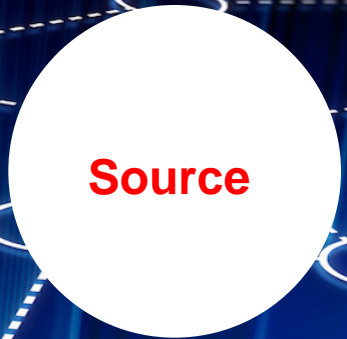




**Global
supply chain impacts
on
Sustainability**



World transportation



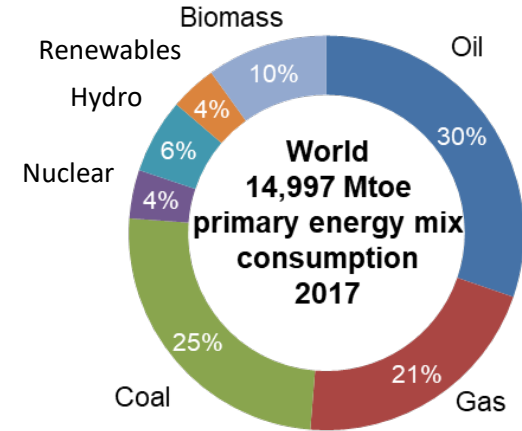
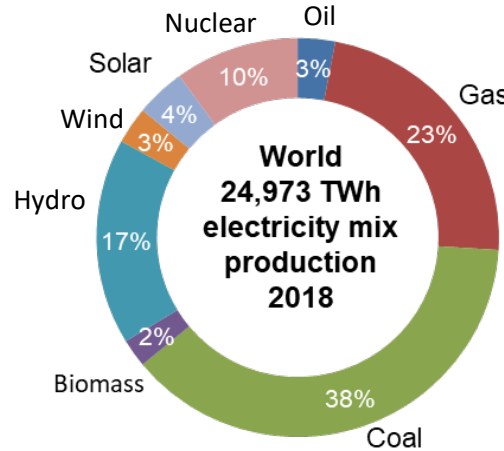
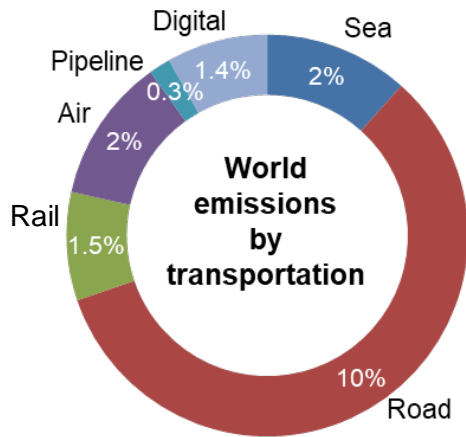
Mode	Global volume	World vehicles	Infrastructure
1. Sea	10,955 million tonnes	93,359 ships	25,000 ports
2. Road	14,991 billion Tkm	1.3 billion vehicles	64 million km
3. Air	4,100 billion people 52 million tonnes	23,600 planes	44,000 airports
4. Rail	3,700 billion Pkm 9,900 billion Tkm	100,472 locomotives 3,536,105 wagons 457,798 coaches 110,383 metros	1.1 million km
5. Pipeline	99.5 billion Bpd oil 3,781 billion CBM gas	-	3.5 million km
6. Grid	26 million GWh / year	-	60 million km
7. Digital	3.5 trillion GB day	4,857 satellites	1 billion km

Source: Book *Transportation and the belt and road initiative*

Transportation emissions



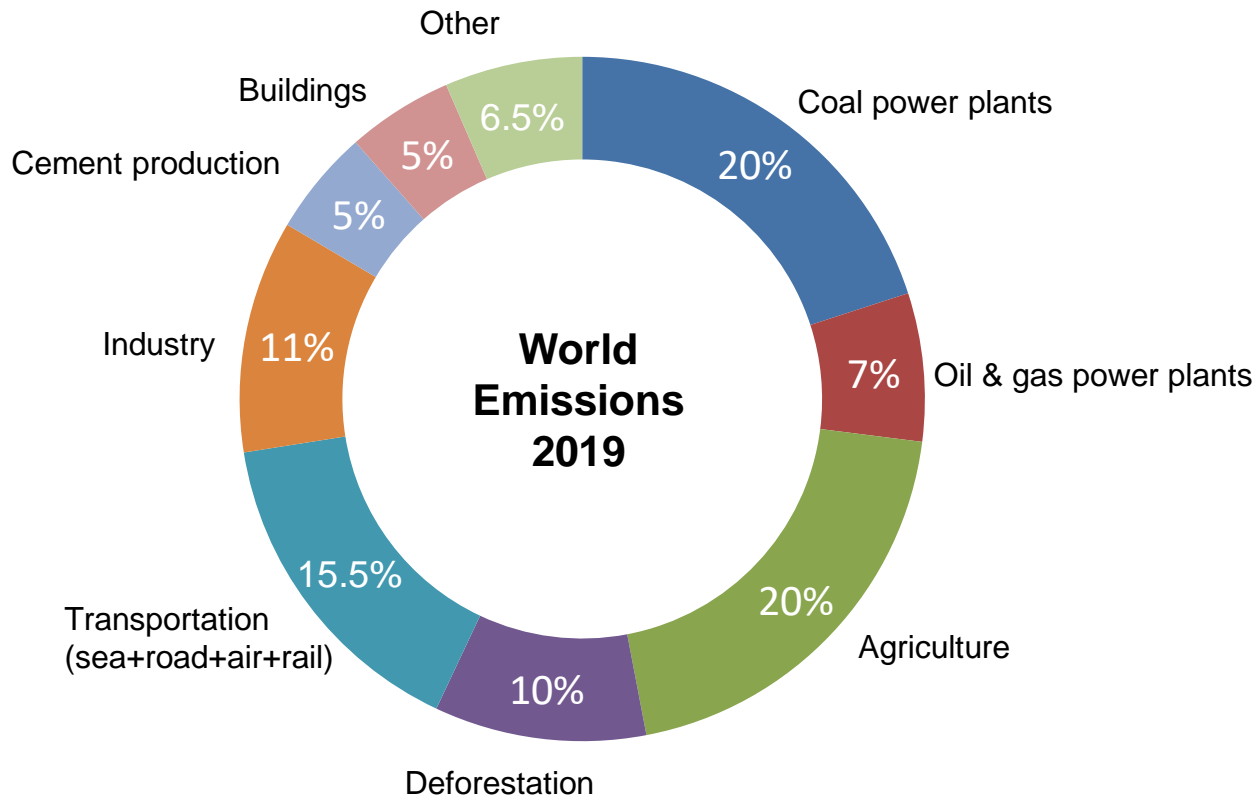
Electric grid transportation emissions = loss (variable)



Transportation = 17.2% global emissions

Sources: Jean-Marc Jancovici, CER, UIC, WEF, Folio, SCMO, IEA, BP, Enerdata, Siemens Energy Sector, World Energy Council

1. CSR & sustainability
2. Emission offsetting
3. Fuel change
4. More train / less trucking
5. Shared transportation / Uber / Conso.
6. Smart cities
7. Flat escalators/ Walking/ Bike/ Tramways



Sources: Jean-Marc Jancovici, SCMO

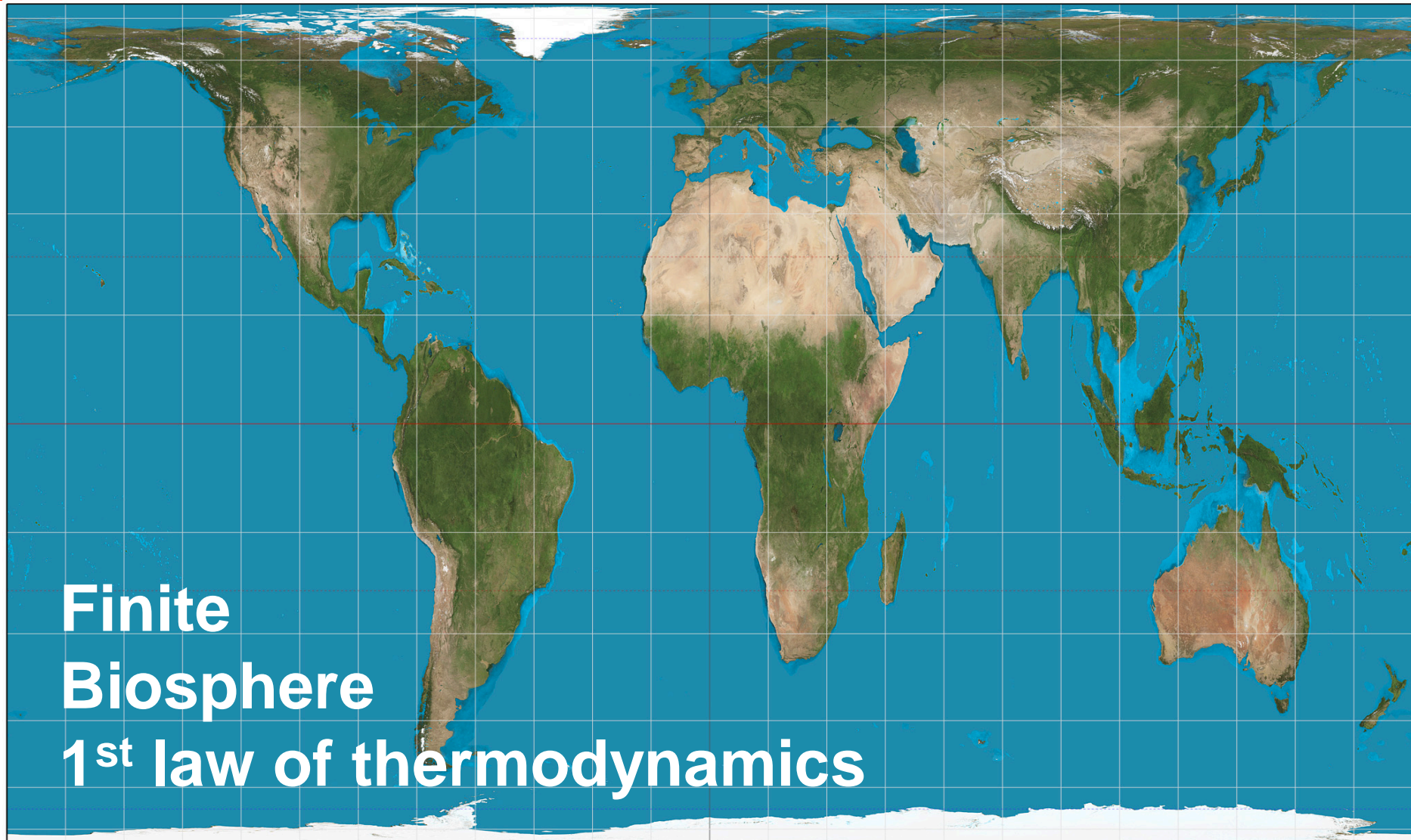


SUSTAINABLE DEVELOPMENT GOALS



1. Water
2. Food = Biosphere
3. Energy
4. Transportation
5. Digital

Planetary ecosystem



**Finite
Biosphere
1st law of thermodynamics**



Meadows report

Tipping point = 70%



Insects
Spiders
Vegetal

70%

Animal
Fish
Birds

50%

Andrew Dabell



Denial...

Human population

Water

Food

Energy

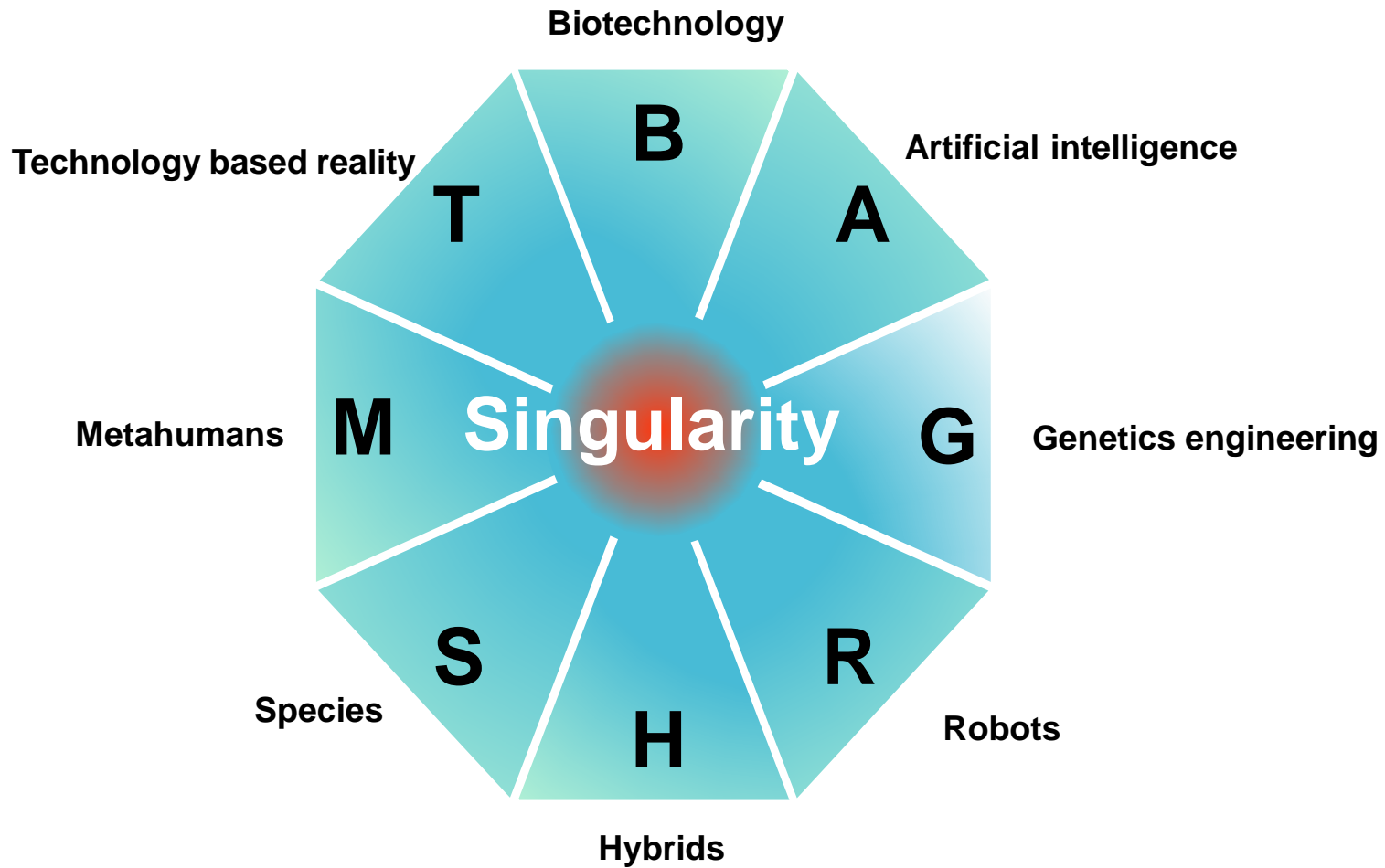
Transportation

1. Economy contraction → Less supply chain
2. Human decrease → Transportation decrease
3. Human displacement → Unpredictable supply chain
4. Food security & regionalization → Less food transportation/ cold chain
5. Less plane → More speed-train
6. More digital transportation + 3D printing

1. Globalization / Regionalization
2. Food prices increase → Rage in people → instability
3. Recession → More aggressive & competitive market

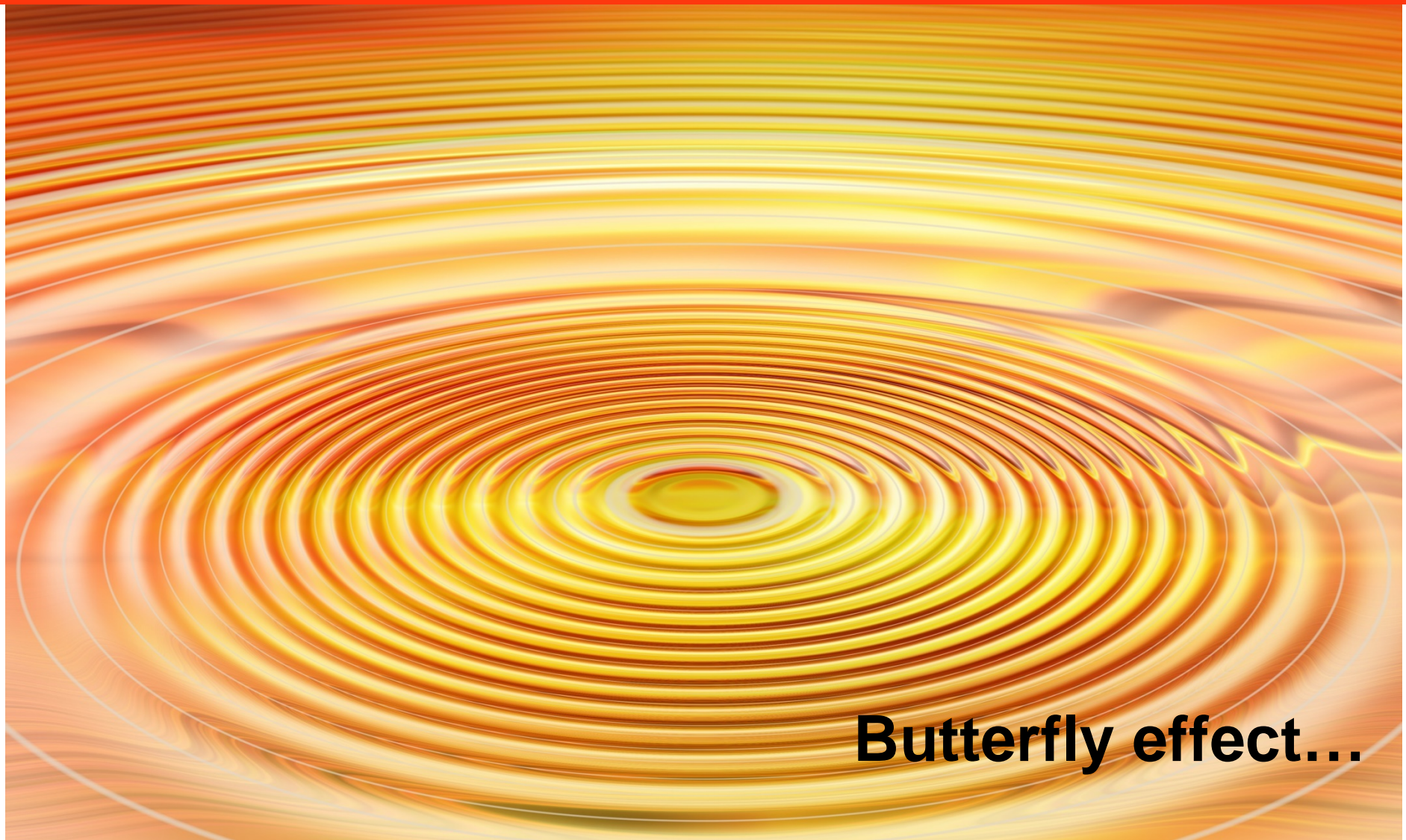
Survival mechanism

- adaptation
- evolution acceleration





1.5 trillion...



Butterfly effect...



Risk mitigation
Emergency theory

**We are being
presented with
two choices:**

A young boy wearing a traditional conical hat and a dark shirt is sitting on a large, smooth rock in a forest at night. He is holding a glowing lantern in his right hand, which illuminates his face and the surrounding area. A basket is slung over his shoulder, and a bundle of sticks or branches is visible behind him. The background is dark and filled with the silhouettes of trees and foliage.

Evolve or Repeat?

"Beyond a critical point within a finite space, freedom diminishes as numbers increase.

This is true of humans in the finite space of a planetary ecosystem as it is of gas molecules in a sealed flask.

The human question is not how many can possibly survive within the system, but what kind of existence is possible for those who do survive".

Frank Herbert

A dramatic sunset over a landscape. The sky is filled with dark, heavy clouds, some of which are illuminated from below by the setting sun, creating a vibrant orange and red glow. The sun is positioned behind a large, dark silhouette of a pagoda with a tall, pointed spire. In the foreground, a lush green field stretches across the bottom of the frame. On the right side of the field, three people are walking away from the viewer, carrying large, traditional umbrellas. The overall scene is atmospheric and evocative.

Thank you

13.12.2019