explicitly; it is up to you to find  
out what needs to be done.  
Systems thinking helps a  
lot here.

additional reading:  
[https://cutlefish.substack.com/p/20-things-i've-learned-as-a-systems](https://cutlefish.substack.com/p/20-things-ive-learned-as-a-systems)



 cutlefish.substack.com

### 20 Things I've Learned as a Systems (Over) Thinker

This is a post I received positive feedback.  
It seems to have struck a nerve. Sending  
it to coincide with Monday morning to  
help folks navigate their week. Take care  
of yourself, and if you're not doing  
overtime-all the time. Practice "radical"  
recovery.

the solution to leadership woes is often more leadership, being explicit about how to step into power, not only about who has power, is key

## Systems of design

systems of control: hierarchies and decentralization, led by Tammy Troup





# Second-system effect

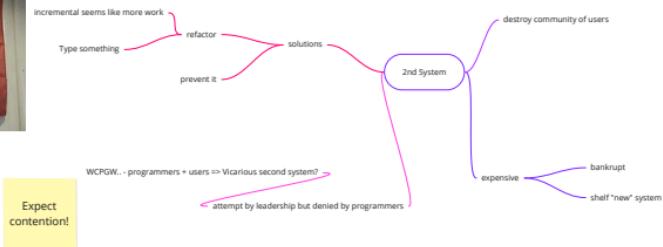
Second-system effect, led by Andrea Magnorsky

Second system effect arises through the following steps:

- Starts small and is built incrementally
- Over time, the product grows in popularity => becomes profitable.
- As the system evolves, getting more and more hacks on top. Early design tradeoffs start to be a bottleneck.
- The team figures out a new design that would fix all the things (And they're probably right.)
- Since the product is already popular, it's easy to justify spending. A project is launched to rewrite everything from scratch.

## Consistent results

- Slower than predicted
- Solves known problems.... and also creates new problems 😊
- Time split between old and new systems
- As schedule slides, new project is forced on to users. The users are not happy



How many second systems of you built in your career?

Me: 3

I spent the last few months getting a team out of the second-system mentality and adopt an evolutionary approach...

"strangler pattern" (needs a better name) is ex. of avoiding the second-system

In my experience some teams used the "first" system anyway, ignoring the second one, because it was buggy and nobody knew its bugs (aka the evil you know)  
====

a mindset of "perpetual beta" can help get away from first vs second system experiences

really interesting work in the artifacts from this workshop on keeping humans in the loop

[sites.google.com](http://sites.google.com)



Against Workshop

Agile science has been traditionally aimed around the individual as the core unit of analysis. However, studying concepts learning, perception, memory, decision making, neuroscience, and consciousness typically isolate their subjects...



perpetual beta - our new normal

The perpetual beta model describes how to build products that can cross professional networks, communities of practice, and cultures. It is important that it is necessary to connect all three in order to have multiple ideas and perspectives - as well as...

## Wrap up

Kudos to  
Tammy the  
time  
constraint  
worked!

When I tried to pull it all together, it fell into two parts:

- organizing for systems (roles of integrators and glue people and what we reward and don't based on what we (choose) to make visible/see; structures for decision making, information flow and workflows, etc.)
- major considerations for surviving and thriving as *econo-socio-technical systems move through the evolutionary lifecycle*: beginnings (chicken and egg); middles (second systems) and endings (Innovator's dilemma).

Discord server: I  
(Ruth) will follow  
up with an email  
to those who  
indicated interest  
in the chat.

TL Troup to Everyone 2:00 PM

Discord link

<https://discord.com/channels/1041110468762292235/1087094910190112900/1092492017092796496>

Ivan Rublev 2:04 PM

How to get an invite to the Discord?

TL Troup 2:06 PM

Ivan, I think the channel that I linked is public, but other channels are used by class alumni. @ruth, will Ivan need an invitation to the server to access the papers-in-system channel?

Simon Kohlmeier 2:08 PM

I'd also be interested in discord access if that is possible. The link says there are no channels I have permissions for

Ivan Rublev 2:09 PM

Same here,

Lari Hotari to Everyone 2:09 PM

I heard someone mention that there's also a Discord channel to continue discussions later. Where can I find the way to join the Discord channel? This is very interesting discussion and I'd like to keep connected.

Well, yes. They did. They did it by making the **single worst strategic mistake** that any software company can make:

They decided to rewrite the code from scratch.

Don't throw away all the code base at once - tests of the legacy code are its best documentation :)

People always think they can do better than others, when they don't think about the context in which things were built.

The idea that new code is better than old is patently absurd. Old code has been used. It has been tested. Lots of bugs have been found, and they've been fixed. There's nothing wrong with it. It doesn't acquire bugs just by sitting around on your hard drive. Au contraire, baby! Is software supposed to be like an old Dodge Dart, that rusts just sitting in the garage? Is software like a teddy bear that's kind of gross if it's not made out of *all new material*?

It's important to remember that when you start from scratch there is absolutely no reason to believe that you are going to do a better job than you did the first time. First of all, you probably don't even have the same programming team that worked on version one, so you don't actually have "more experience". You're just going to make most of the old mistakes again, and introduce some new problems that weren't in the original version.



## Code of Conduct

Our participation here reflects our mutual agreement and commitment to each other to follow this code of conduct during our discussion today. It applies equally to all of us (including facilitators).

- We share a commitment to providing a friendly, safe and welcoming meeting experience for all, regardless of level of experience, gender identity and expression, sexual orientation, disability, personal appearance, body size, race, ethnicity, age, religion, nationality, or other similar characteristic.
- Please be kind and courteous. Please avoid using terms that might detract from a friendly, safe and welcoming environment for all.
- Respect that people have differences of opinion and that our discussions will reflect different perspectives, trade-offs and impacts. There is seldom a right answer.
- Should anyone insult, demean or harass others in this setting, they will be excluded from interaction (contact the facilitators, if this happens). That is not welcome behavior.
- Likewise any spamming, trolling, flaming, baiting or other attention-stealing behavior is not welcome.

Note: We have adapted this code of conduct from the Ruby Code of Conduct.