

An iceberg floating in dark blue water. The word "TIP" is written in white, bold, serif font above the visible part of the iceberg.

**TIP**

# The Ingenesist Project

## The Virtuous Circle

Purpose of this presentation:

Introduce a small structural modification to the financial system which will resolve many new and emerging problems.

Engineering problems are in many ways finance problems

Shameless plugs for The Ingenesist Project. Non-profit AI research arm of CoEngineers, PLLC

Showcase awkward attempts to produce AI assisted video content

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# The Virtuous Circle



# Short Stories

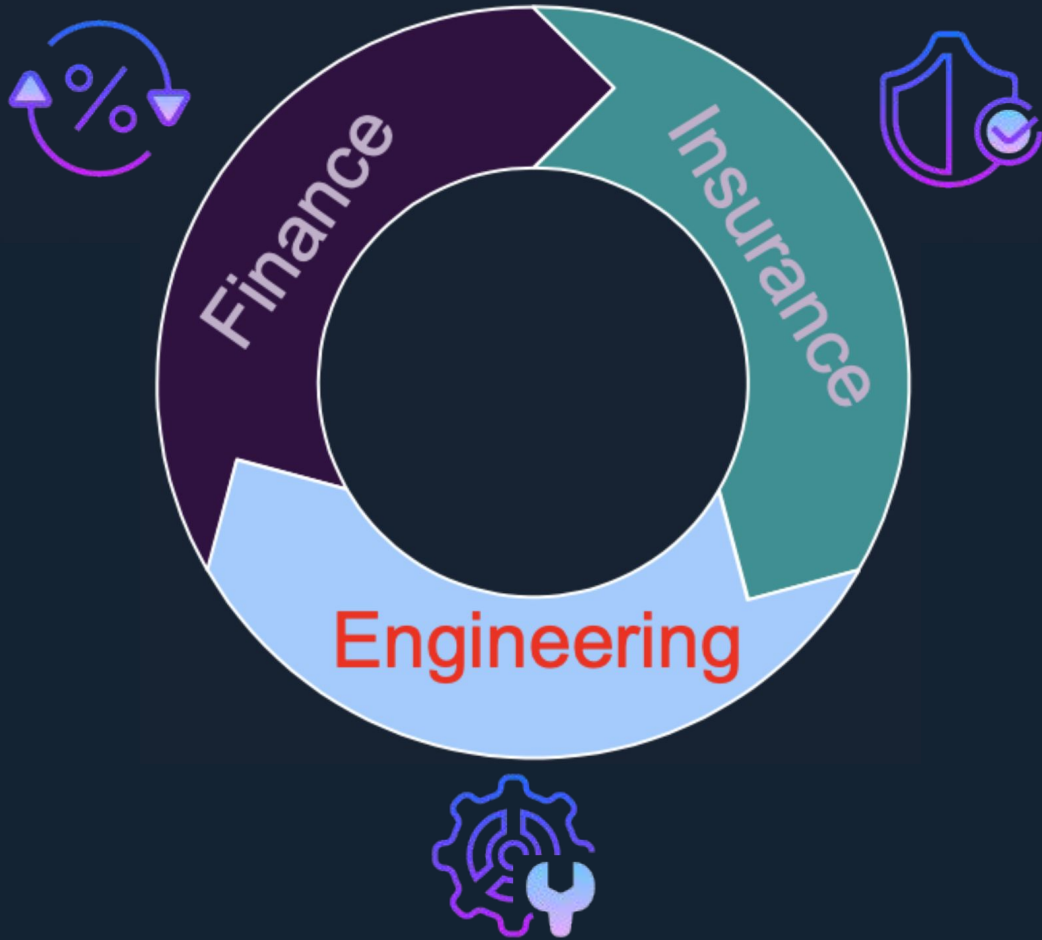
NAFTA c.1990s: No shortage of money, surplus of risk.

Mexico c.1995: NAFTA Engineers, you can't make a bet without odds.

Boeing c. 2000: Stock price responds to risk

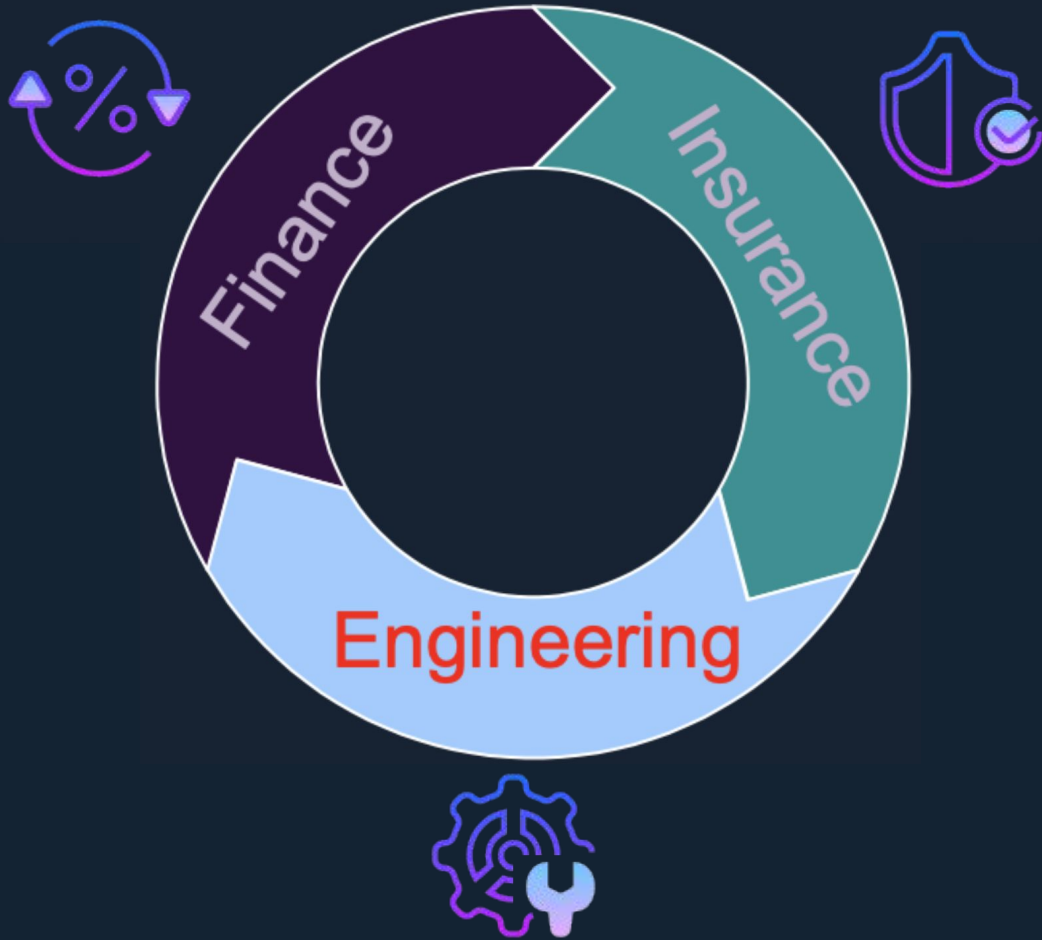
Bryce Yonker just spoke about government grants which serve to reduce the financial risk in developing infrastructure.

This is how development is done....



## *The Virtuous Circle of Economic Development*

1. Bank will not Lend Money unless asset is insured
2. Insurance Company will not insure asset unless it is properly engineered
3. Proper engineering must be financed (cover soft cost)



## *The Virtuous Circle of Economic Development*

Corollary:

If any of these pieces are missing, corrupted, or cannot be seen or measured, then, economic development collapses.

# Risk and Return



# Main points of the video

**What is an engineer?:** In the broadest sense, an engineer removes risk from complex systems.

**Money does not make the world go around,** risk makes the world go around.

**Raising the Question:** Why aren't we as methodical in reducing risk surplus as we are driven to articulate money?

**Answer:** This is an engineering problem. We need to reorganize ourselves.

# Risk makes the World go around

## Risk Management 101

1. **Identify** risk exposure
2. **Calculate the probability** peril will manifest
3. **Determine the cost** of the consequences should the peril manifest.

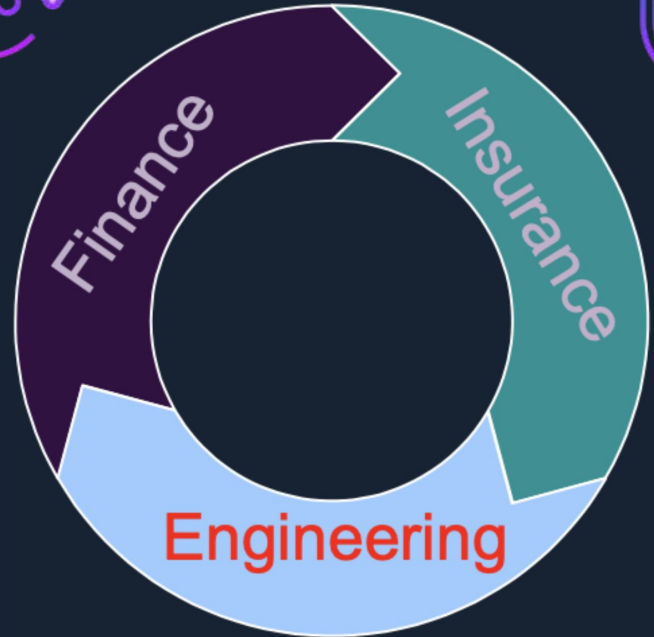
Corollary:

If any of these pieces are missing, corrupted, or cannot be seen or measured, then, risk cannot be managed.



1. **Identify** Risk Exposure
2. **Calculate the probability** peril will manifest
3. **Determine the value** of the **consequences** *given* the **peril** manifests.





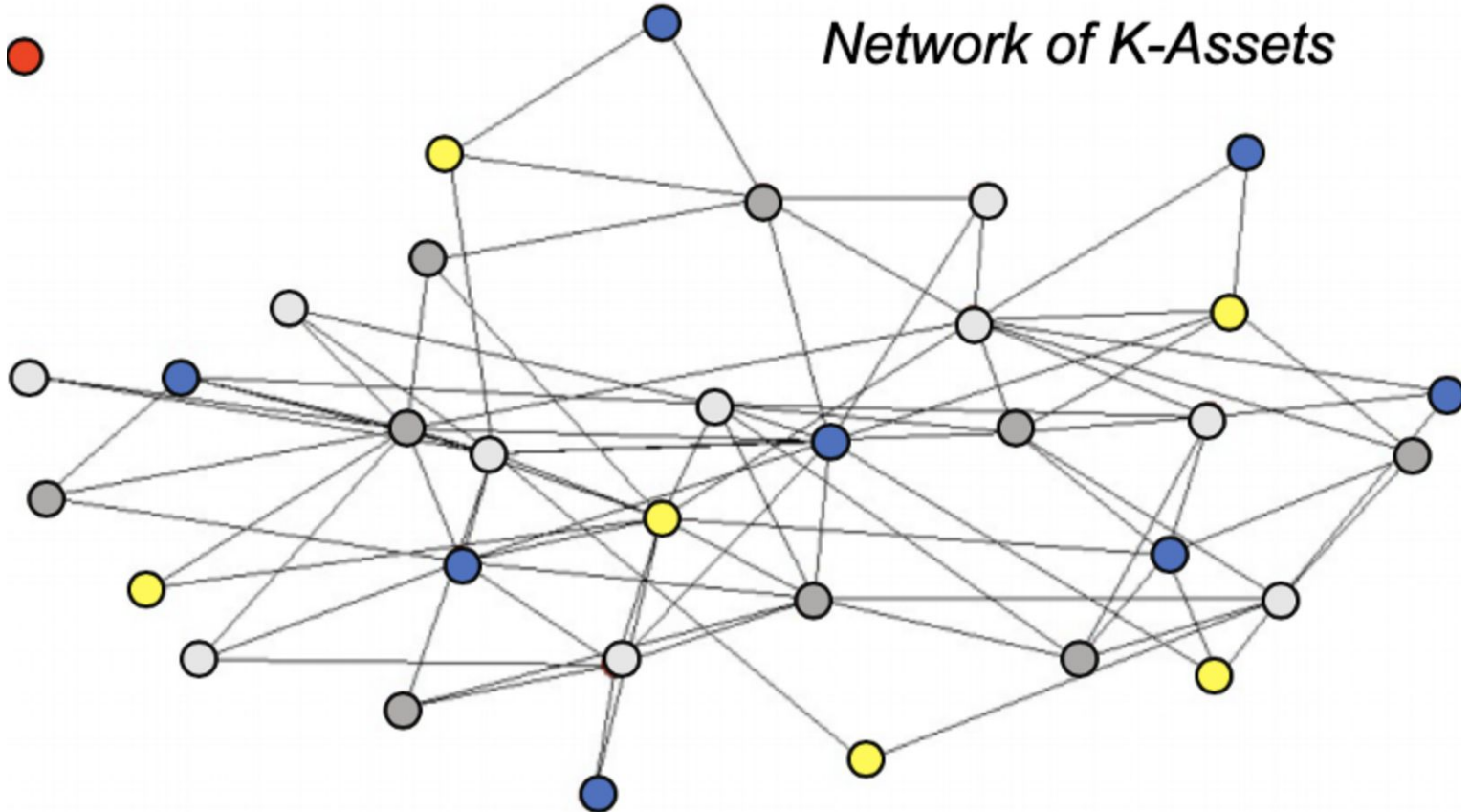
# Tangibles vs Intangible Asset



# The Innovation Bank: An Economic Game Based on a Network of Claims and Validations:

1. Player 1 makes a claim (C)
2. Player 2 validates Player 1's claim (V)
3. A single node with 2 edges is memorialized on Blockchain
4. Players (C, V) each receive tokens for creating nodes
5. Network graph aggregates all nodes and edges
6. Customers must buy tokens from clearinghouse
7. Tokens used to access network graph metadata.
8. Market assigns value to tokens.
9. Platform up-takes tokens for revenue.

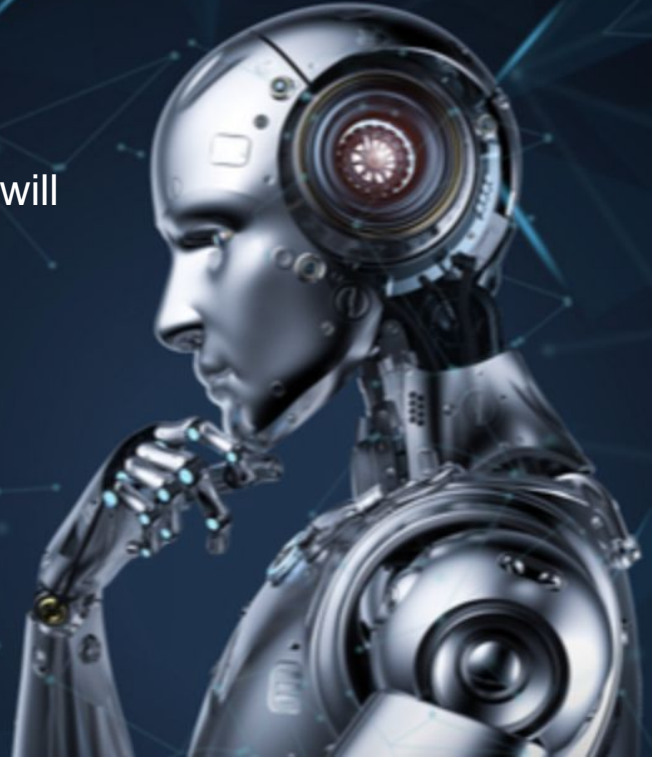
# All K-Assets are represented in a Network Graph



# An Invisible Economy

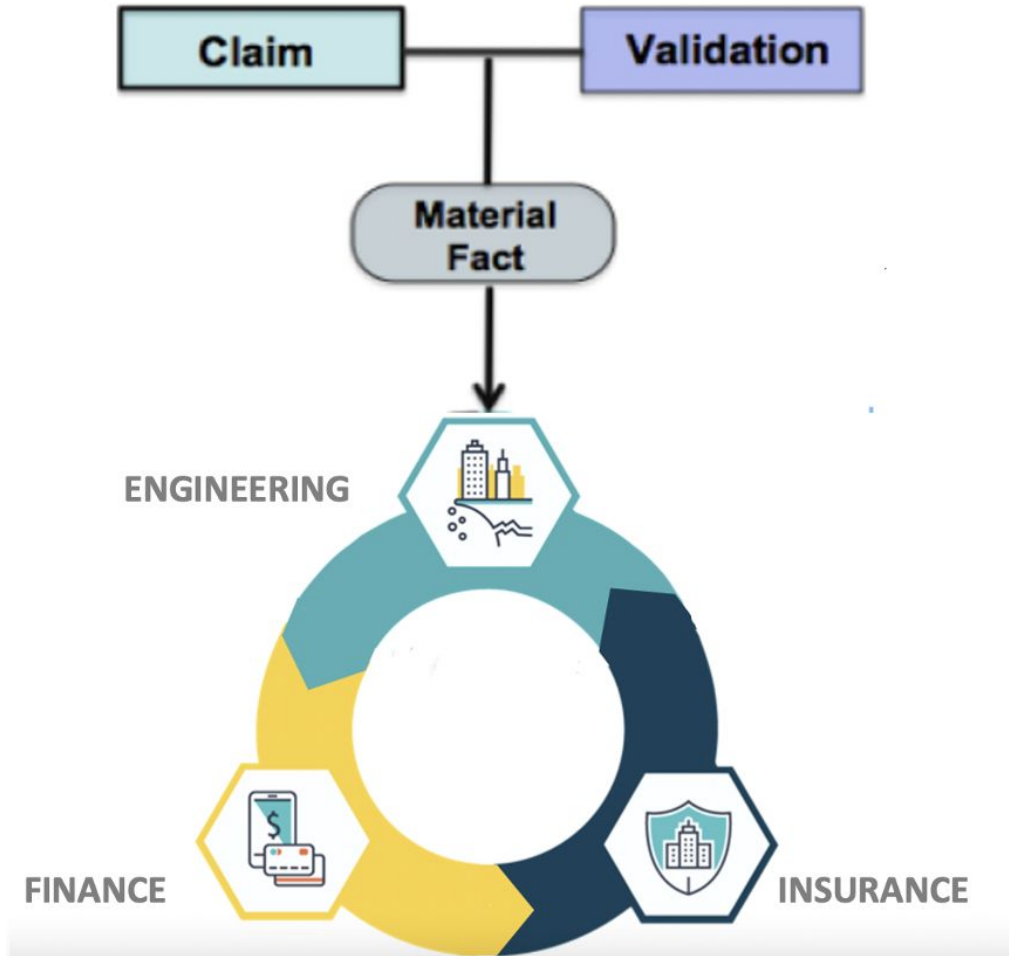


1. **Identify** Risk Exposure
2. **Calculate the probability** peril will manifest
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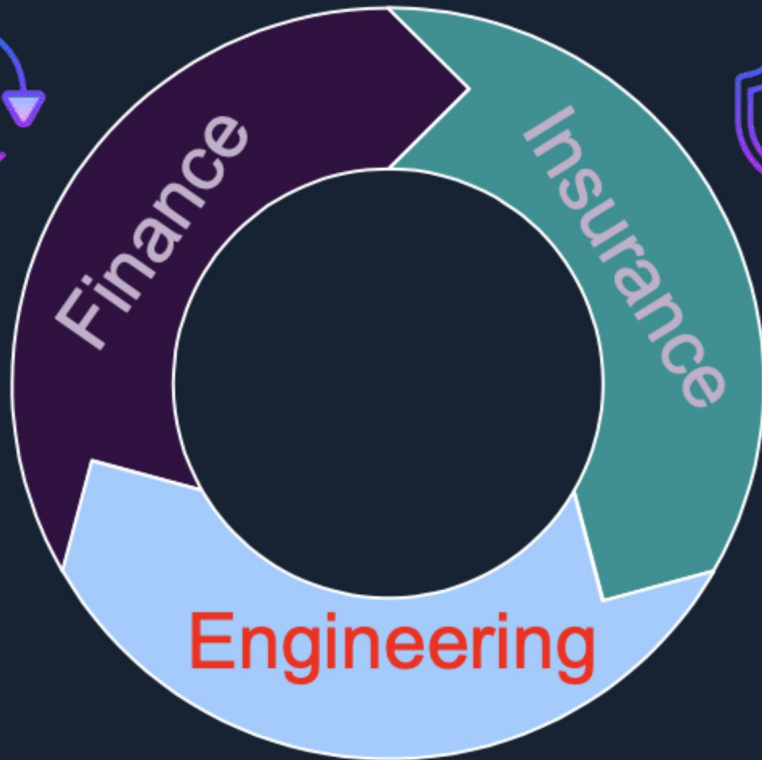




Finance and insurance depend on a steady, reliable and validated set of material facts in order to perform their role in an economy.

Biggest problem today is the **corruptibility of material facts**, misinformation, criminals, fake news, incompetence, data brokers, espionage, hackers, etc.

# Great opportunities Ahead for engineers and Scientists



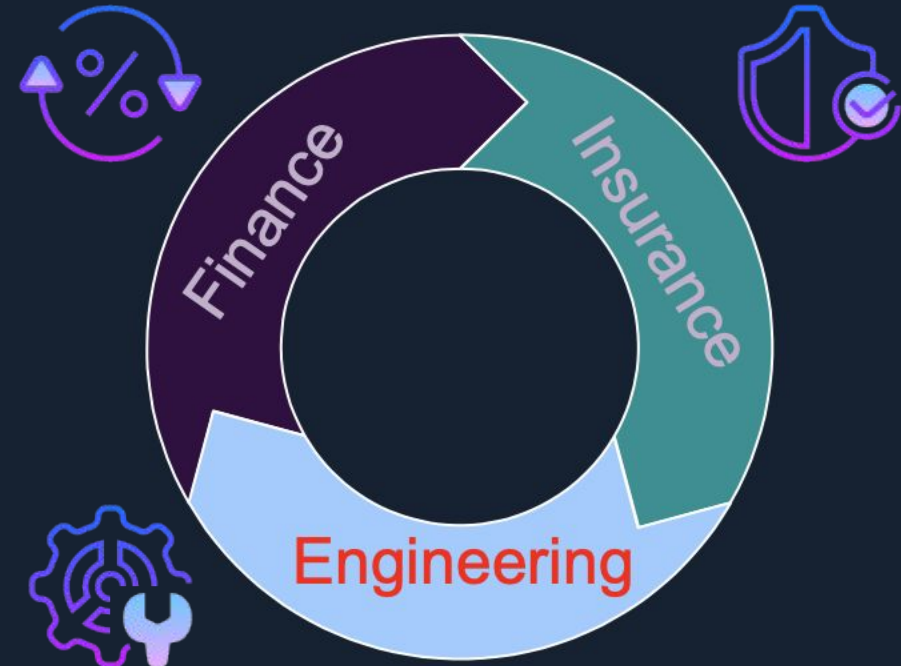
## *The Virtuous Circle of Economic Development*

1. Identify Risk Exposure
2. Calculate the probability peril will manifest
3. Determine the value of the consequences should the peril manifest.



# Web3

# The Virtuous Circle of Economic Development

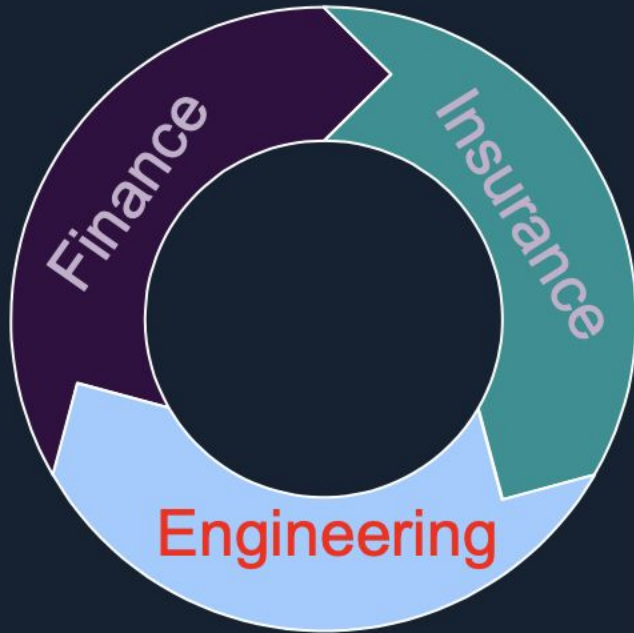


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# Web3



# The Virtuous Circle of Economic Development



1. Bank will not Lend Money unless asset is insured
2. Insurance Company will not insure asset unless it is properly engineered
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# Web3



# History of The Ingenesist Project

# A Brief History

1994 - 1997	NAFTA – Attempt to trade “services” same as “goods”
1997 – 2008	Boeing – Knowledge assets and the generation gap
2008 – 2010	Founded: Social Flights – the “Uber” of Private Jets
2007 – Pres	Founded: Community Engineering Services, PLLC



# A Brief History

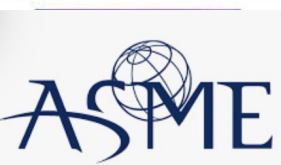
- 2015 National Society of Professional Engineers FinTech Task Force
- 2016 National Association of Insurance Commissioners position paper
- 2017 American Society of Civil Engineers Grand Challenge Contest
- 2017 Formed the Integrated Engineering Blockchain Consortium
- 2018 Partnered with Blockhaus Investments AG, Zurich
- 2018 CoEngineers.io The first Blockchain by Engineers for Engineers.
- 2020 National Science Foundation - COVID Response competition
- 2021 American Society of Mechanical Engineers Paper



# Projects, Publications, and Lectures

Daniel Robles, CEO,  
Integrated Engineering Blockchain Consortium

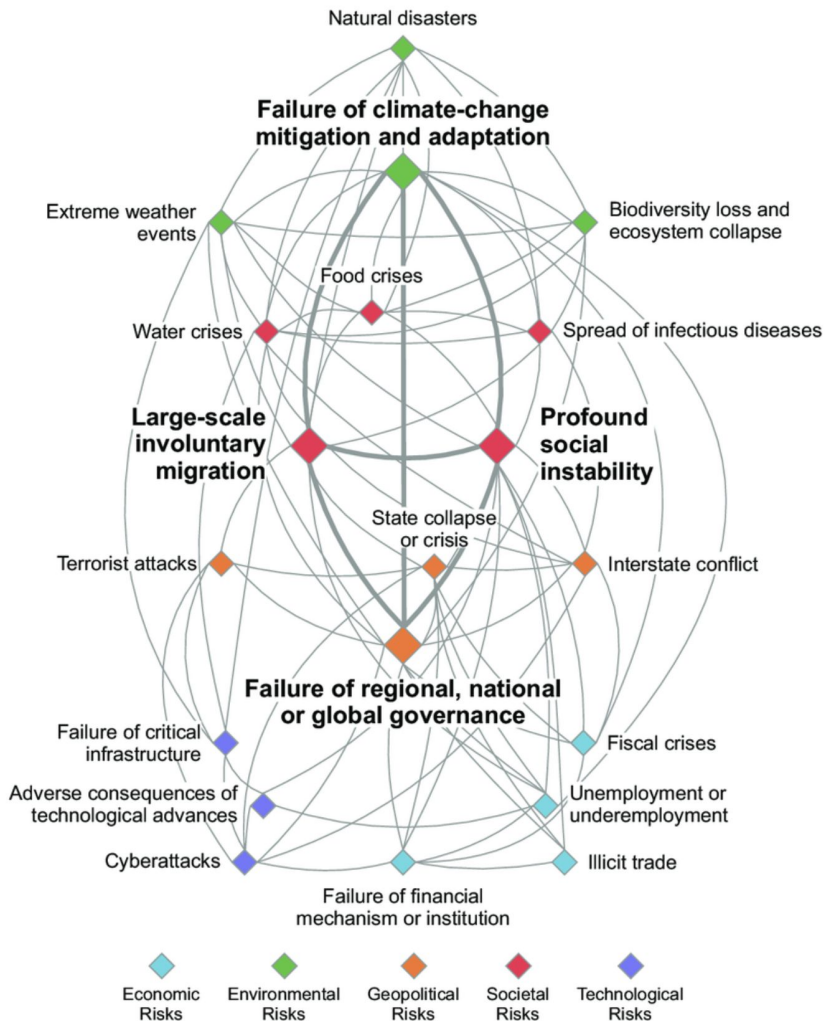
**PHONE** +1 (425) 361-8499  
**OFFICE** Seattle, WA  
**EMAIL** danr@iebc.co  
**WEBSITE** coengineers.io | iebc.co



# The Problem

# The Problem



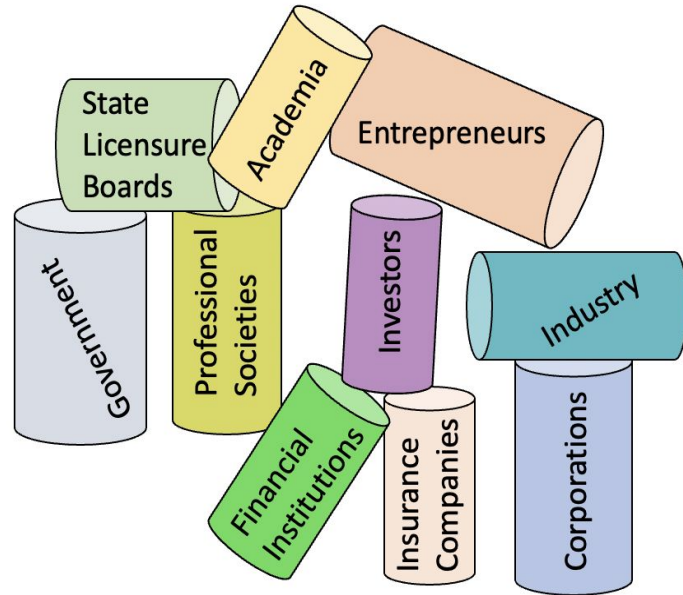


# Global Systemic Risk: A Networked Adversary

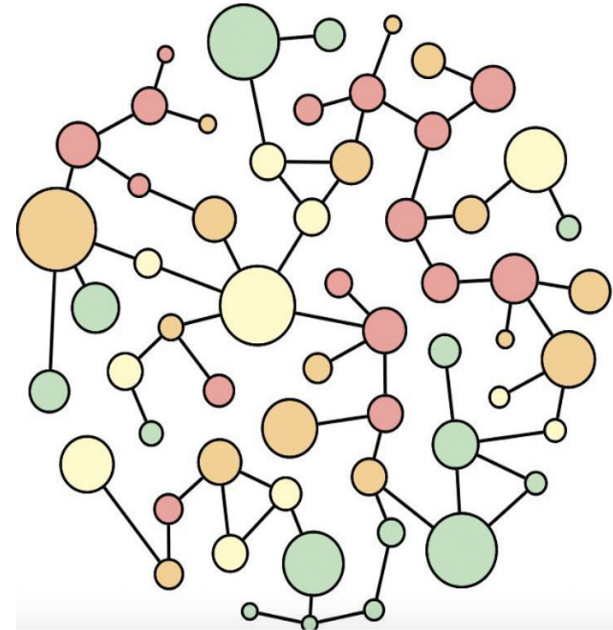
“It Takes a Network to Defeat a Network.”  
With that, we [take] the first step toward an  
entirely new conversation.”

— Stanley McChrystal

# Structural differences between Physical Reality and Virtual Reality



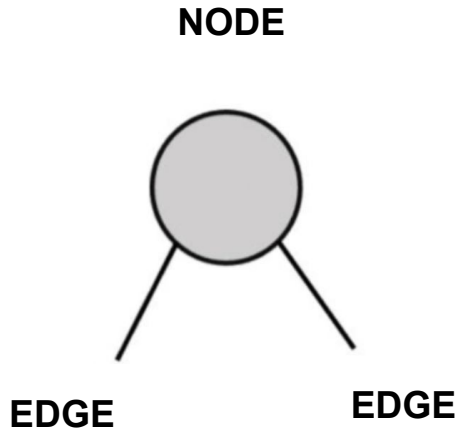
Silos



Networks



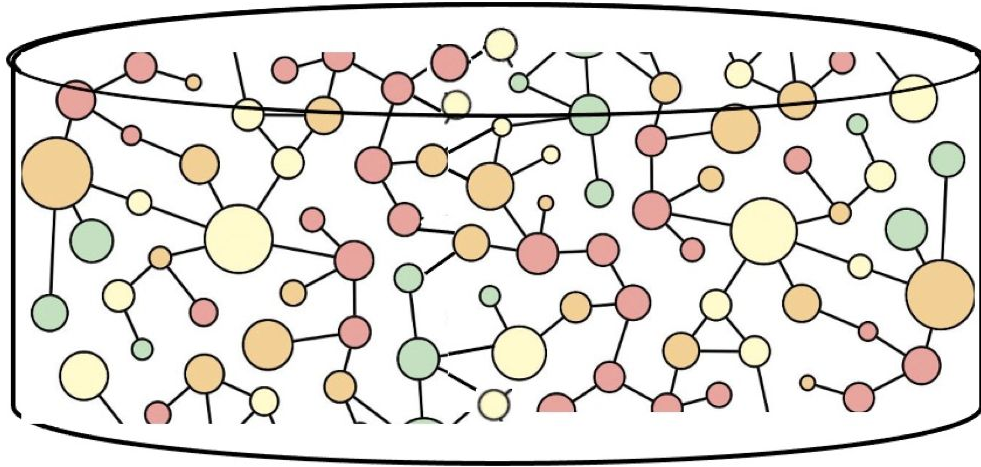
# The Solution



## **Graph Theory used by: Facebook, Google, Twitter, et.al.,**

*Genomics, communications networks and coding theory, computer science, and operations research (scheduling and logistics).*

# Solution: The Innovation Bank, A Decentralized Database of Knowledge Assets



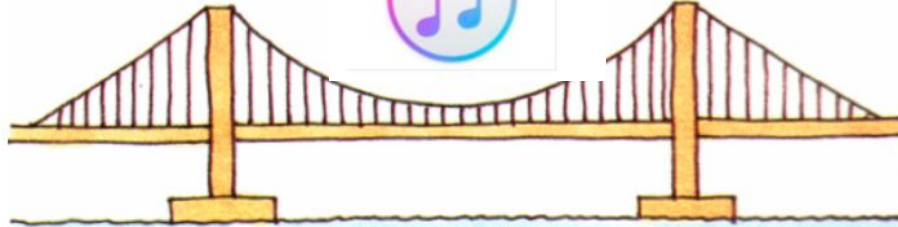
Governed By:

**Blockchain Technology:** Memorializes transactions in space and time and issue receipts in the form of digital tokens

**Game Theory:** A set of economic incentives that rewards tokens for desirable outcomes

**Actuarial Math;** Secure the physical domain mapping risk exposures and associated consequences

Old way:  
Share price = profits



New way:  
Share Price =  $N^2$



***Why not build a platform from a real bridge for use internally and externally?  
Hyperconnectivity***

*Why not build a platform from a real bridge?*



# Size of the Opportunity

# Size of Opportunity

Nobel Laureate Dr. Robert Solow Estimates that 80% of economic growth attributed to technological change = Engineers, Scientists, and technologists.

For 3% US economic growth per year, contribution of EST is 80%=  
500 billion dollars **per year**

Worldwide = 2 Trillion Dollars **per year**

**Competition = 0**

**(IEEE has no equal)**

# Value of Engineering is Invisible



A fireman has very little value until there is a fire. Then, the fireman is worth a million dollars per hour.

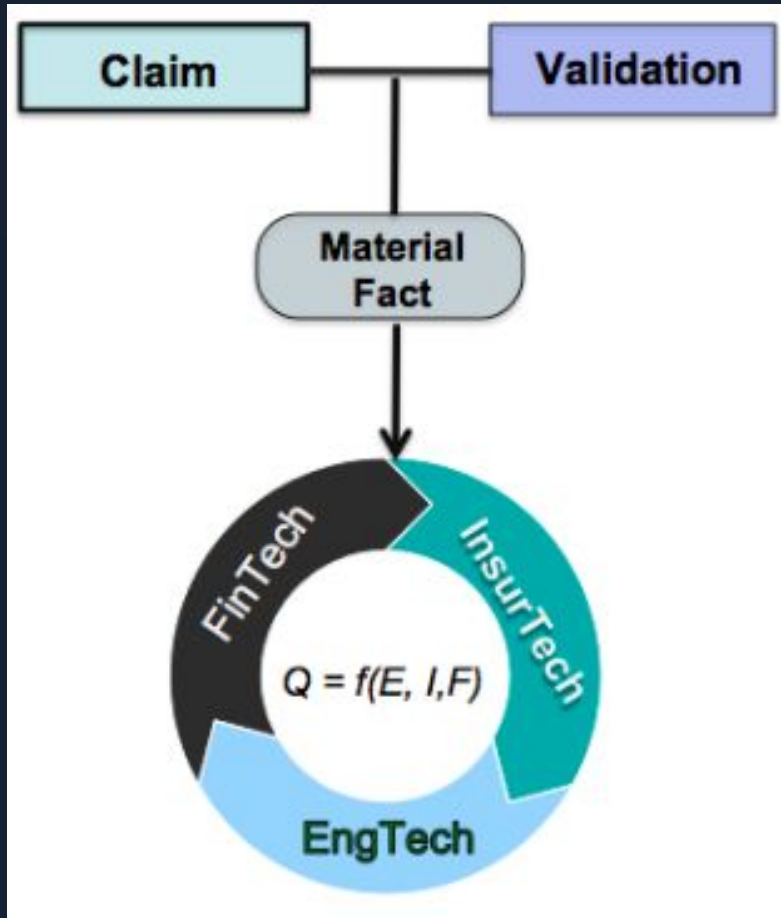
The Fire measures the value of the fireman into existence



If the fire never happens, the value of engineer is invisible

Engineers removes risk from systems





# A Virtuous Circle

The Innovation Bank provides a reliable and comprehensive source of material fact.

Material facts remove risk from complex physical systems

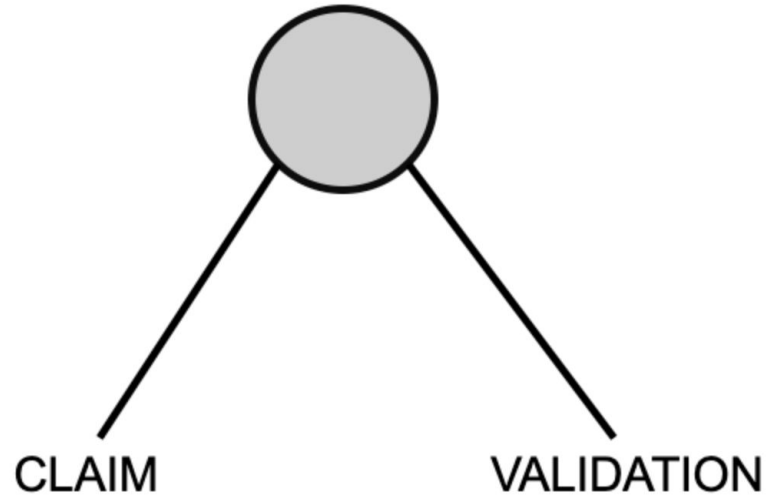
Risk is the currency of banking, insurance and enterprise.

The Innovation Bank will result in immediate, relevant, and auto-funding innovation at scale

# The Innovation Bank

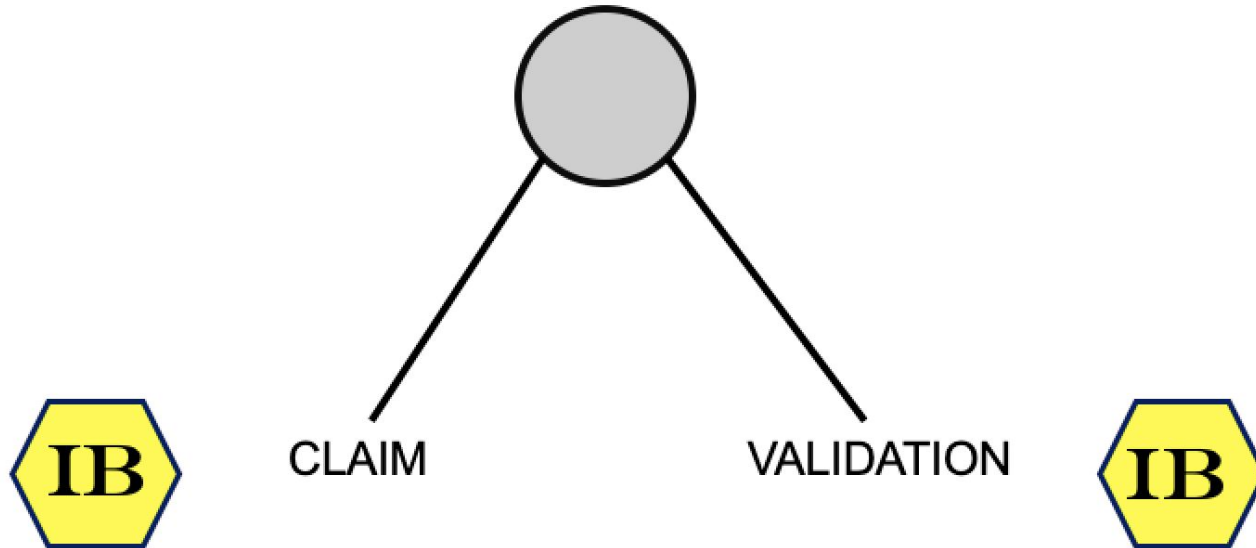
# The Innovation Bank is a very simple device

*Formation of the K-Asset*

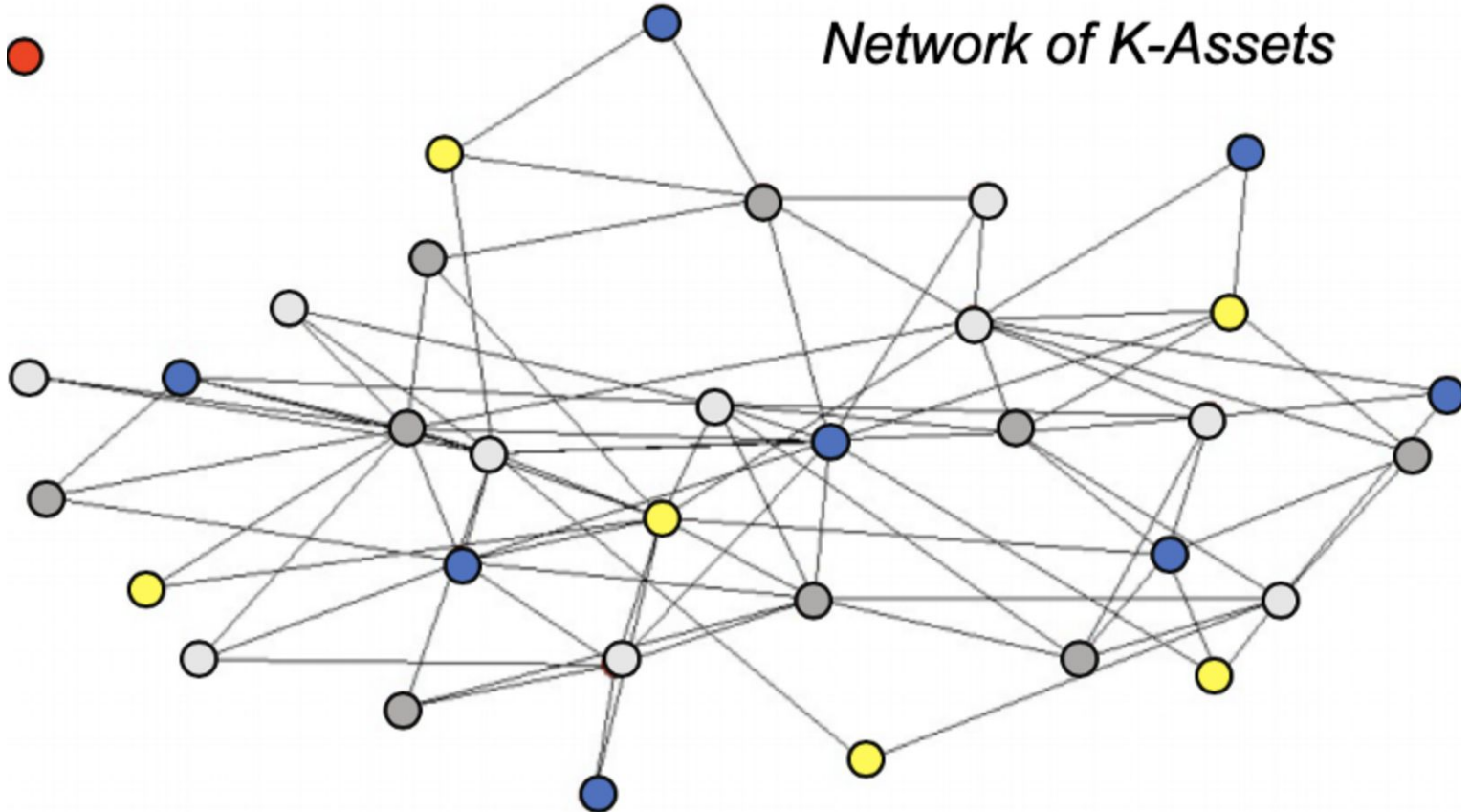


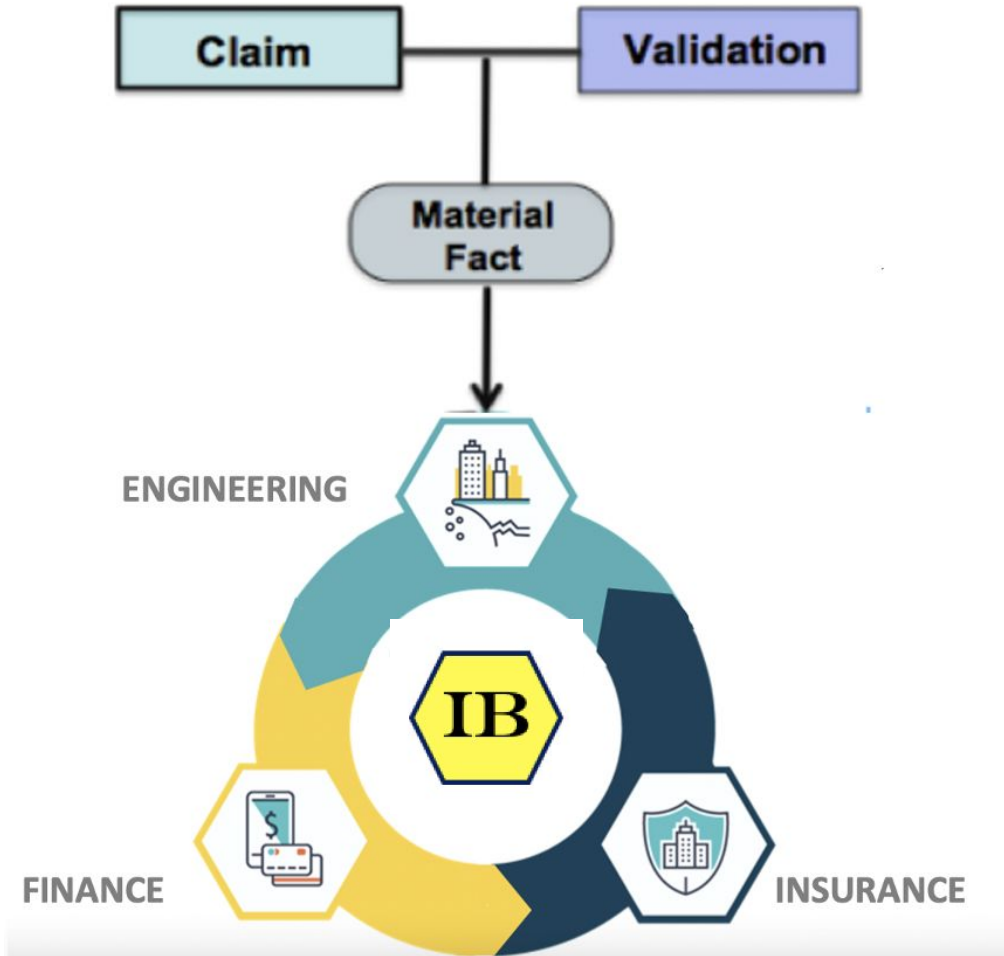
A cryptographic token is awarded to the claimant and the validator

*Formation of the K-Asset*



# All K-Assets are represented in a Network Graph





Banks, insurance, and corporations must purchase tokens from the holders as a means of accessing validated material facts and risk mitigating information.

# Results

- Reverses the fundamental flaw.
- Produces a networked response to a networked adversary
- Token backed by human productivity; mutual reciprocity.
- Runs in parallel with existing economy
- No need to disrupt existing institutions
- Stable token valued by supply and demand
- Tokens are dynamic and measurable
- Engineers can be paid royalties by the platform.

# Use Cases

- Build a Better Resumé: Index self to Wikipedia or other ontology for inferences.
- Next Generation Professional Society: Meeting place for claimants to meet validators / restores social fabric.
- Commercializing University/Company Research: distribute incubation across university, enterprise, and alumni network
- Build a better mouse-trap: develop unique combinations of knowledge assets designed to solve problems in new ways.
- Hazardous Material Management-access key: Nuclear materials, Gun Control (US), environmental safety
- Bot Control: easily identify on-line Bot characteristics in human systems.



# Summary Review of what we just told you



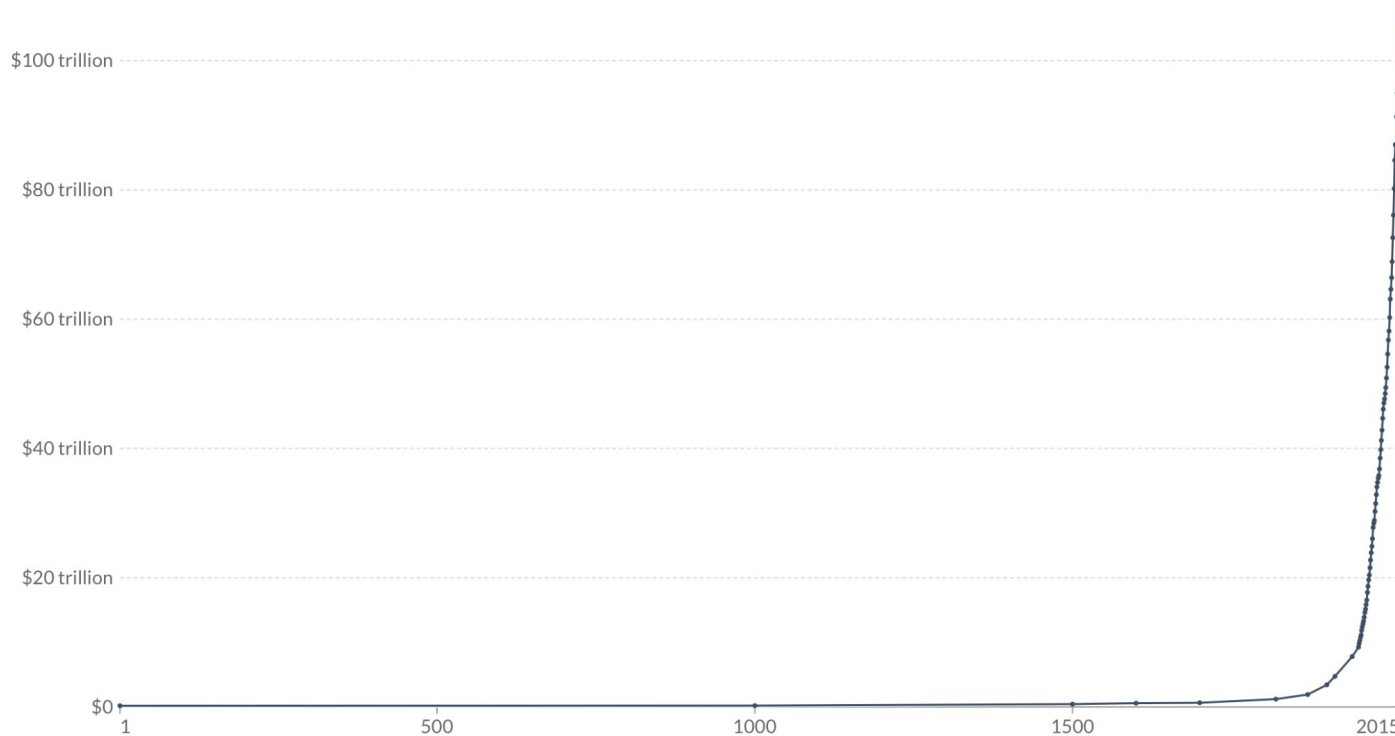
# GDP: Money is Measured Into existence by the things we make.

## World GDP over the last two millennia

Total output of the world economy; adjusted for inflation and expressed in international-\$ in 2011 prices.



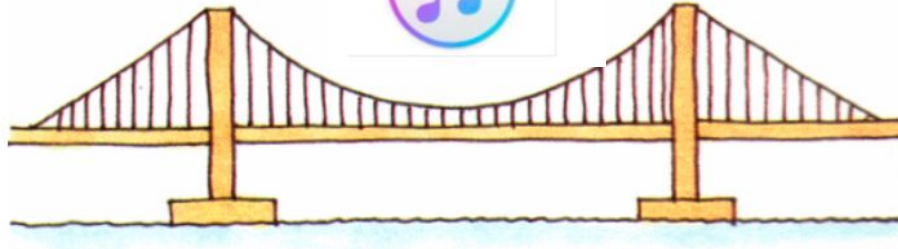
**LINEAR** LOG  Relative change



Source: World GDP - Our World In Data based on World Bank & Maddison (2017)

OurWorldInData.org/economic-growth • CC BY

Market Valuation:  
**CAPM: Capital Asset  
Pricing Model**



Network Valuation:  
**Share Price  
proportional to  $N^2$**

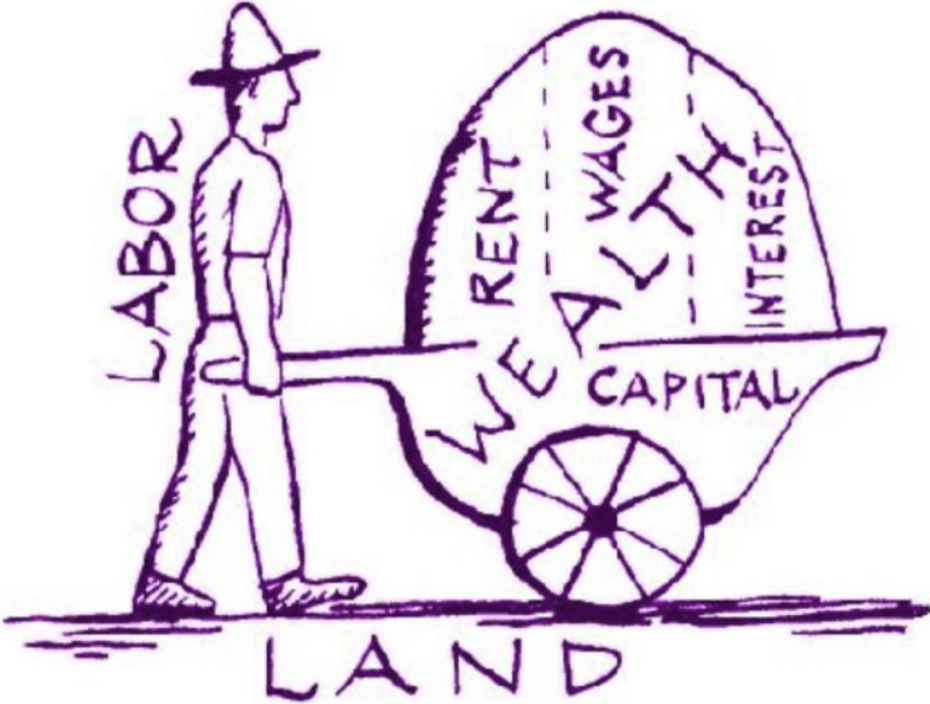


Like a check valve - **controls flow** of information

*Why not build a network platform from a real bridge?*



# Classical Economics: Land, Labor, and Capital



Easy to measure

*80% of Economic Growth is attributable to technological change but is **incorrectly attributed** to allocations of Land, Labor, and Capital*



**Why does a public discussion  
of economic policy so often  
show the abysmal ignorance  
of the participants?**

**-- Robert Solow**

**Technological Change is the Domain of Engineers and Scientists  
Not Easy to Measure**

# Fundamental Flaw in Market Capitalism

*Technological change always precedes economic growth.*

*We are going about the business of civilization as if economic growth precedes technological change. **we've gotten it backwards.***



# Fundamental Flaw in Market Capitalism

## *What we know so far*

- 1. Money represents productivity*
- 2. Productivity can be measured in different ways*
- 3. Classical Econ: Debt represents future productivity*
- 4. Solow Econ: Innovation represents future productivity*

*Two Currencies backed by the same asset are convertible!*

## *Correcting the Flaw:*

- 1. Engineers can create a currency backed by technological change (innovation)*
- 2. Network Platform measures the value of engineering networks*
- 3. Blockchain reverse the flow of information*





**A firefighter** has very little value until there is a fire. Then, the firefighter is worth a million dollars per hour.

The value of the fire fighter is measured by the severity of the fire.

**Fire Protection Engineer** can design 100's of buildings that will never burn.

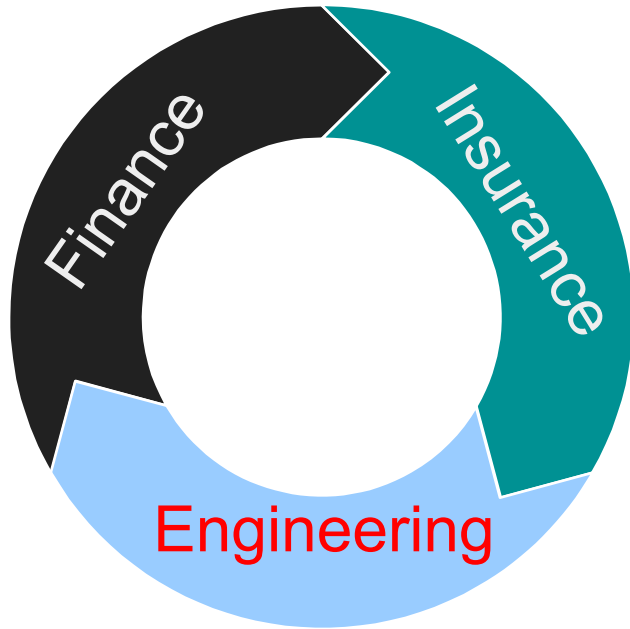
In the absence of a fire, engineer can only be described as an “intangible” asset.



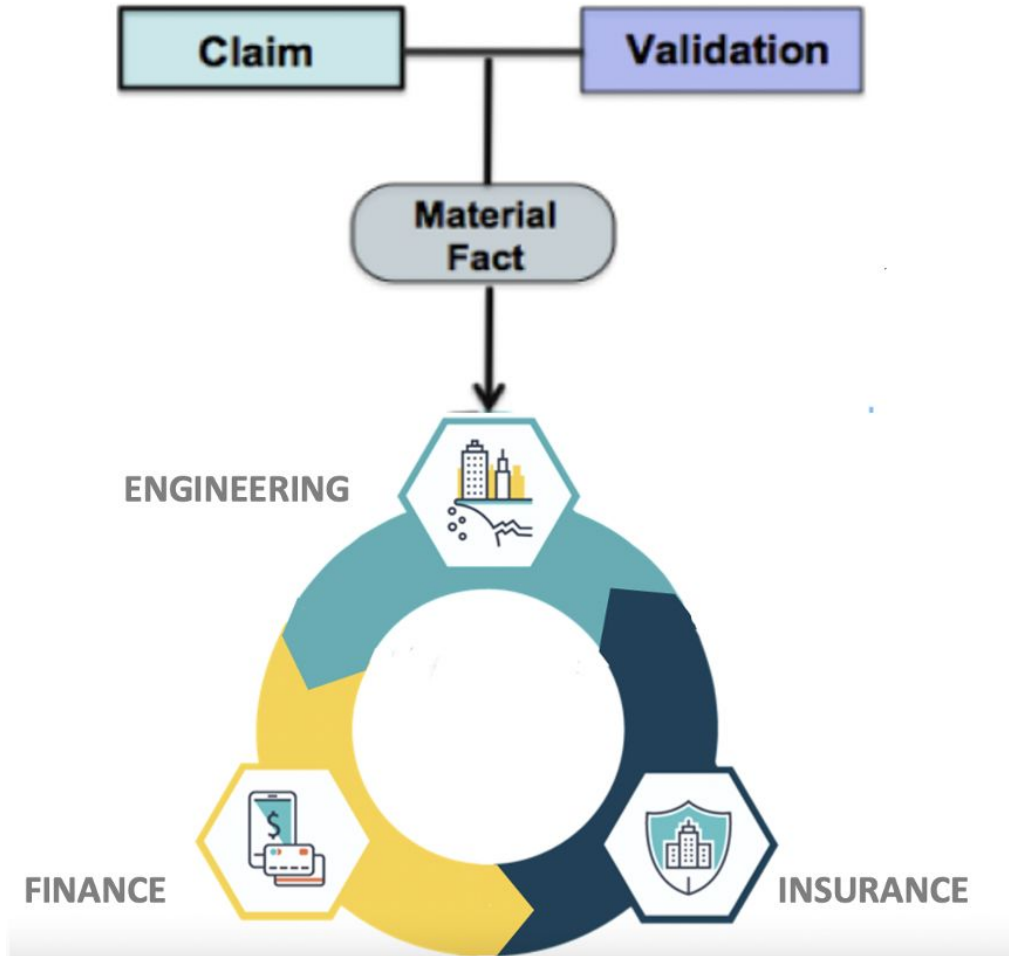
**A lot of people are making a lot of money from this engineer.**

# As The World Turns

## Engineers **Remove Risk** from Complex Systems



1. Bank will not Lend Money unless asset is insured
2. Insurance Company will not insure asset unless it is properly engineered
3. Proper engineering must be financed (cover sunk cost)

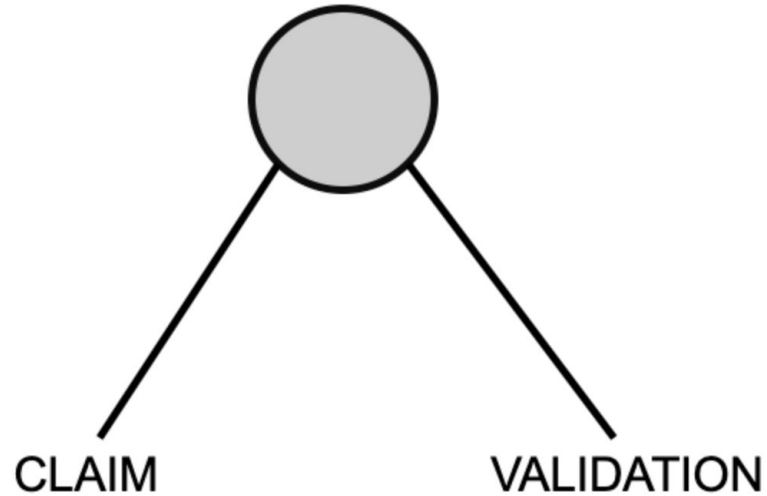


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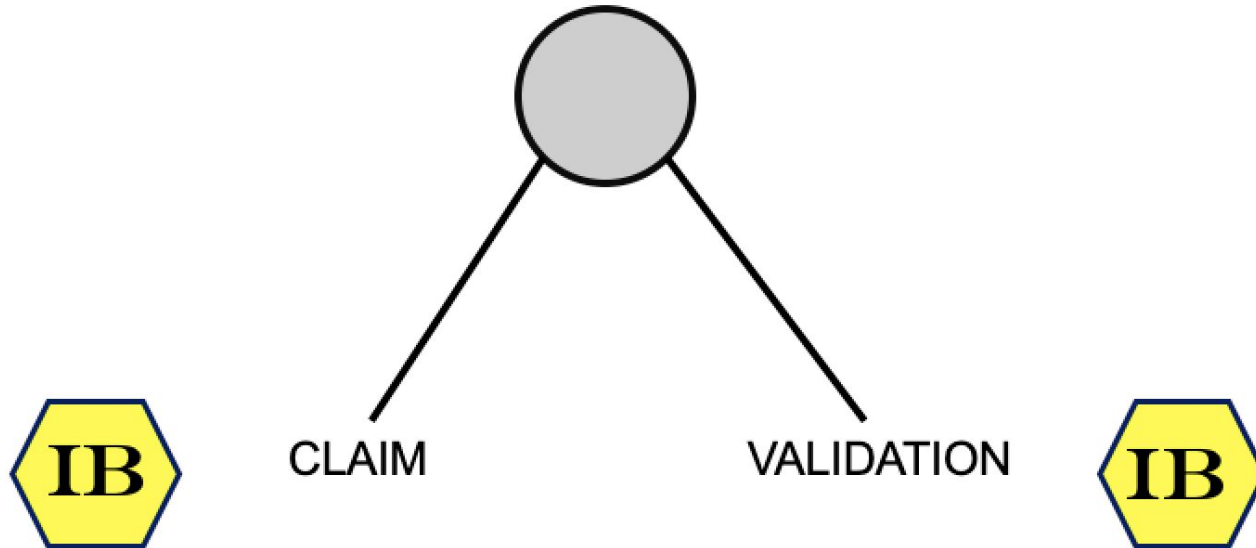
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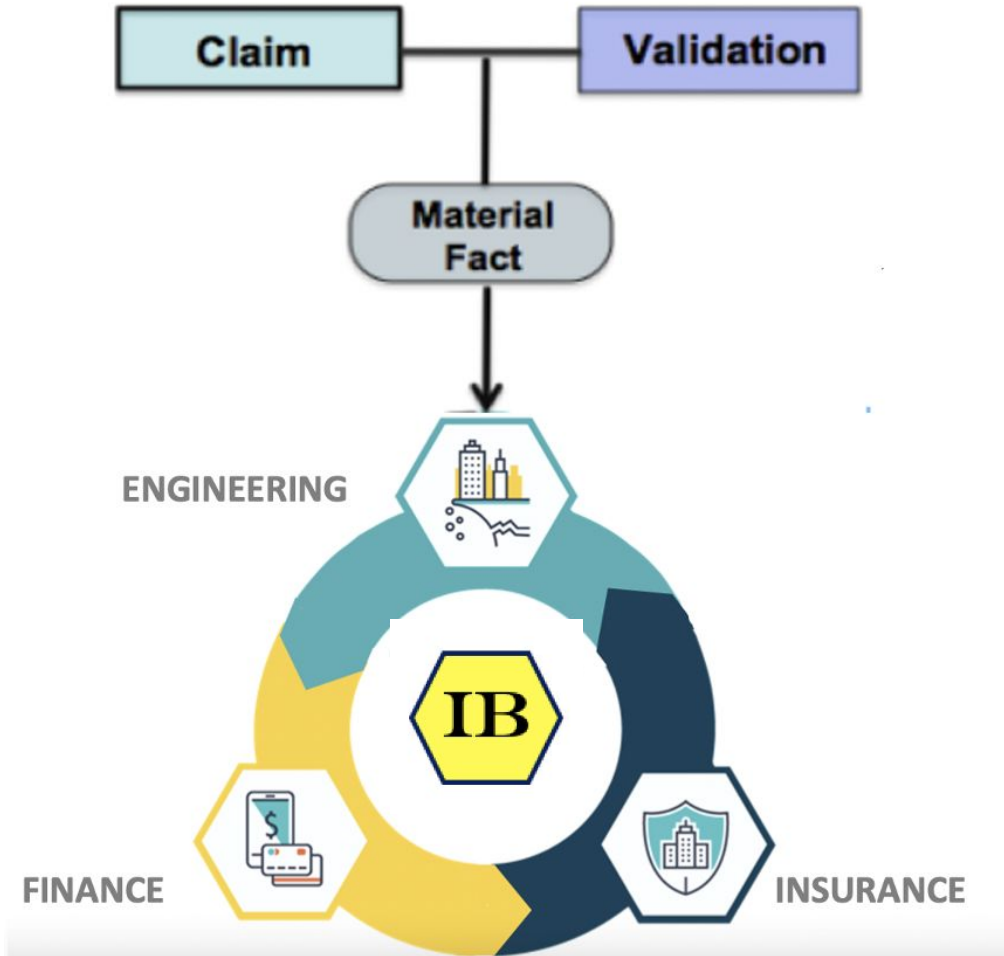
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