



Decision Strategies



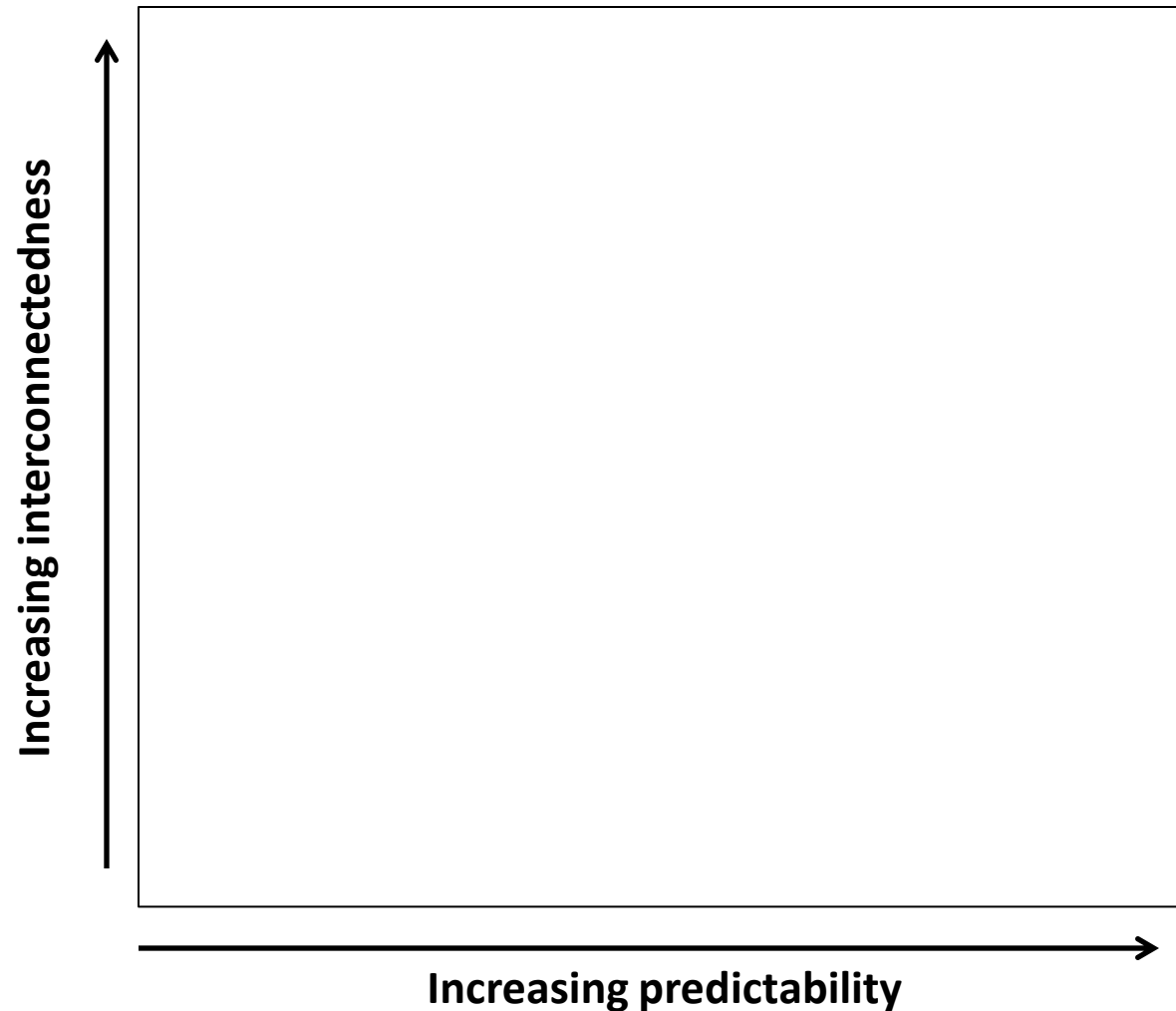
EVERYTHING WE KNOW IS WRONG

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Myth Number 1: Increased Information Flow Improves Economic Efficiency

The Predictability – Interconnectedness Matrix for Complex Systems



A Very Simple Complex Model (if that's not an oxymoron)

1	0	1	1	0	1	0	0	0
0	0	1	1	1	0	0	1	1
1	1	1	0	1	1	0	0	1
0	1	0	0	0	1	0	1	1
0	0	0	1	0	0	1	0	0

One Agent

1	0	1	1	0	1	0	0	0
0	0	1	1	1	0	0	1	1
1	1	1	0	1	1	0	0	1
0	1	0	0	0	1	0	1	1
0	0	0	1	0	0	1	0	0

The agents our Agent considers

1	0	1	1	0	1	0	0	0
0	0	1	1	1	0	0	1	1
1	1	1	0	1	1	0	0	1
0	1	0	0	0	1	0	1	1
0	0	0	1	0	0	1	0	0

Increased Interconnectedness

1	0	1	1	0	1	0	0	0
0	0	1	1	1	0	0	1	1
1	1	1	0	1	1	0	0	1
0	1	0	0	0	1	0	1	1
0	0	0	1	0	0	1	0	0

Let's stick with 4 agents our Agent considers

1	0	1	1	0	1	0	0	0
0	0	1	1	1	0	0	1	1
1	1	1	0	1	1	0	0	1
0	1	0	0	0	1	0	1	1
0	0	0	1	0	0	1	0	0

Predictability

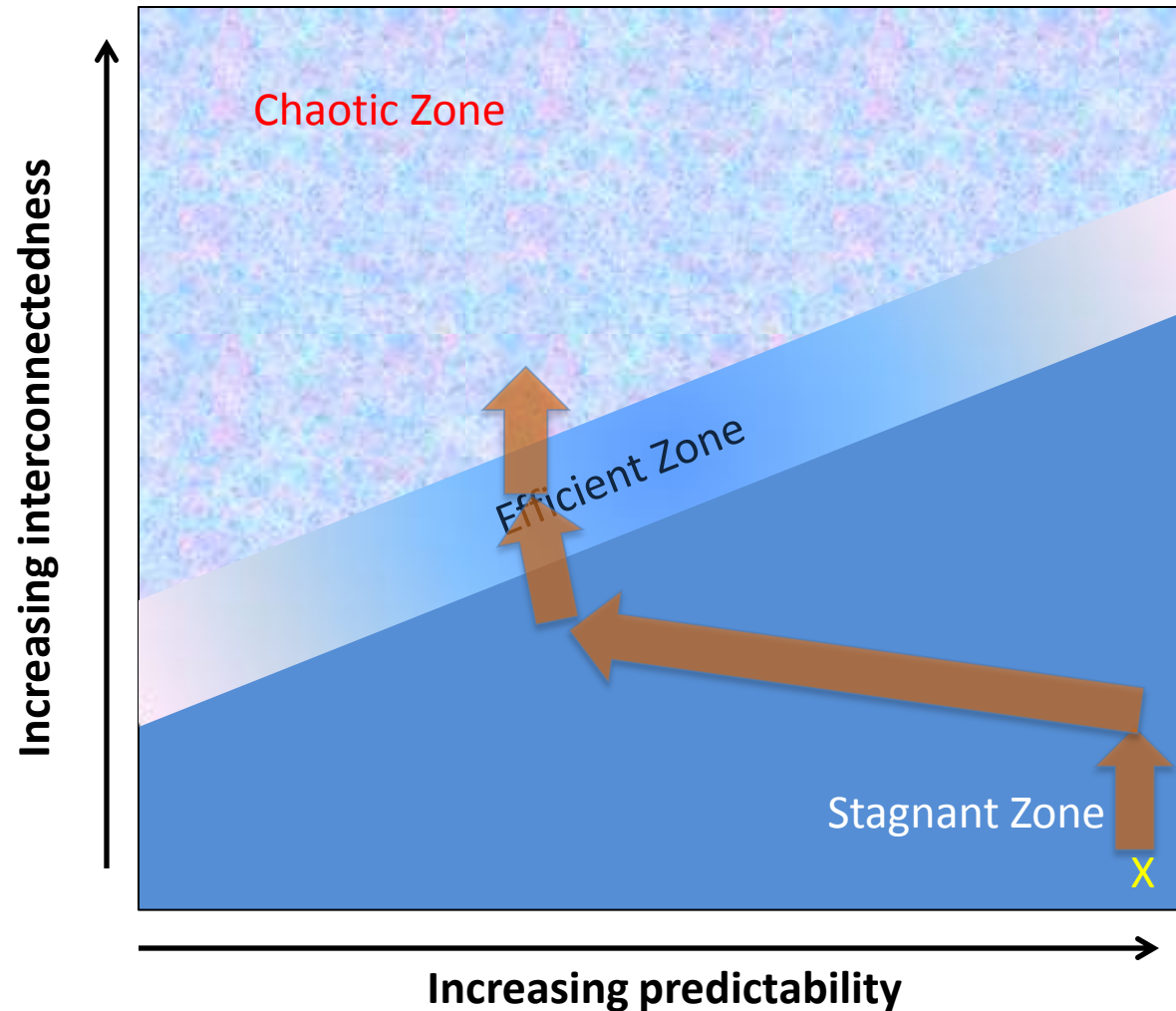
North	South	East	West	Result
1	1	1	1	1
1	1	1	0	1
1	1	0	1	0
1	1	0	0	0
1	0	1	1	0
1	0	1	0	1
1	0	0	1	0
1	0	0	0	0
0	1	1	1	1
0	1	1	0	1
0	1	0	1	1
0	1	0	0	1
0	0	1	1	0
0	0	1	0	0
0	0	0	1	1
0	0	0	0	0

Low Predictability

North	South	East	West	Result
1	1	1	1	1
1	1	1	0	1
1	1	0	1	1
1	1	0	0	1
1	0	1	1	1
1	0	1	0	1
1	0	0	1	1
1	0	0	0	1
0	1	1	1	1
0	1	1	0	1
0	1	0	1	1
0	1	0	0	1
0	0	1	1	0
0	0	1	0	1
0	0	0	1	1
0	0	0	0	1

High Predictability

The Stagnant – Chaotic Spectrum for Complex Systems

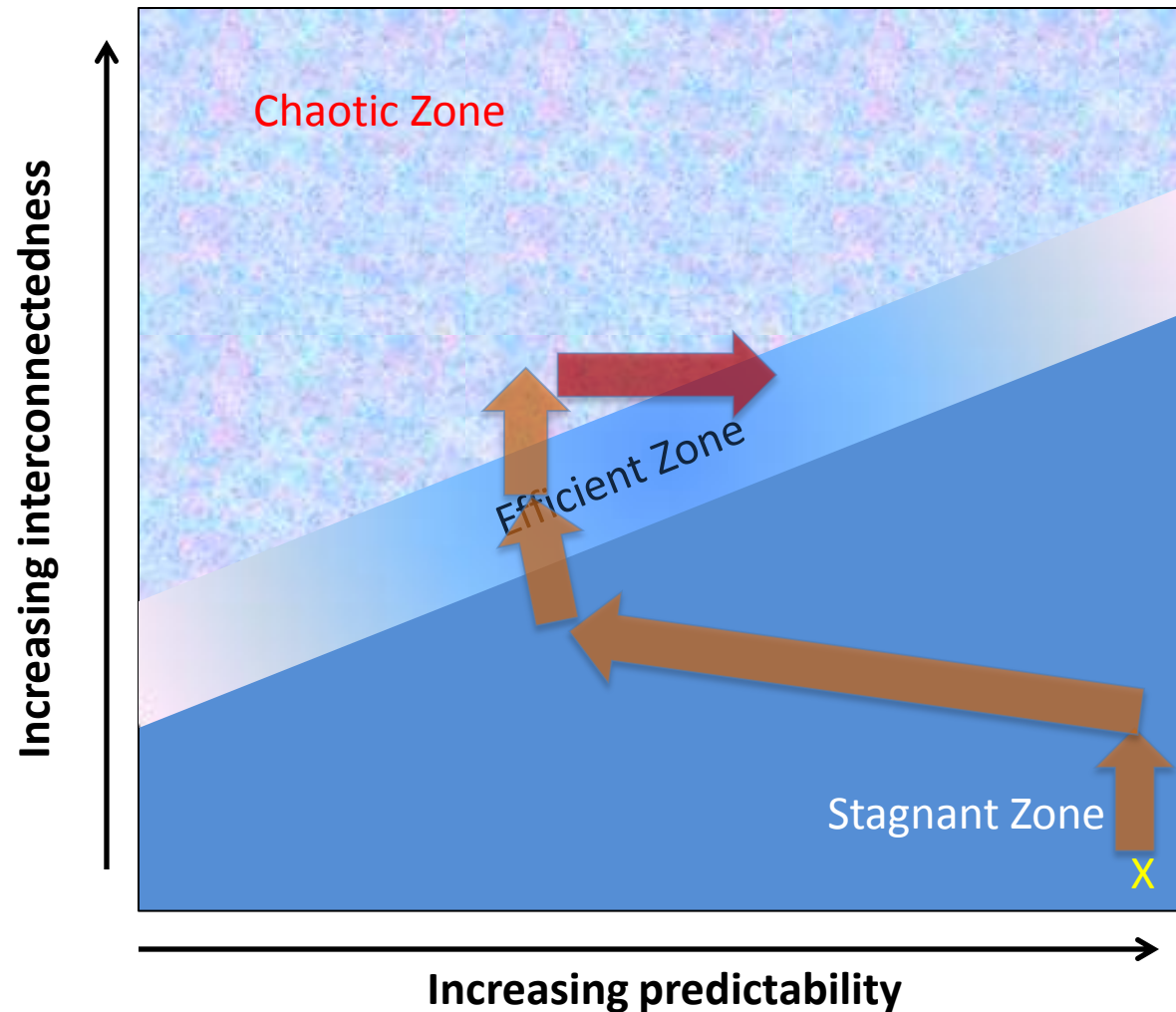


Ref: Stuart Kauffman

Once interconnectedness goes beyond a critical point, system efficiency decreases



The Stagnant – Chaotic Spectrum for Complex Systems

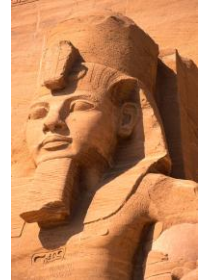


Myth Number 2: Steady Economic Growth Is Achievable and Desirable

Sustainable growth???



Question: If everyone in ancient Egypt had 1000 cm^3 of stuff and they managed an annual growth rate of 1%, how much stuff would they have today?



Answer: Enough to cover the Earth in a layer of stuff almost 40,000 km thick!

But economic growth isn't the same as “stuff” growth



...or is it?

For your consideration:

Money : Wealth :: Electricity : Energy

So economic growth *cannot* go on forever

In the immortal words of Herbert Stein (Chairman of the Council of Economic Advisors for Richard Nixon and Gerald Ford):



“If something cannot go on forever, it will stop”

...so why do we try to achieve economic growth year after year?

Myth Number 3: Cash Today Is Worth More than Cash Tomorrow

The problems with discounting cash flows

NPV: \$\$\$ today > \$\$\$ tomorrow



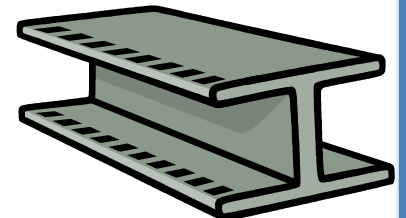
But – cash  wealth



“Stuff” = wealth

Consider food, water, steel, energy...

If the supply is limited, would you want all of it up front?



Consider:

Project/Strategy/Policy A

- Lots of goodies, benefits, and rewards up front
- All costs are deferred years into the future

Project/Strategy/Policy B

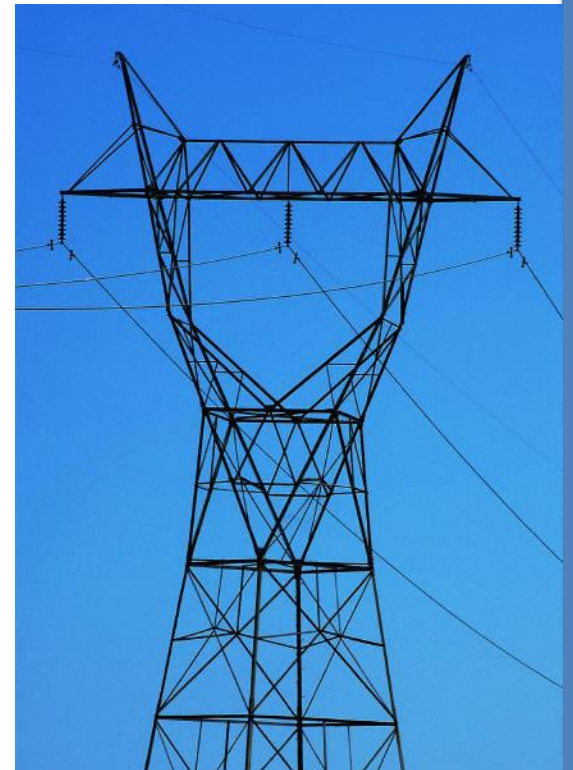
- Significant costs and sacrifices up front
- Enormous benefits to everyone years down the road

Which one would be favored by an NPV analysis?

What was the greatest engineering achievement of the 20th Century in the USA?

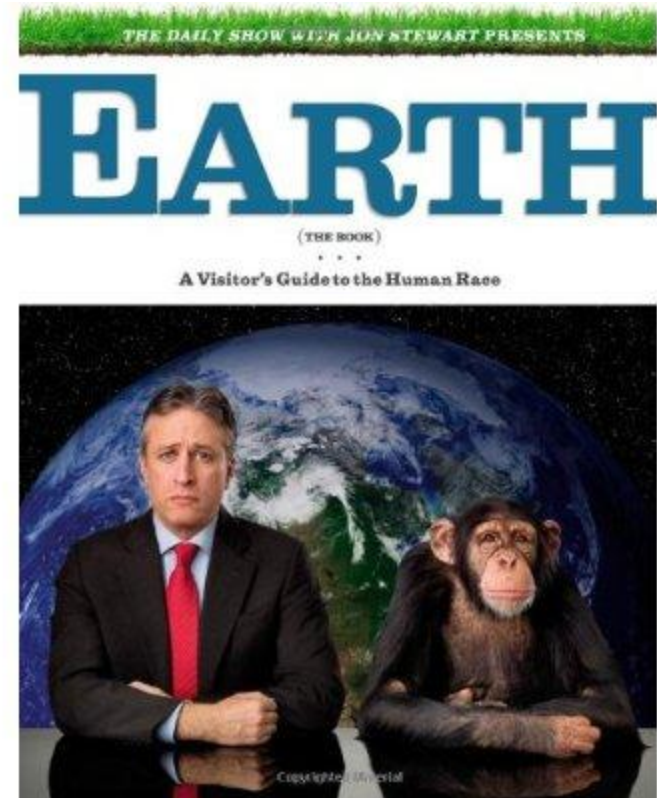
Universal Electrification

Would this initiative pass a modern cost – benefit analysis?



The Daily Show's book, "Earth – a Visitor's Guide to the Human Race" on Cost/Benefit Analyses:

- Alien FAQ: If you knew some of your technological advances were coming at the expense of your environment, why did you implement them?
- *A: It was a simple cost-benefit analysis. We enjoyed drinking hot coffee in a cold room in the middle of the summer more than we enjoyed other animals being alive.*

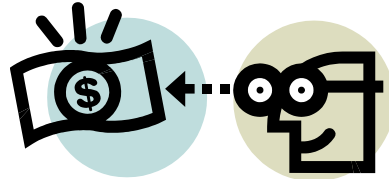


What psychological test correlates most strongly with success in life?

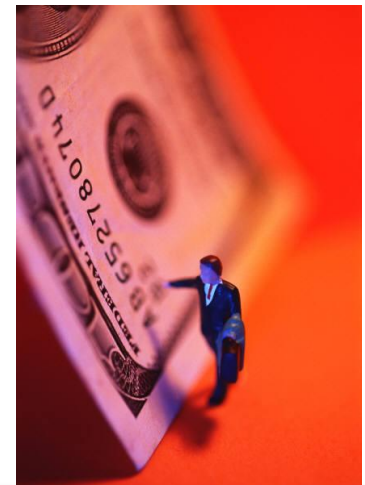
The “brownie” test



The number-one predictor of success is the ability to defer gratification



...but Adam Smith said I could be as greedy as I want and everything would be just fine!



- The increasing interconnectedness of the world is leading to increasing economic efficiency
 - The “wisdom of crowds” is replacing individual expertise
- Exponential economic growth is leading to increasing resource consumption
 - Exponential growth is leading to increasing resource consumption (e.g., resource consumption is doubling every 10 years)
- Discounting the future is leading to serious investment in the future
 - We are taking as much as possible today, as long as possible
 - The future – e.g., our grandchildren – has to pay, so much

Our measures of success and progress are obsolete

...or in other words:

Everything we know is wrong!



Questions?

