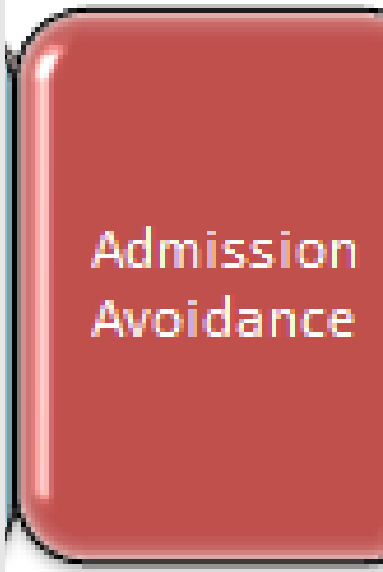
The Strategy Unit.

(Some) Insights from Systems Thinking

NHS
Midlands and Lancashire
Commissioning Support Unit

A patient pathway: everybody doing their best

- A patient pathway has 20 key steps
  - Eg: GP to outpatients to x-ray to … to theatre to rehabilitation
- Each step has planned capacity to see 1 to 6 patients per week
  - Avg: 3.5 patients per week
  - 10 weeks = 3.5*10=35 patients
  - 20 weeks = 3.5*20=70 patients
- Predict the chance of 70 patients going through the pathway after 20 weeks? 0 to 100%
  - High:50-100%
  - Moderate: 10%-50%
  - Low: 1%-10%
  - Very low: <1 in a million



Dice Game: everyone doing their best

- https://www.the-dice-game.com/game1.html

- “Pride & Joy” Alex Knight
  - To improve whole system flow we must focus
    - “which resource causes most delay for most patients most often”
  - Local (sub-)optimisation
    - Financial cuts in departments led to cut to portering budget (lower wheeler chair stock)
    - Surgical teams waiting longer for patients
    - This means that there should be porters sitting and drinking coffee rather than surgical teams standing waiting.
- To improve flow
  - Theory of Constraints (ToC)
    - Bottlenecks

From United Kingdom

GSURMACR

★★★★★ **Could be the best few quid youve spent**

Reviewed in the United Kingdom GB on 10 March 2015

Verified Purchase

By way of background - Im a consultant surgeon at a UK NHS hospital. Last week after reading this book I emailed my Directorate Manager as follows (CC-ing as always my consultant surgeon colleagues)

"Quick question – Ive noticed that there is an EDD [expected discharge date] column on CPD for all inpatients. Do you know who fills that data in? Ive never thought about it / been asked to estimate it before. For day case / elective cases Im sure the data is highly predictable, but for emergencies much less so (and emergencies are where the problems lie).

For an explanation of why an accurate EDD is the most essential bit of data we need to sort out our bed crisis please beg borrow or steal a copy [of Pride and Joy]

If we can do a few simple things and convince (shame?) medicine into doing likewise we might, just might, start being able to get our own patients into our hospital.

I know, I know, crazy talk. But we can dream."

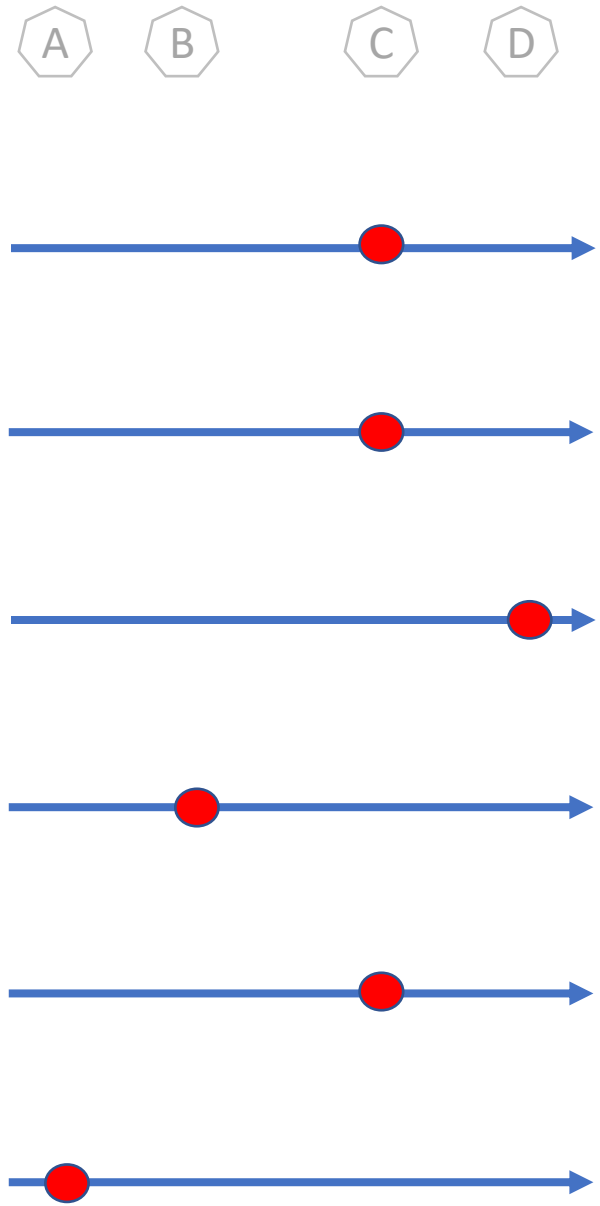
(OK so a cheap shot at the expense of Medicine, but they can take it.)

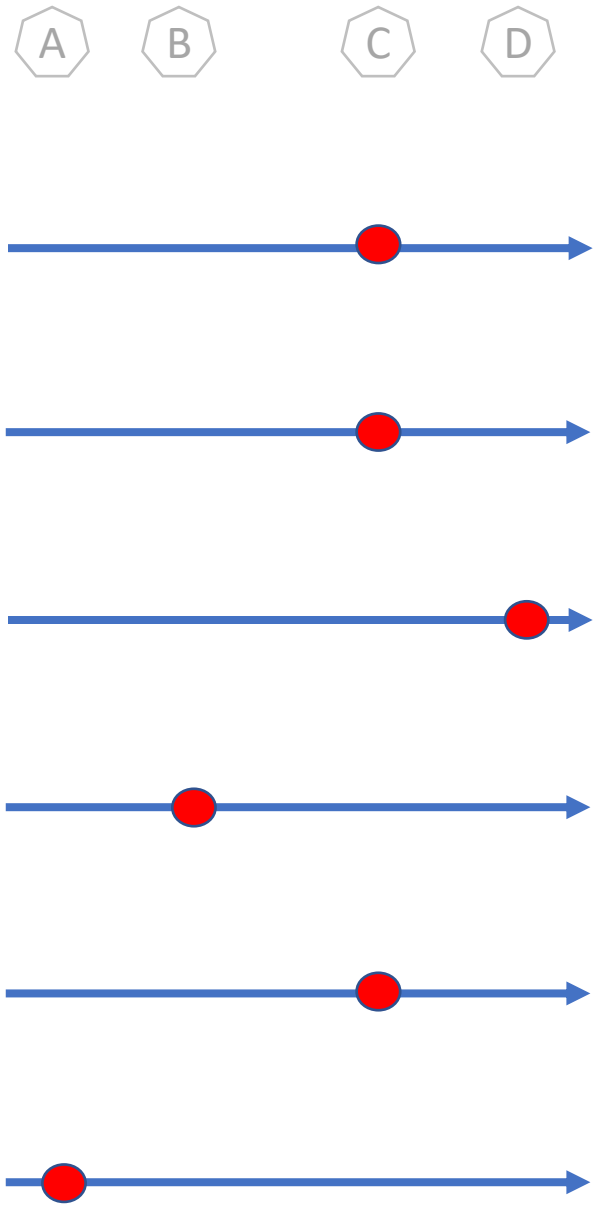
If youve read Goldratt's "The Goal" you'll be familiar both with TOC and the novel-as-learning-journey format used here. As a clinician I found it accessible and has already led to small changes in my own behaviour - eg just been on call this weekend and did a full round of all the general surgical patients in the hospital and discharged some home. (One thing to remember is nobody ever got fired for keeping a patient in hospital so if the NHS is ever going to get back on an even keel, it will require the senior decision makers leading the line).

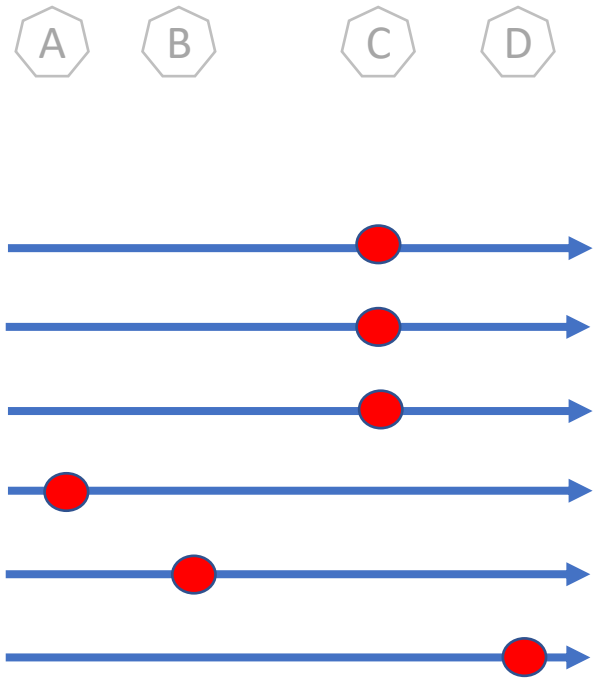
Didnt stop us having to divert, however. :-(

Well worth the time to read. Could be the best few quid youve spent.

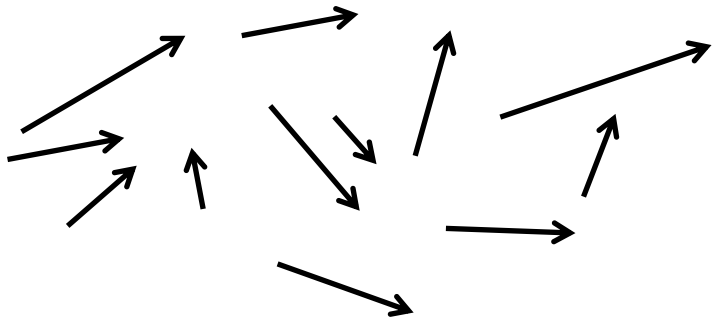
Flow

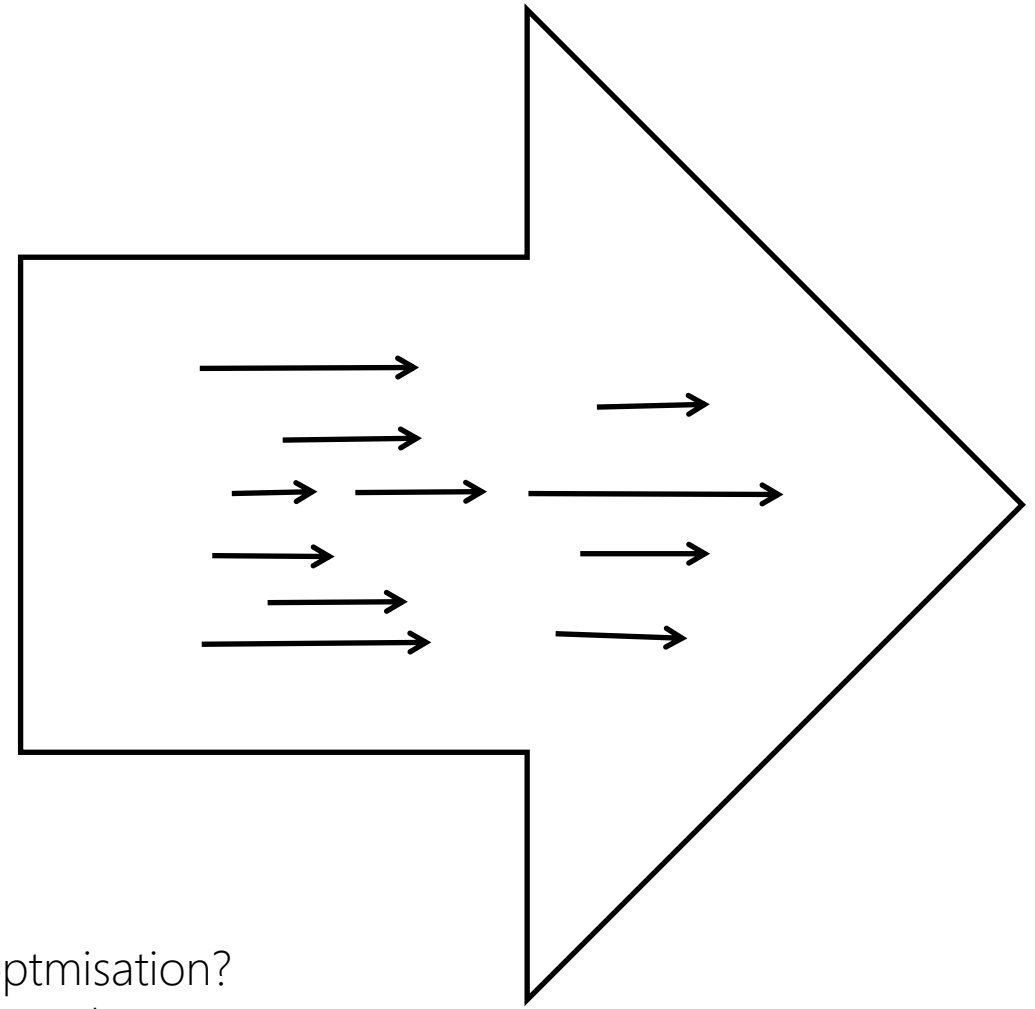






patient. Throughput increased by over twenty per cent. We constantly collected data to find '*which resource causes most delay for most patients most often*':





Causes of misalignment and suboptmisation?
Targets & competition for rewards
…?
Misalignment leads to failure demand - ~50%

Pursue Quality Above All Else

Quality

- Build quality into the production process
- Identify and validate specifications and appropriateness of the process
- Document, use, and improve standard work
- Establish quality check systems
- Establish safety and maintenance management systems

The Virginia Mason Production System Quality Equation

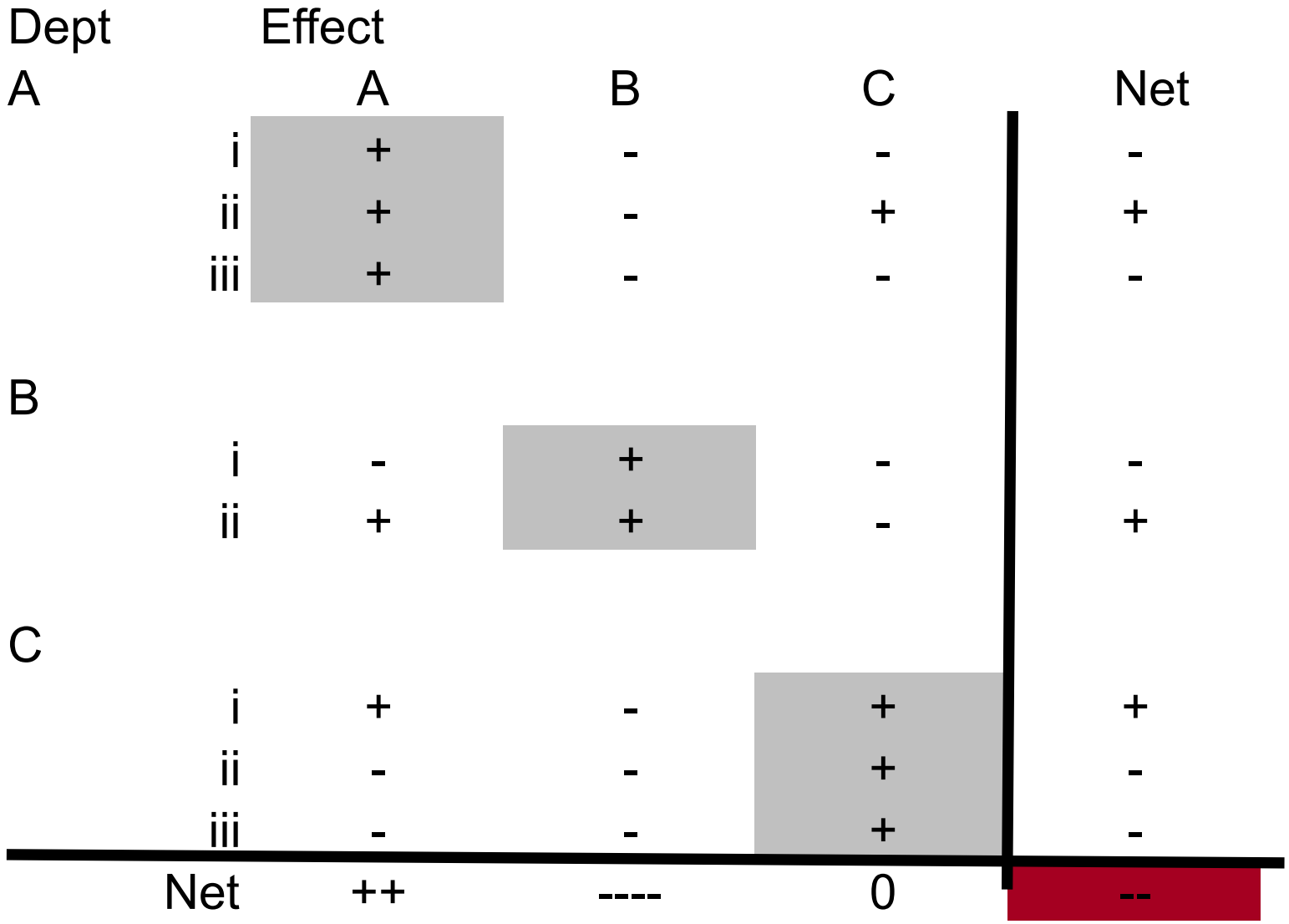
$$Q = A \times \frac{(O + S)}{W}$$

Q: Quality
A: Appropriateness
O: Outcomes
S: Service
W: Waste

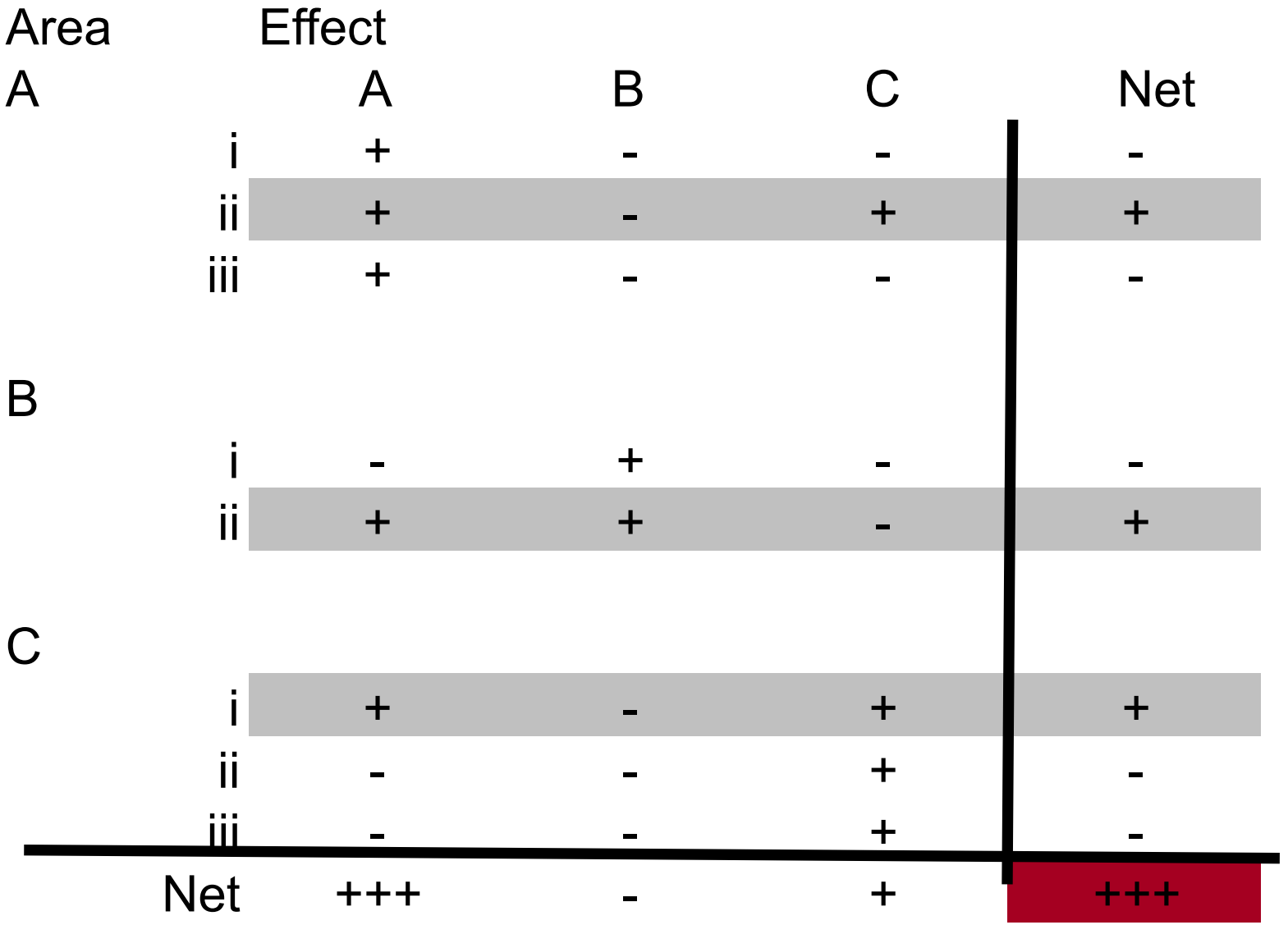
Sub-optimisation vs Optimisation

Dept	Effect
A	
i	+
ii	+
iii	+
B	
i	+
ii	+
C	
i	+
ii	+
iii	+

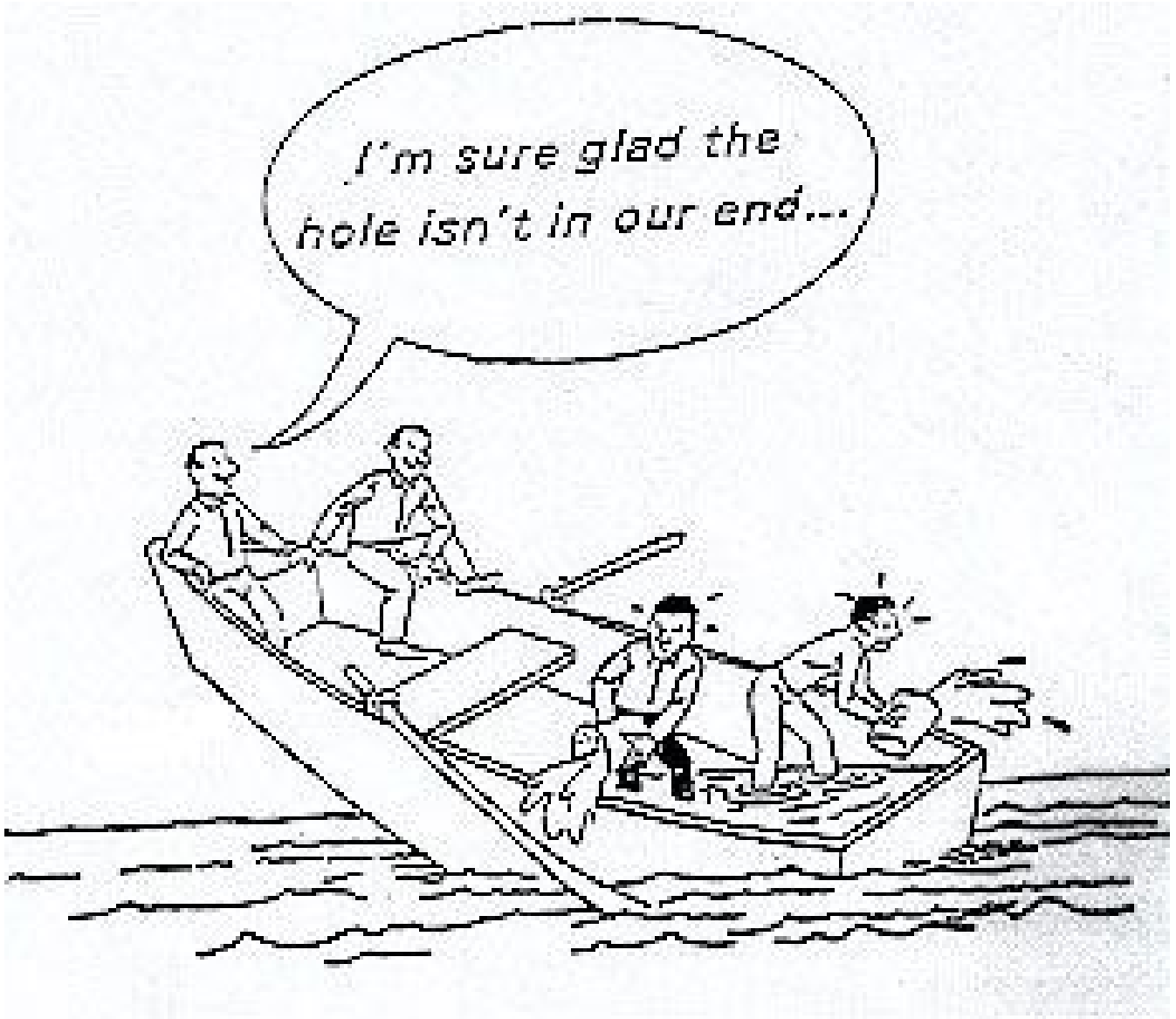
Sub-optimisation vs Optimisation

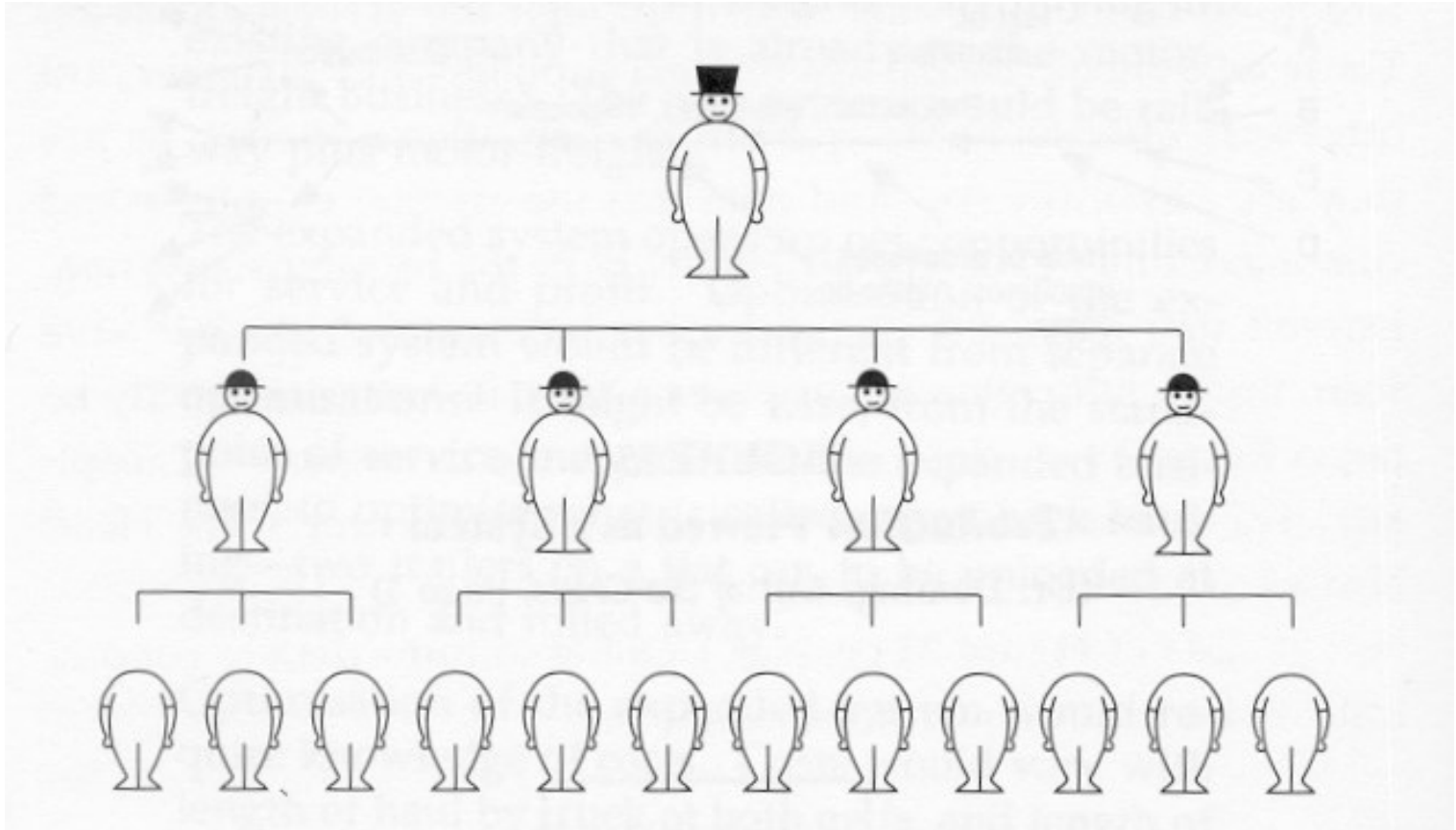


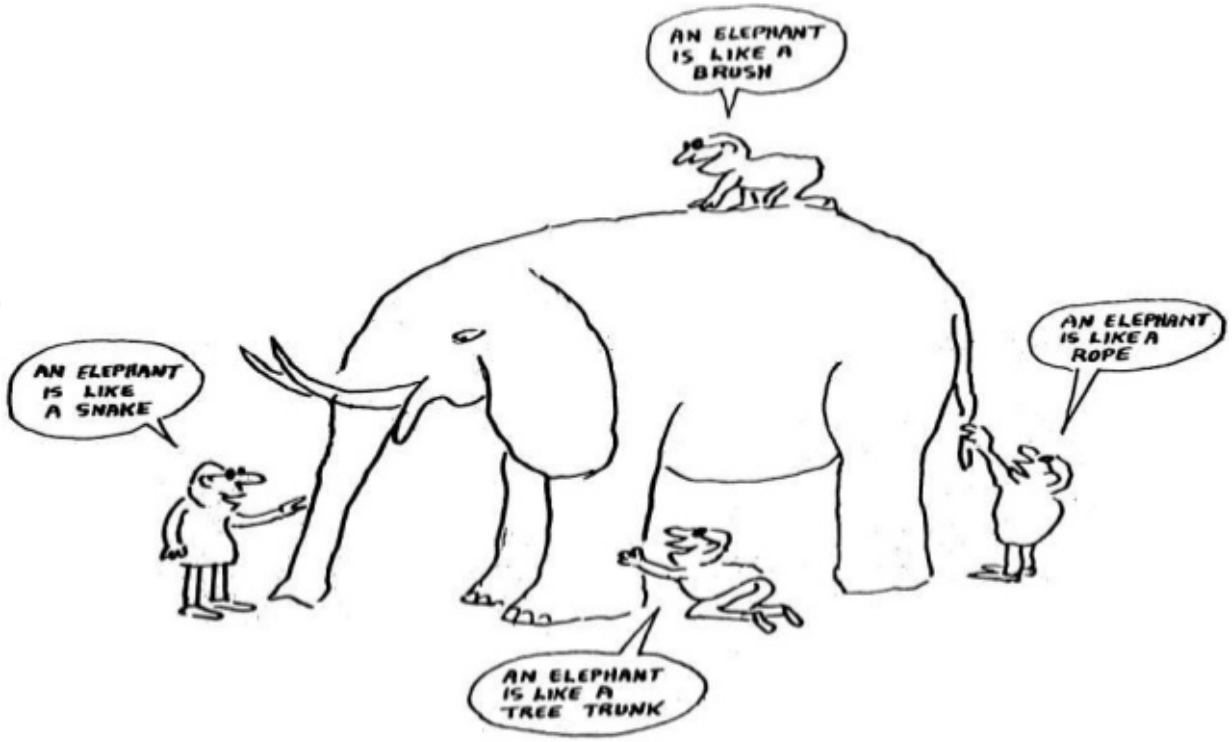
Sub-optimisation vs Optimisation



Anti systemic thinking







All trying their best
All report honestly
All views are valid from that perspective
But all incomplete & misleading until we see the whole

Anti systemic thinking

The organs of the body were having a meeting,
to decide who should be in charge.

Brain: "I should be in charge, because I run all the body's systems, so without me nothing would happen".

Blood: "I should be in charge, because I circulate oxygen all over so without me you'd all waste away."

Stomach: "I should be in charge, because I process food and give all of you energy."

Feet: "We should be in charge, because we carry the body wherever it needs to go."

Eyes: "We should be in charge, because we allow the body to see where it goes."

Rectum: "I should be in charge, because I'm responsible for waste removal."

All the other body parts laughed at the rectum.
So in a huff, rectum shut down tight.

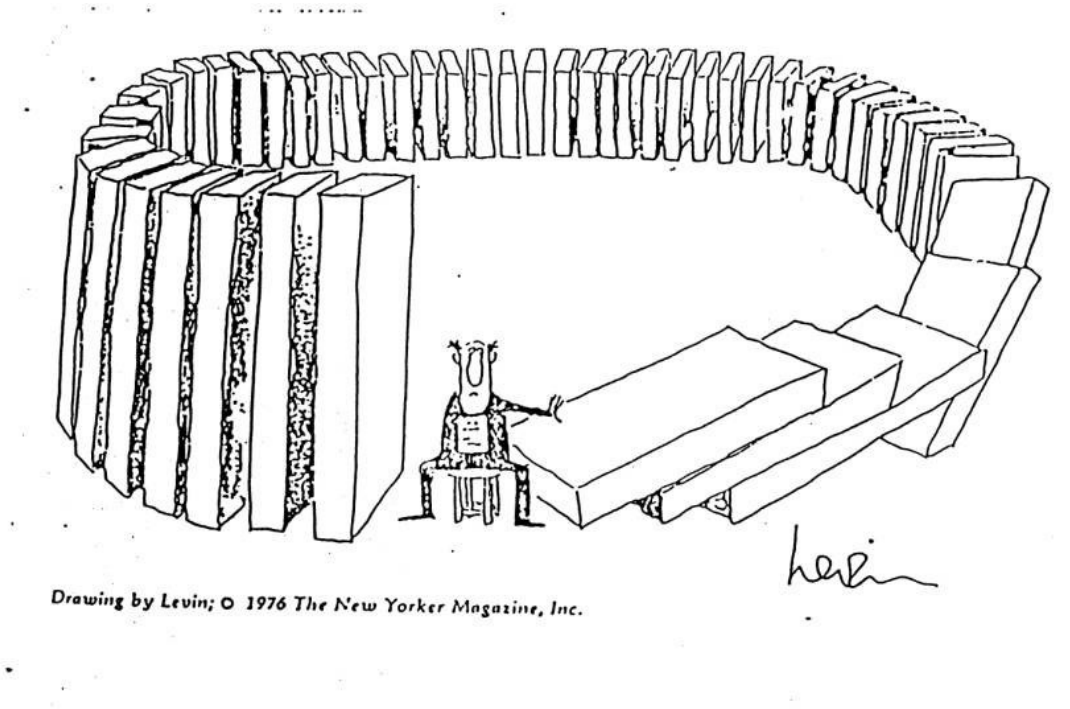
Within a few days, the brain had a terrible headache, the stomach was bloated, the legs got wobbly, the eyes got watery, and the blood was toxic.

They all decided that the rectum should be the boss.

The Moral of the story?

The **a$$whole is usually in charge**

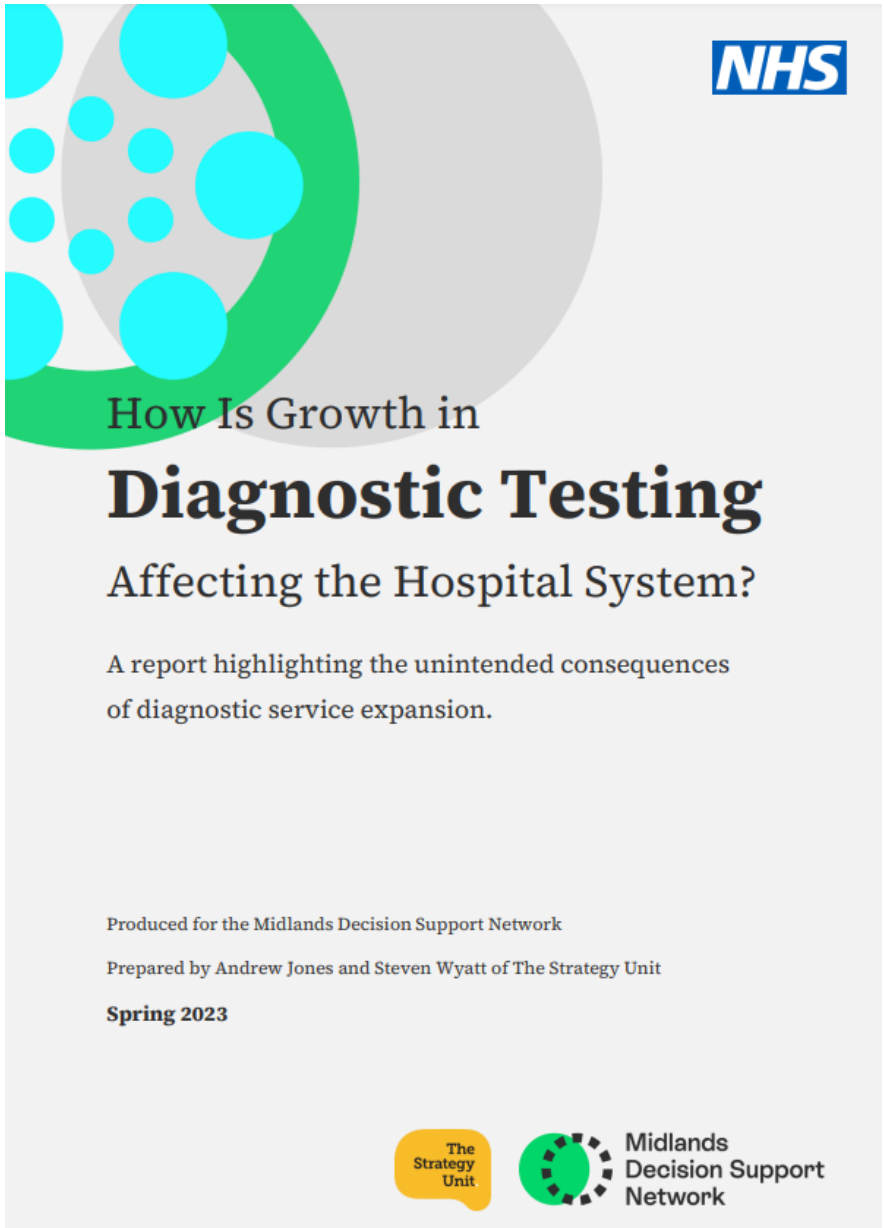
When you are confronted by any complex social system… with things about it that you're dissatisfied with and anxious to fix, you cannot just step in and set about fixing with much hope of helping. This realization is one of the sore discouragements of our century . . . You cannot meddle with one part of a complex system from the outside without the almost certain risk of setting off disastrous events that you hadn't counted on in other, remote parts. If you want to fix something you are first obliged to understand . . . the whole system. . . . Intervening is a way of causing trouble.



…thoughtful leaders increasingly suspect that the tools they have been using have not only failed to solve the persistent problems they face, but may in fact be causing them.

Director, MIT System Dynamics Group

https://journals.sagepub.com/doi/pdf/10.2307/41166098



MDSN Diagnostic Growth Report

We find that growth in diagnostic testing has led to:

1. Longer waits and overcrowding in emergency departments.
2. A longer waiting list (and longer waits) for elective treatment.
3. Longer stays in hospital and decreases in bed availability.

These effects are sizeable; they are felt in both elective and emergency pathways; and, unaddressed, they will undermine patient safety.

The key message of this report is that trade-offs are inevitable in our health system. All else being equal, an NHS that increases testing as fast as capacity allows will be more perceptive but less responsive than one offering minimal testing. The question is, what is the correct balance? What rate of diagnostic growth will secure the best overall outcomes for the population?

It may be that the NHS will have to grow diagnostic services more slowly than it might wish, so that the growth is sustainable and better balances risks and benefits across the system.

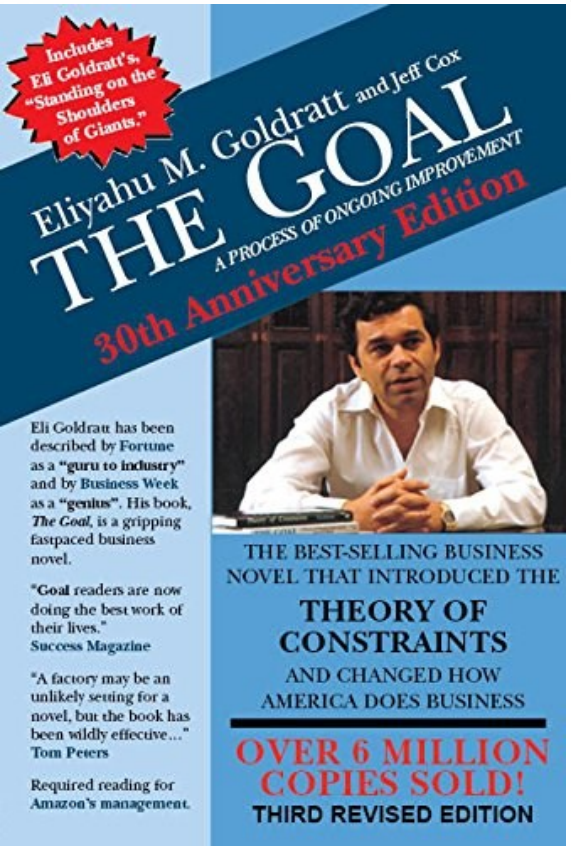
Share your insights...

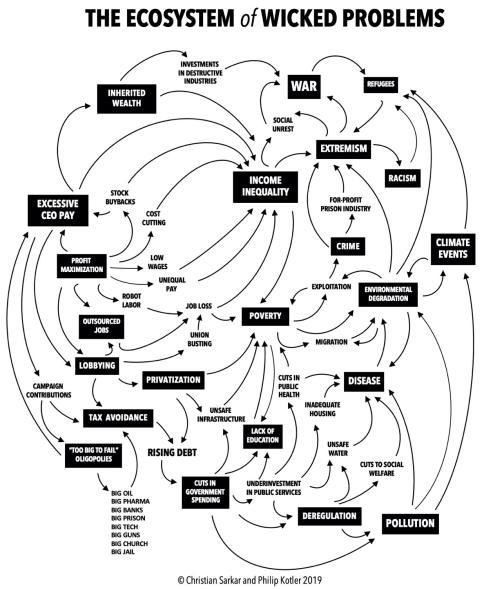
Any key insights...

So what…

(any scope for application)

One wish…


Includes Eli Goldratt's, "Standing on the Shoulders of Giants."
Eliyahu M. Goldratt and Jeff Cox
THE GOAL
A PROCESS OF ONGOING IMPROVEMENT
30th Anniversary Edition
Eli Goldratt has been described by Fortune as a "guru to industry" and by Business Week as a "genius". His book, The Goal, is a gripping fastpaced business novel.
"Goal readers are now doing the best work of their lives."
Success Magazine
"A factory may be an unlikely setting for a novel, but the book has been wildly effective..."
Tom Peters
Required reading for Amazon's management.
THE BEST-SELLING BUSINESS NOVEL THAT INTRODUCED THE
THEORY OF CONSTRAINTS
AND CHANGED HOW AMERICA DOES BUSINESS
OVER 6 MILLION COPIES SOLD!
THIRD REVISED EDITION


THE ECOSYSTEM of WICKED PROBLEMS
INVESTMENTS IN DESTRUCTIVE INDUSTRIES
INHERITED WEALTH
WAR
REFUGEES
SOCIAL UNREST
EXTREMISM
RACISM
INCOME INEQUALITY
EXCESSIVE CEO PAY
STOCK BUYBACKS
COST CUTTING
FOR-PROFIT PRISON INDUSTRY
CRIME
CLIMATE EVENTS
PROFIT MAXIMIZATION
LOW WAGES
UNEQUAL PAY
ROBOT LABOR
EXPLOITATION
ENVIRONMENTAL DEGRADATION
JOB LOSS
POVERTY
OUTSOURCED JOBS
UNION BUSTING
MIGRATION
LOBBYING
PRIVATIZATION
DISEASE
CAMPAIGN CONTRIBUTIONS
CUTS IN PUBLIC HEALTH
INADEQUATE HOUSING
TAX AVOIDANCE
UNSAFE INFRASTRUCTURE
LACK OF EDUCATION
"TOO BIG TO FAIL" OLIGOPOLIES
RISING DEBT
UNSAFE WATER
CUTS TO SOCIAL WELFARE
CUTS IN GOVERNMENT SPENDING
UNDERINVESTMENT IN PUBLIC SERVICES
DEREGULATION
POLLUTION
BIG OIL
BIG PHARMA
BIG BANKS
BIG PRISON
BIG TECH
BIG GUNS
BIG CHURCH
BIG JAIL
© Christian Sarkar and Philip Kotler 2019

Use of anaesthesia dropped from 80% to 27% (Cracked It!pg 141)
TEDx Talk Doug Dietz - https://www.youtube.com/watch?v=jajduxPD6H4

https://www.ideou.com/blogs/inspiration/from-design-thinking-to-creative-confidence

Send in the Clowns

Posted on November 10, 2020 by Michele Stanners

> The year is 1995 and Bogota, Columbia is listed on the international watch advisory as the most dangerous city in the world, rampant with *narco traficantes,* warlords and corruption. Traffic deaths alone, caused mostly by the fear of carjacking, top one thousand five hundred a year. It's a nightmare. You're the new mayor. What do you do?

Enter Antanas Mockus, a university professor of mathematics and philosophy who campaigned for mayor on a platform of non-violence with the slogan "arm yourself with love." He won promising the first thing he would do was deal with the traffic deaths.

After two months and no policy ideas in sight, he almost gave up when an elder in the community, joked that "when there's nothing left to do, send in the clowns." He had his answer.

Within weeks, he fired 400 corrupt traffic cops and replaced them with – mimes – yes I said mimes – who now controlled the street corners with nothing but signs that read *correcto* on one side if people stopped at the red light and *incorrecto* when they didn't.

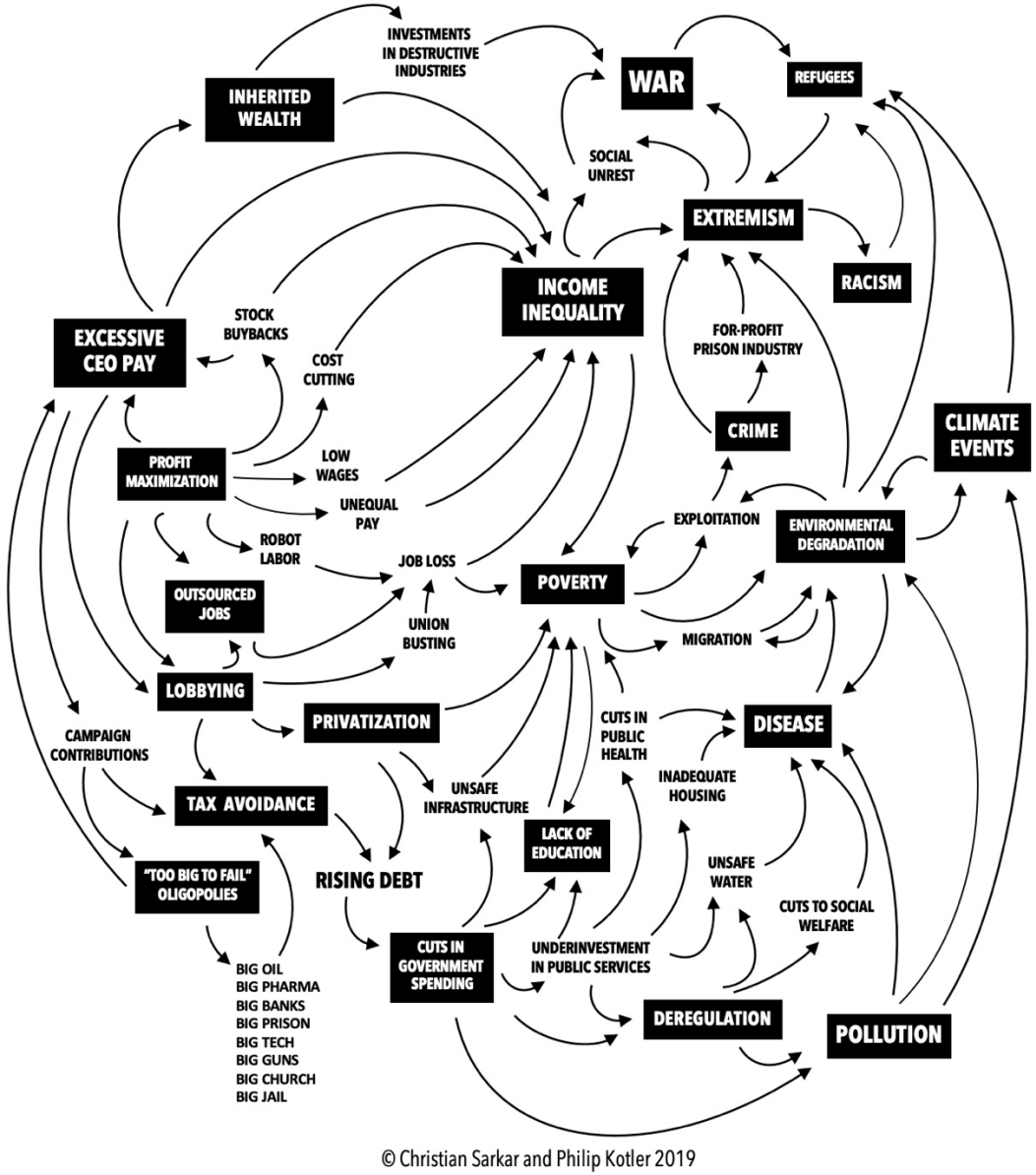
Surely they issued tickets? – no. They had guns? No. They were doubly unarmed – with neither words nor weapons.

Antanas also had shooting stars painted on the pavement at every spot where someone had been killed – making people think twice before jumping into a busy intersection.

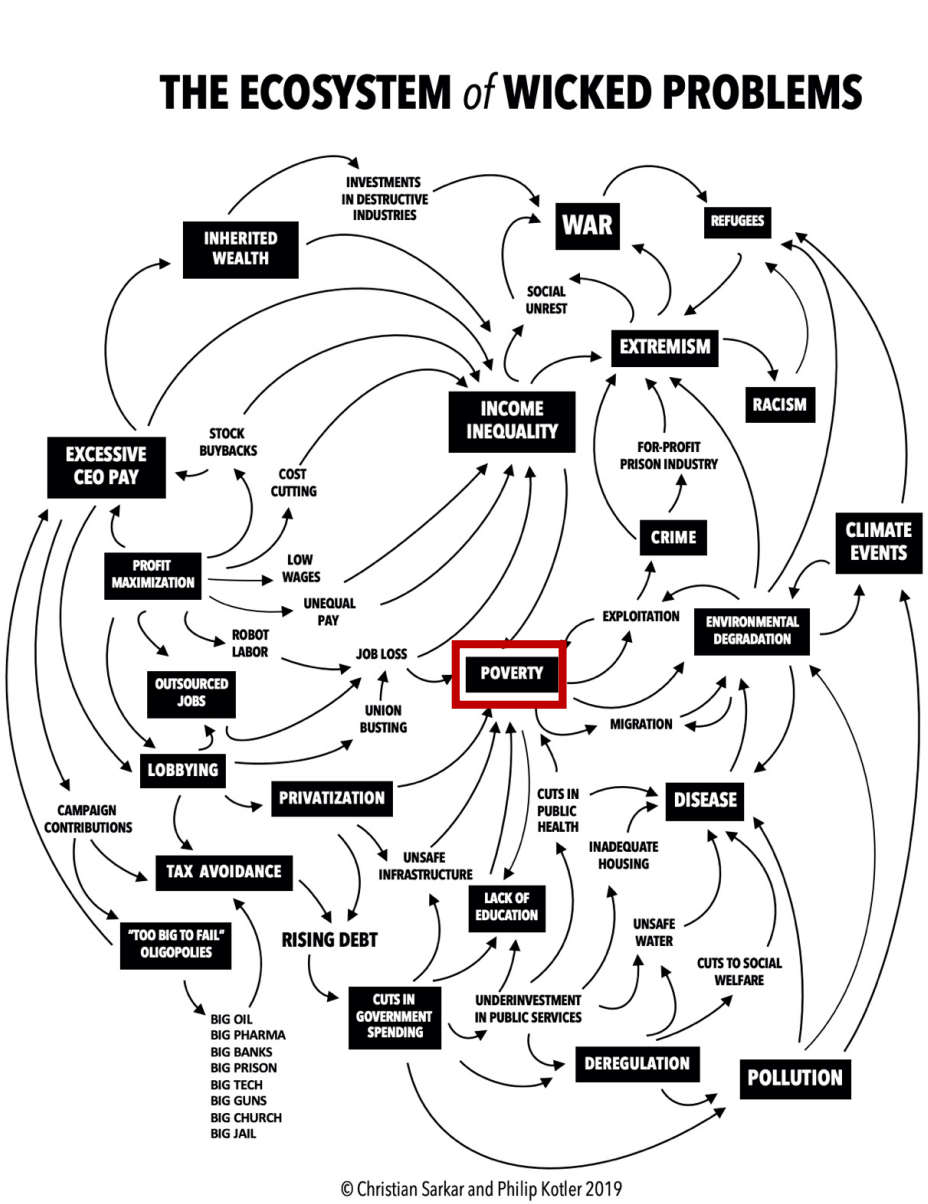
Policy makers, take note. In the first year, traffic deaths dropped by fifty per cent.

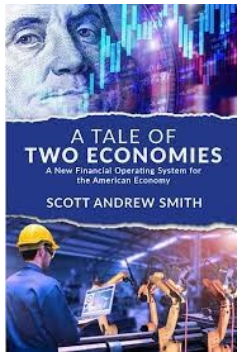
https://www.michelestanners.com/send-in-the-clowns/

THE ECOSYSTEM *of* WICKED PROBLEMS



https://www.druckerforum.org/blog/the-ecosystem-of-wicked-problems-by-christian-sarkar/#:~:text=As%20humanity%20faces%20a%20growing,moment%20we%20need%20them%20most.





In a 2023 book titled *A Tale of Two Economies: A New Financial Operating System for the American Economy*, Wall Street veteran Scott Smith shows that we wouldoo need to tax everyone at a rate of 40 per cent, without deductions, to balance the budgets of our federal and local governments – an obvious nonstarter.

The problem, he argues, is that we are taxing the wrong things – income and physical sales. In fact, we have two economies – the material economy in which goods and services are bought and sold, and the monetary economy involving their trading of financial assets (stocks, bonds, currencies, etc.) – basically "money making money" without producing new goods or services.

Drawing on data from the Bank for International Settlements and the Federal Reserve, Smith shows that the monetary economy is hundreds of times larger than the physical economy. The budget gap could be closed by imposing a tax of a mere 0.1 per cent on financial transactions, while eliminating not just income taxes but every other tax we pay today.

https://www.druckerforum.org/blog/the-ecosystem-of-wicked-problems-by-christian-sarkar/#:~:text=As%20humanity%20faces%20a%20growing,moment%20we%20need%20them%20most.

Systems thinking requires a wholistic perspective

- A system is never the sum of its parts. It is the product of the interactions of its parts.
- Systems fail/misalign at the boundaries
- Flow across the whole system is a crucial metric
- Global not local optimisation
- System change
  - Novel ideas

When a system is taken apart it loses its defining properties

"A network of interdependent components that work together to accomplish the aim of the system."

The whole > the sum of the parts

Sum of the parts

A heap

"Perfect parts don't make perfect wholes" - Ackoff

Interconnected whole

A system

The unified whole is different from the sum of the parts

Appreciation for a system

- System
  - “A network of interdependent components that **work together** to try to accomplish the **aim** of the system.”
    - “Without an aim there is no system.”
      - Does your organisation have an aim?
    - Work together
      - Co-operation and not competition
  - Management’s job
      - Manage the components towards the aim of the system