

# Essence of the Learning Health System

Charles P. Friedman, PhD

Josiah Macy, Jr. Professor of Medical Education  
Chair, Department of Learning Health Sciences

Professor of Information and Public Health

University of Michigan

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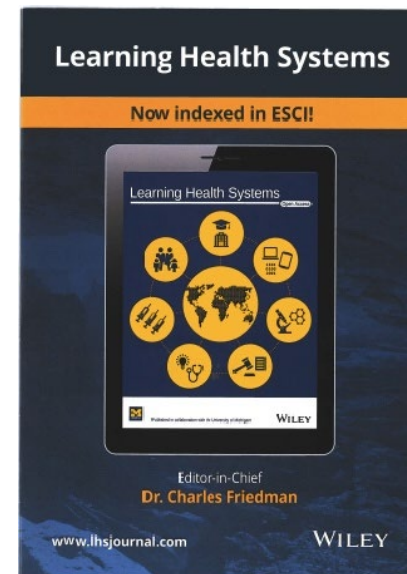


# Learning Health Systems

*Health systems--at any level of scale--become **learning systems** when they can, continuously and routinely, improve health through discovery and implementation.*



<https://nam.edu/programs/value-science-driven-health-care/learning-health-system-series/>



lhsjournal.com

Learning Health Systems

Not

~~Learning HealthCare Systems~~

# LHS “Anthems”

(Reward Offered for Putting these to Music)

- Bring us the tough problems!
- A system problem needs a system solution!
- 17 years to 17 months!
  - to 17 weeks to 17 days (to 17 hours)!

# The Goal: A System That Can Improve Health Through Discovery & Implementation

- ✓ Characteristics, events, and context are captured as data to **learn** from (**Data to Knowledge**)
- ✓ Best practice knowledge is **rapidly available** to support decisions (**Knowledge to Performance**)
- ✓ Improvement is **continuous and enduring** through ongoing **cyclic activity**
- ✓ An **infrastructure** enables this to happen routinely and with economy of scale
- ✓ All of this is part of the **culture**

# Pulling Out the Keywords: Gestalt of the LHS

- Persons/People
- Learn
- Data
- Knowledge
- Rapidly Available
- Performance
- Continuous and Enduring
- Cyclic Activity
- Infrastructure
- Culture

# Learning Systems Can Exist at Any Level of Scale

Single Organization



Network of Organizations



States/Provinces/Regions



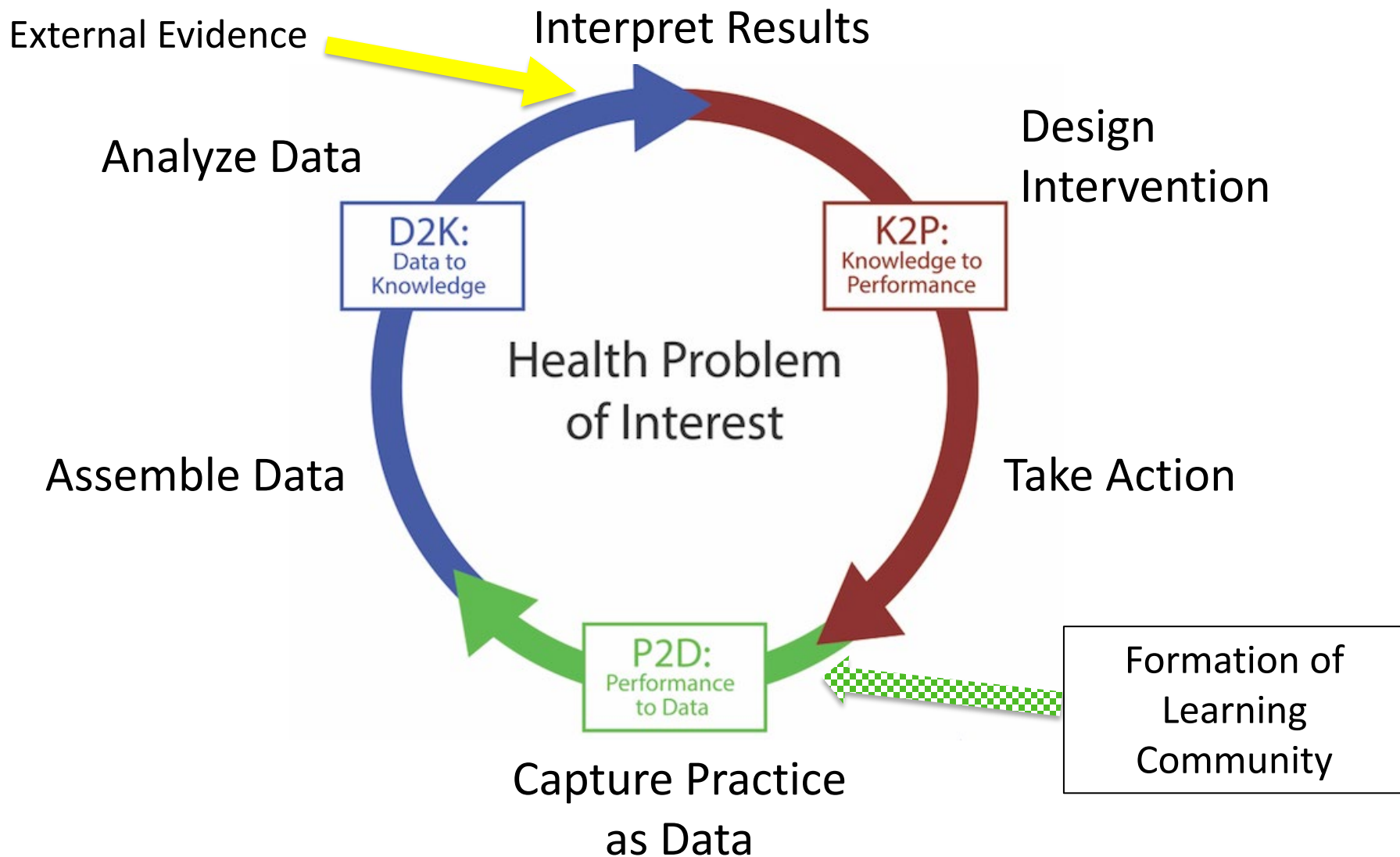
Nation



Planet

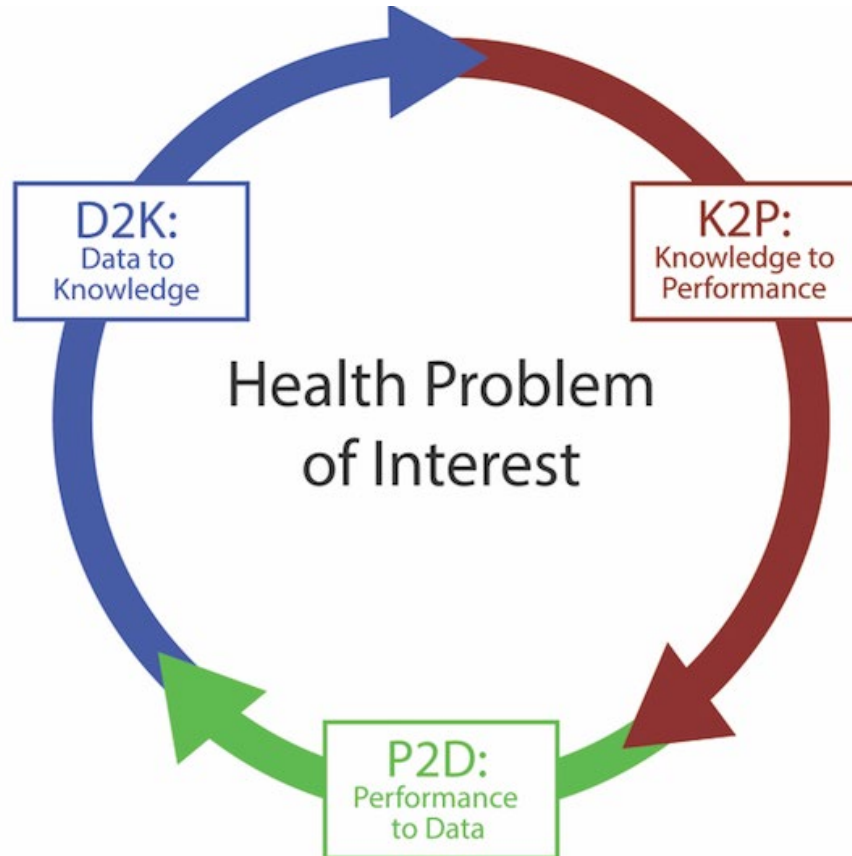


# The Fundamental Activity: Community-Directed Cycles of Study and Change

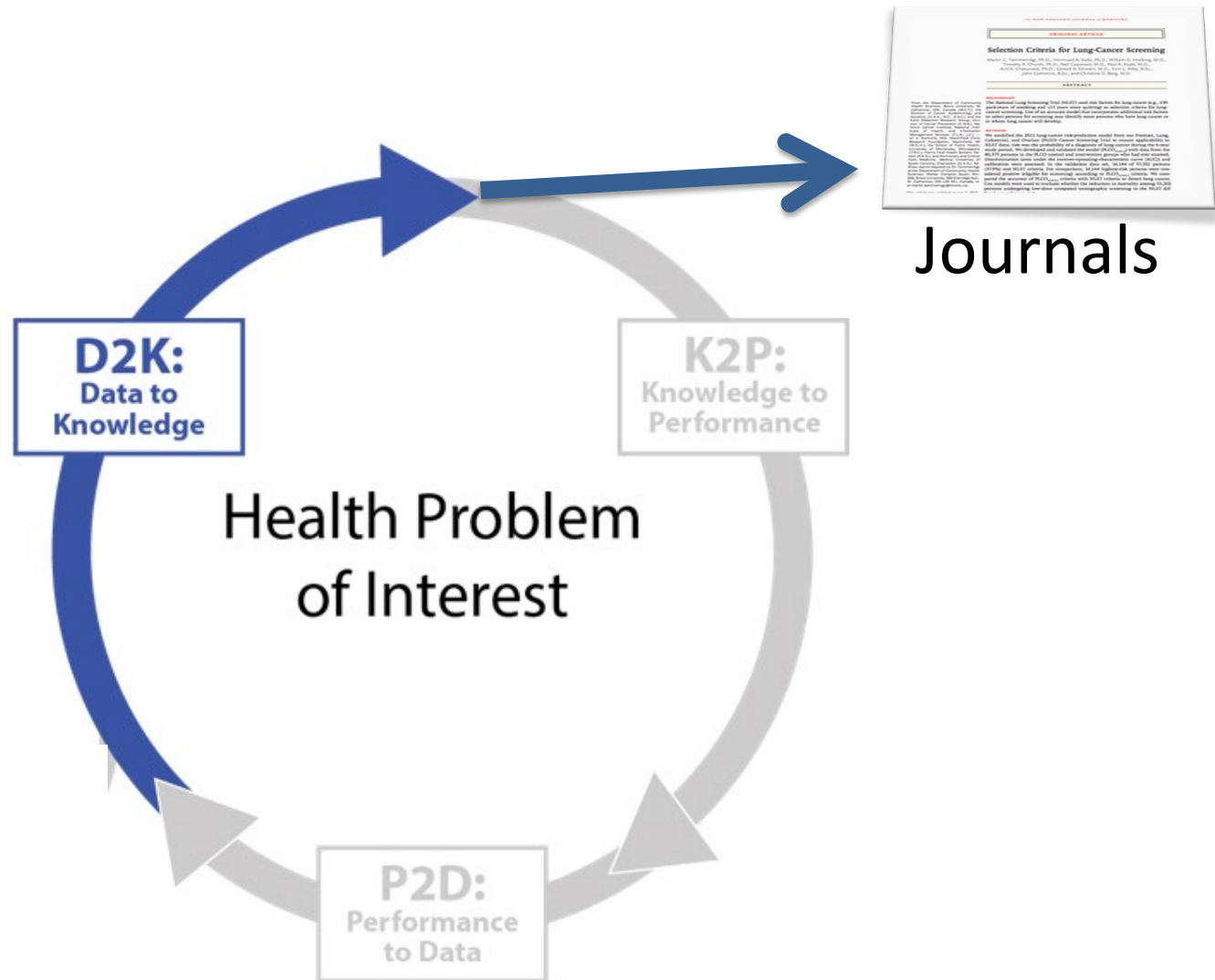




# Better Health Requires This



# Not Just This



# LHS Initiatives at all Scales!

## Single Organizations



### In the US:

- Intermountain
- Geisinger
- Kaiser-Permanente
- Mayo
- Many CTSA's

## Networks



### In the US:

- Improve Care Now (PCORI)
- PEDSNet
- CancerLINQ
- Epinet (NIH)

## States/Provinces/Regions



- Quebec & BC
- Michigan & Indiana

## Nation



- Switzerland
- UK: Scotland, England
- US (VA)

## Planet

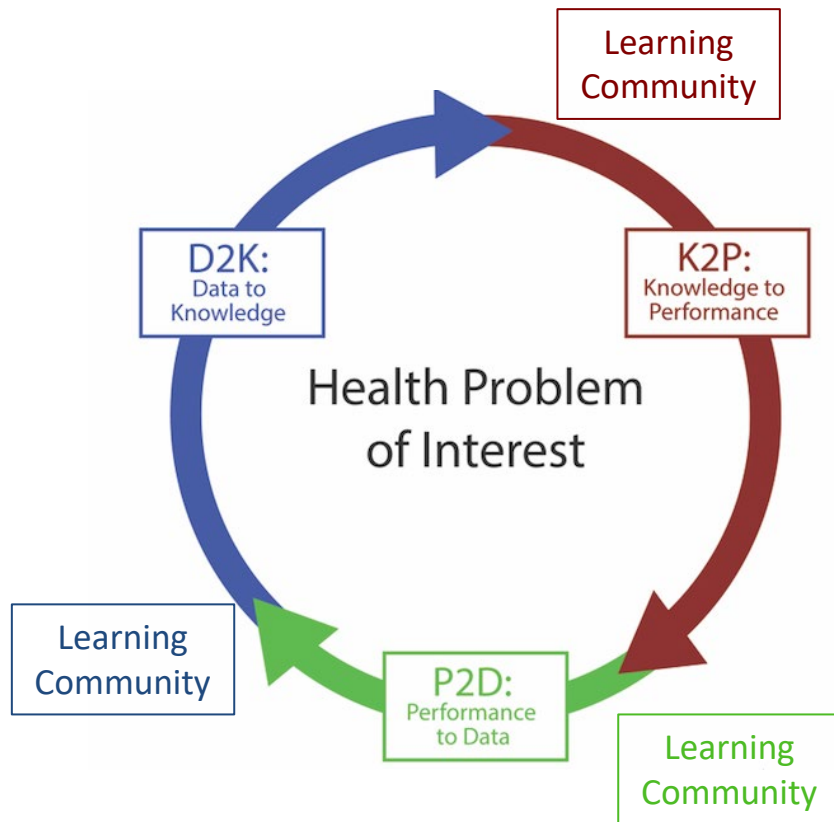


- Someday

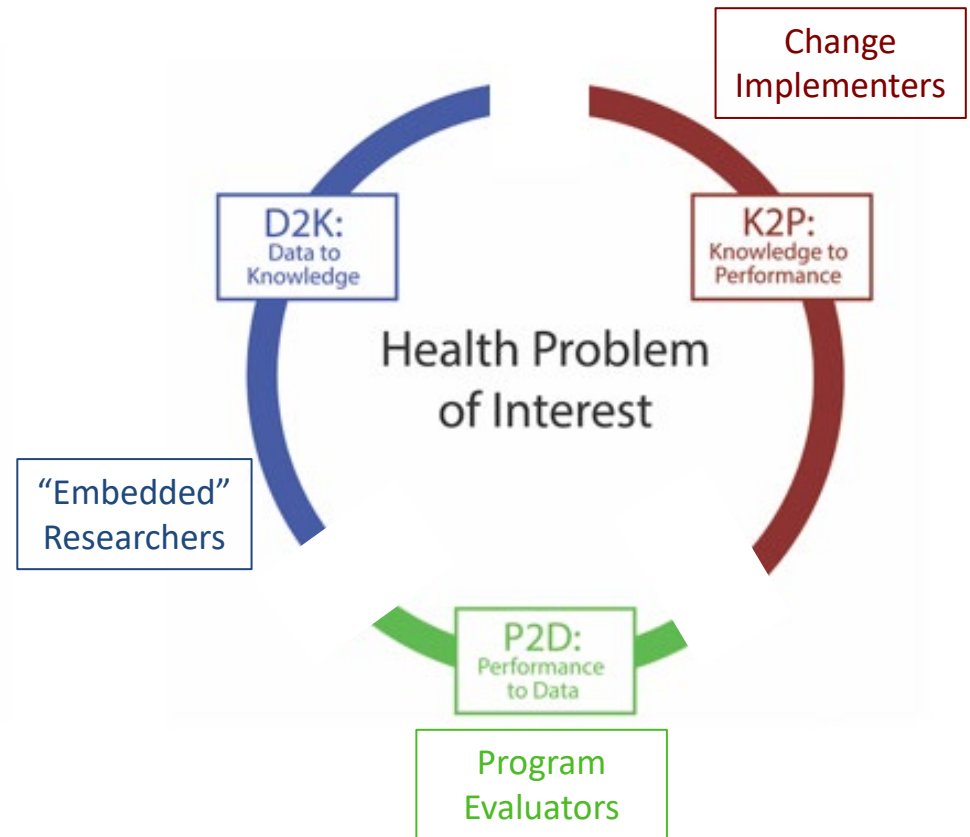
# So What's New Here?

- Continuity
- Embraced Uncertainty and Co-discovery
- Socio-technical Infrastructure
  - And preferably open infrastructure

# *Continuity:* The Community that Discovers is also the Community that Implements



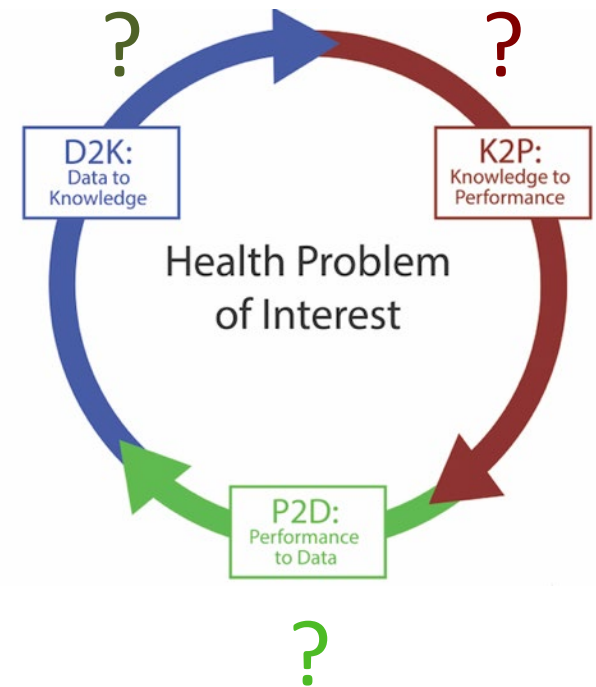
This



Not This

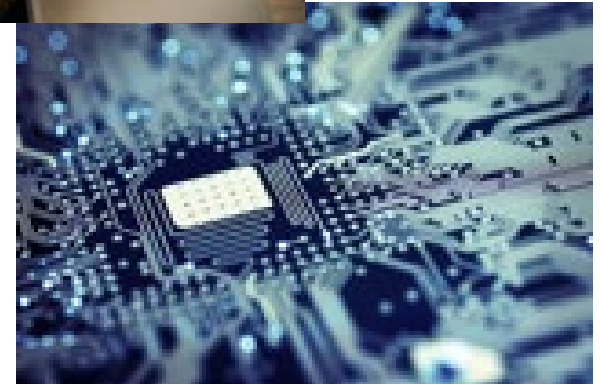
# Embraced Uncertainty and Co-Discovery

- System problems are complex
- Throughout the cycle, the community is unsure of what it is going to do
- The community co-discovers
- Antithesis of top-down implementation



# A Learning Health System is a Collaborative Socio-technical System

- All-inclusive
  - Patients and families!
- Trusted
- Decentralized
- Reciprocal
- Driven by shared passion and curiosity



# Example: Improve Care Now

## Improvers wanted.

Together, we're collectively restoring the wellbeing of all kids with Crohn's disease and ulcerative colitis — changing the way medicine is practiced.

IMPROVECARENOW™

[WATCH OUR VIDEO](#)

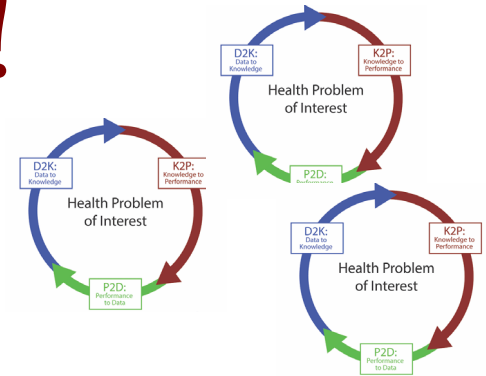
[JOIN OUR CIRCLE](#)



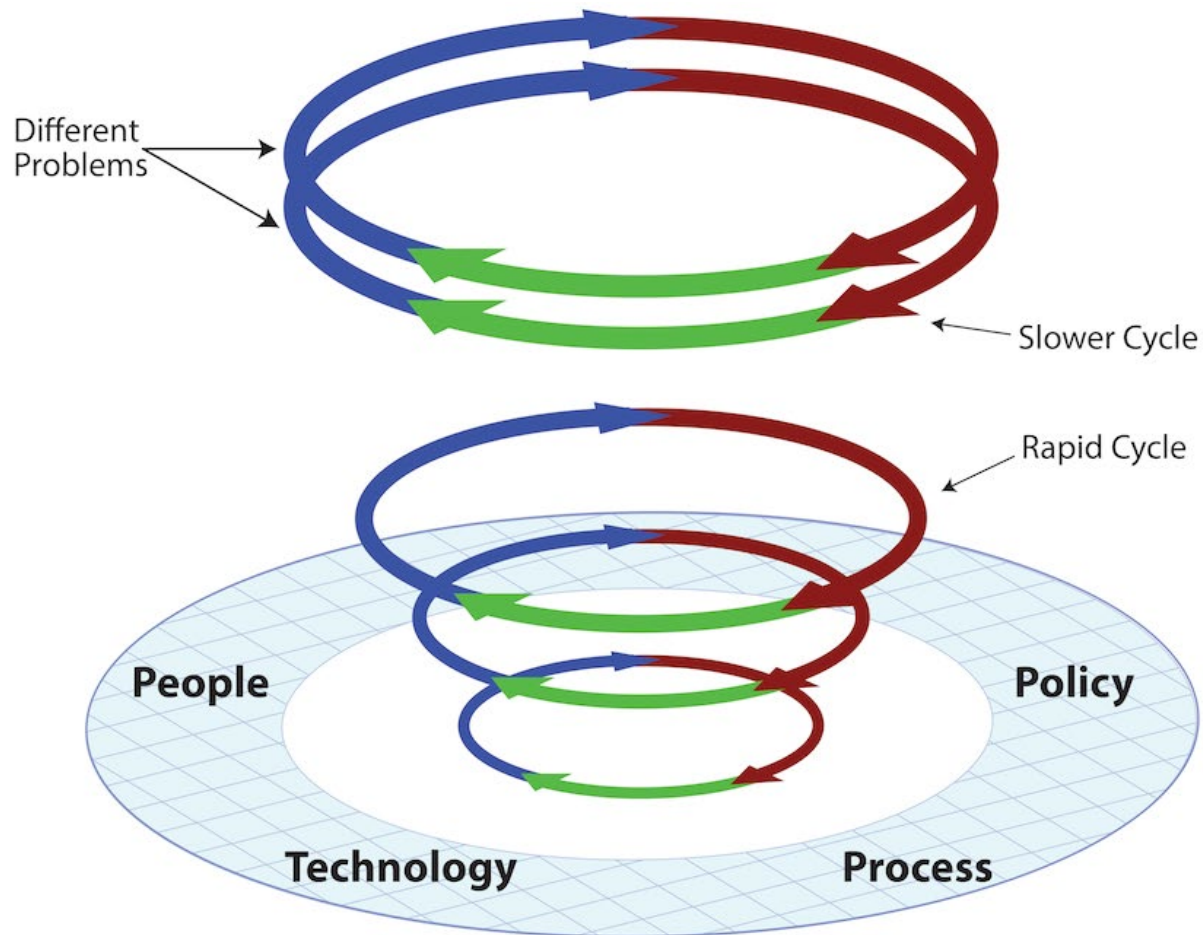
# Infrastructure!

## *Cycles enable improvement but do not create a Learning System*

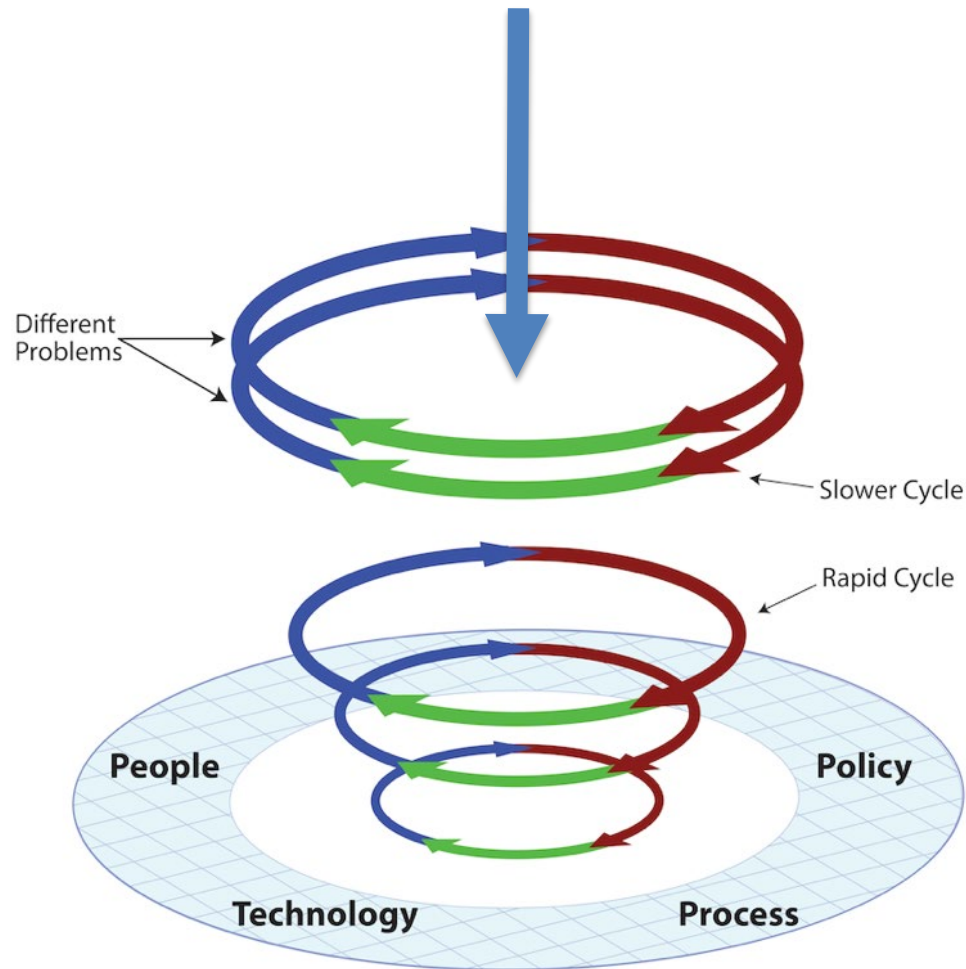
- If you want to get 350,000 people per day across a river, does everyone build his/her own rowboat?
- No, you build a:



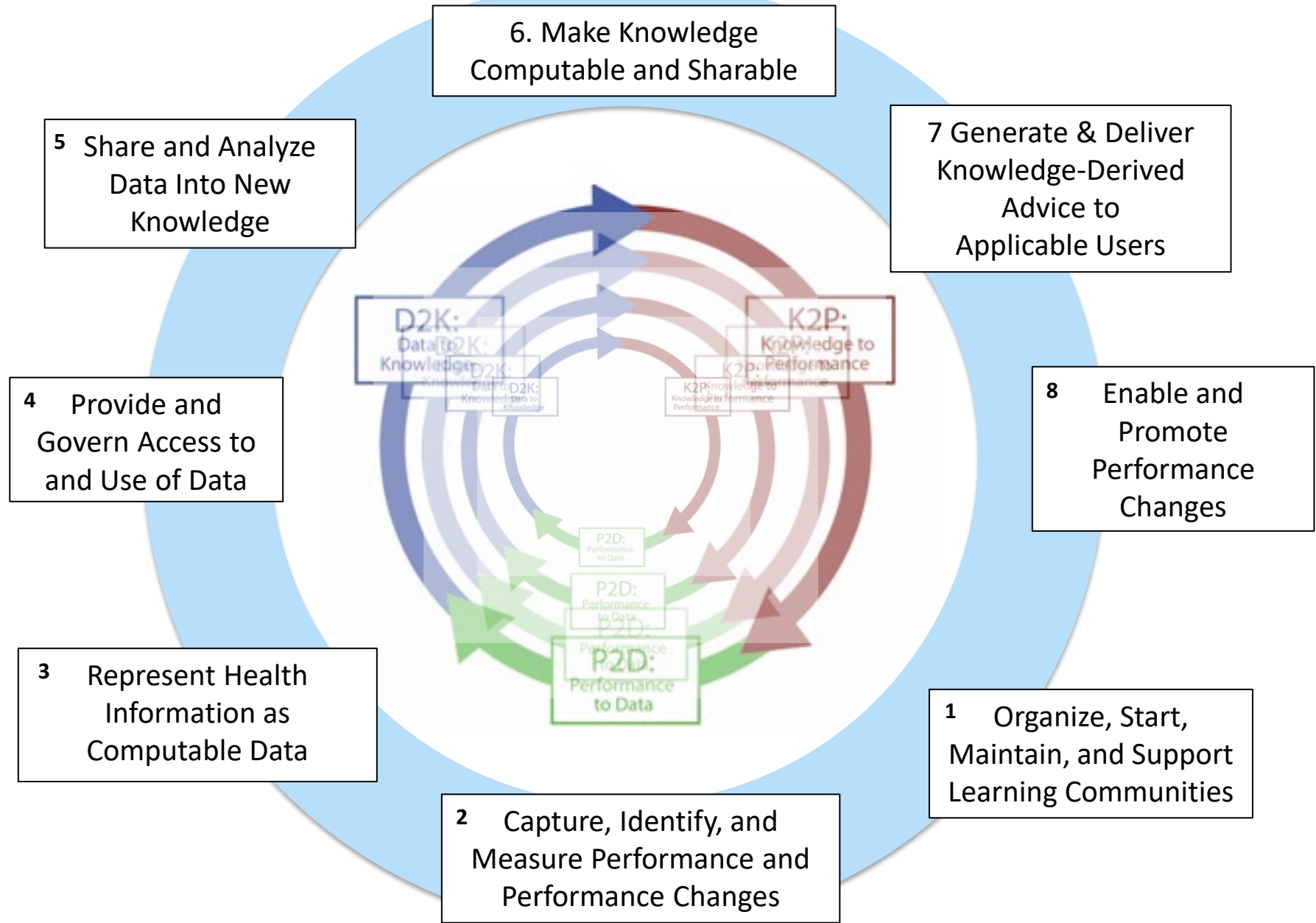
# A Learning Health *System* is a Collection of Learning Cycles Supported by a Common Infrastructure (LHS = Cycles + Infrastructure)



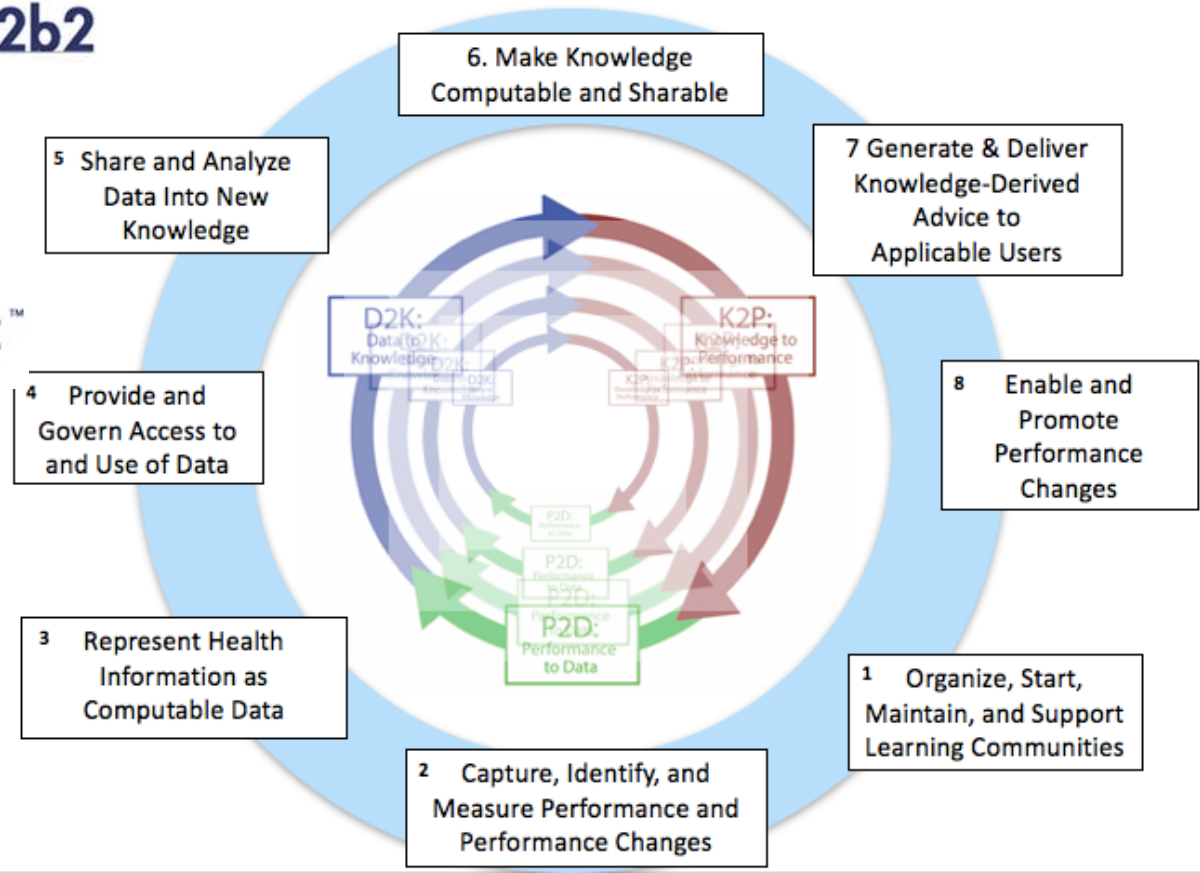
# We Can “Look Down” to See What the Infrastructure Consists Of



# Infrastructure as Interconnected *Socio-Technical Services*



# Many Open Infrastructure Components Already Exist: We Need More



Deliberative Dialogue

# Relevant Publications

## Toward an Information Infrastructure for Global Health Improvement

C. P. Friedman<sup>1</sup>, J. C. Rubin<sup>1</sup>, K. J. Sullivan<sup>2</sup>

<sup>1</sup> University of Michigan

<sup>2</sup> University of Virginia

<https://www.thieme-connect.com/products/ejournals/html/10.15265/IY-2017-004>

### PERSPECTIVE

## Mind the Gap: Putting Evidence into Practice in the Era of Learning Health Systems

*Jeanne-Marie Guise, MD, MPH<sup>1,2</sup>, Lucy A. Savitz, PhD, MBA<sup>3</sup>, and Charles P. Friedman, PhD<sup>4</sup>*

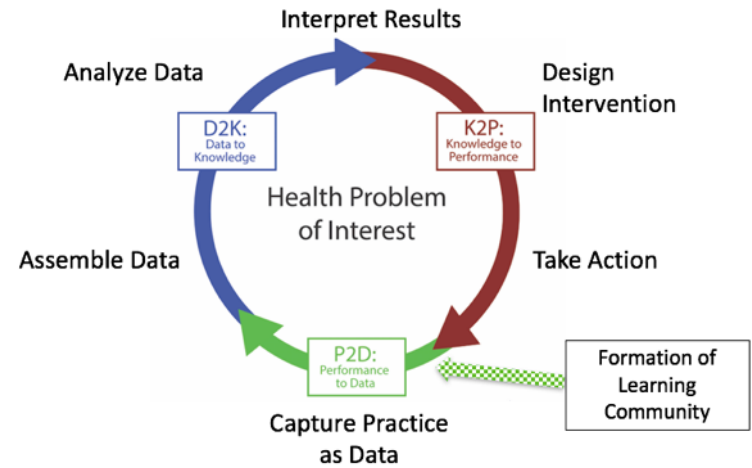
<https://link.springer.com/content/pdf/10.1007%2Fs11606-018-4633-1.pdf>

And everything in:

**Learning Health Systems**

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 cpfried@umich.edu  
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