



DECENTRALIZATION: NATURE'S BLUEPRINT FOR RESILIENCE?

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FLOV TECHNOLOGIES

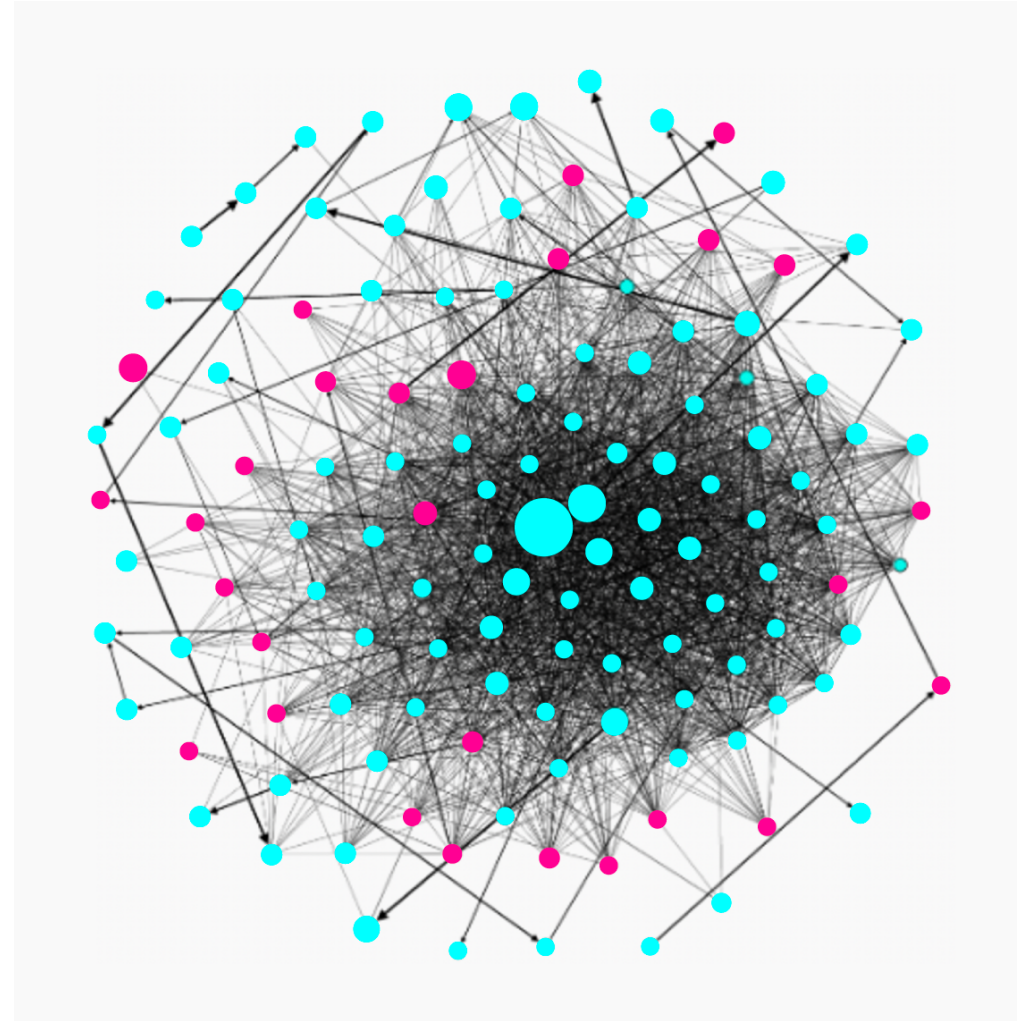
PERM WINTER SCHOOL – FEBRUARY 26, 2021

1 A BRIEF HISTORY OF FINANCE



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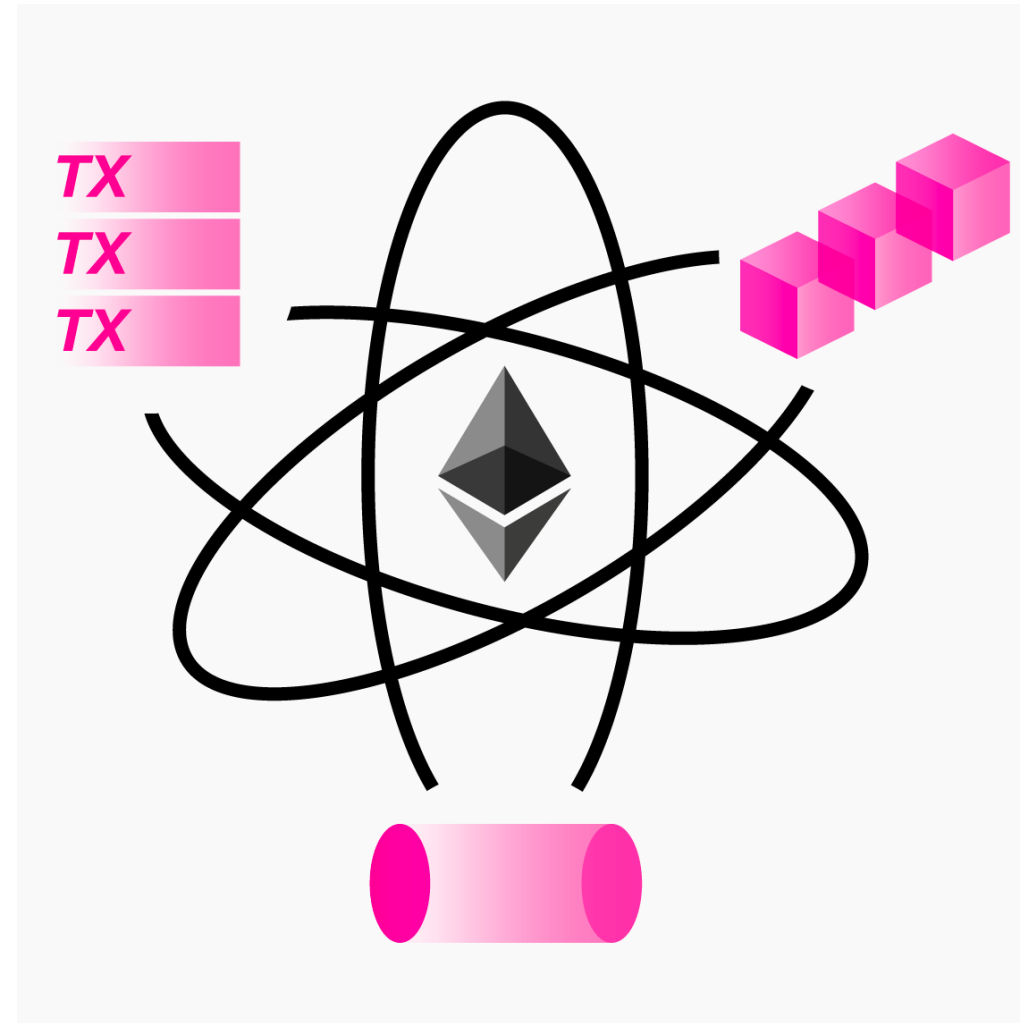
2 THE COMPLEX SYSTEMS PERSPECTIVE



1 A BRIEF HISTORY OF
FINANCE

2 THE COMPLEX SYSTEMS
PERSPECTIVE

3 WHAT IS DEFI?



1776

ADAM SMITH “AN INQUIRY INTO THE NATURE
AND CAUSES OF THE WEALTH OF NATIONS”

1900

MAX PLANCK STUMBLES UPON QUANTUM MECHANICS
LOUIS BACHELIER’S PH.D. THESIS

1905

ALBERT EINSTEIN’S ANNUS MIRABILIS

1906

ANDREY MARKOV’S STOCHASTIC PROCESS

1908–1931

FORMAL WORK BY PAUL LANGEVIN, ADRIAAN FOKKER,
AND MAX PLANCK

1942

KIYOSHI ITÔ’S STOCHASTIC CALCULUS

1950s

PAUL SAMUELSON’S MATHEMATICAL WORK ON
STOCK MARKETS

1963

BENOÎT MANDELBROT DISCOVERS SELF-SIMILARITY

1973

FISCHER BLACK AND MYRON SCHOLES' EQUATION

1993

SUPERCONDUCTING SUPER COLLIDER TERMINATED

1998

*LONG-TERM CAPITAL MANAGEMENT COLLAPSE
AND BAILOUT*

2000

DOT-COM BUBBLE

2008

*GLOBAL FINANCIAL CRISIS FOLLOWED BY SOVEREIGN
DEBT CRISIS*

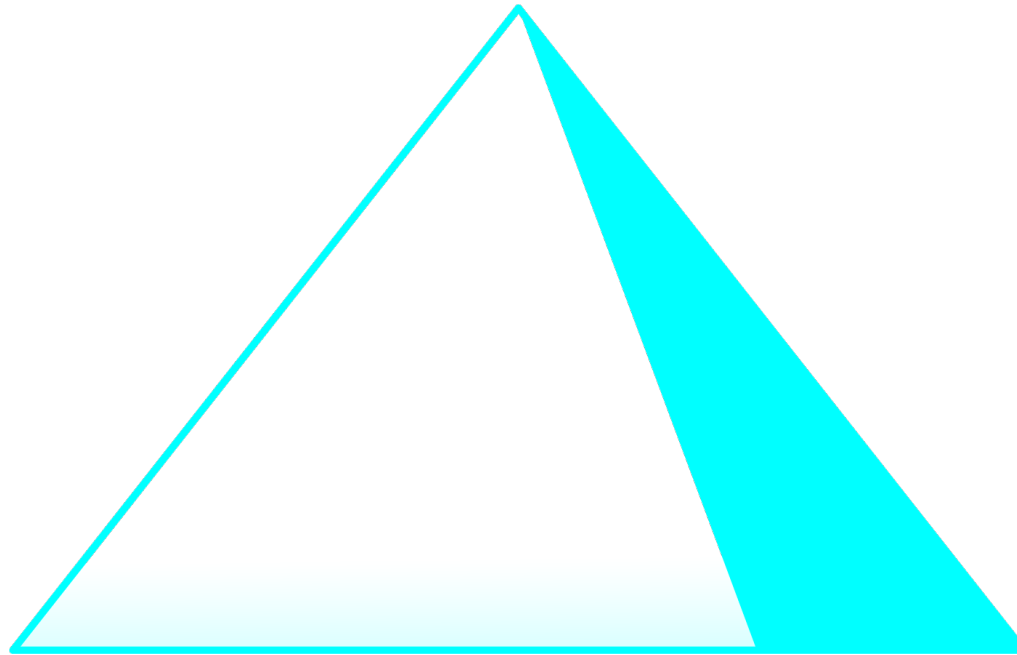
2009

SATOSHI NAKAMOTO LAUNCHES BITCOIN

FINANCIAL SYSTEMS ARE NOT RESILIENT



FINANCIAL SYSTEMS ARE NOT RESILIENT



PYRAMIDS OF POWER

COMPLEX SYSTEMS

*COMPLEX SYSTEMS ARE COMPRISED OF
MANY INTERACTING AGENTS*

*EMERGENCE: “THE WHOLE IS MORE THAN
THE SUM OF ITS PARTS”*

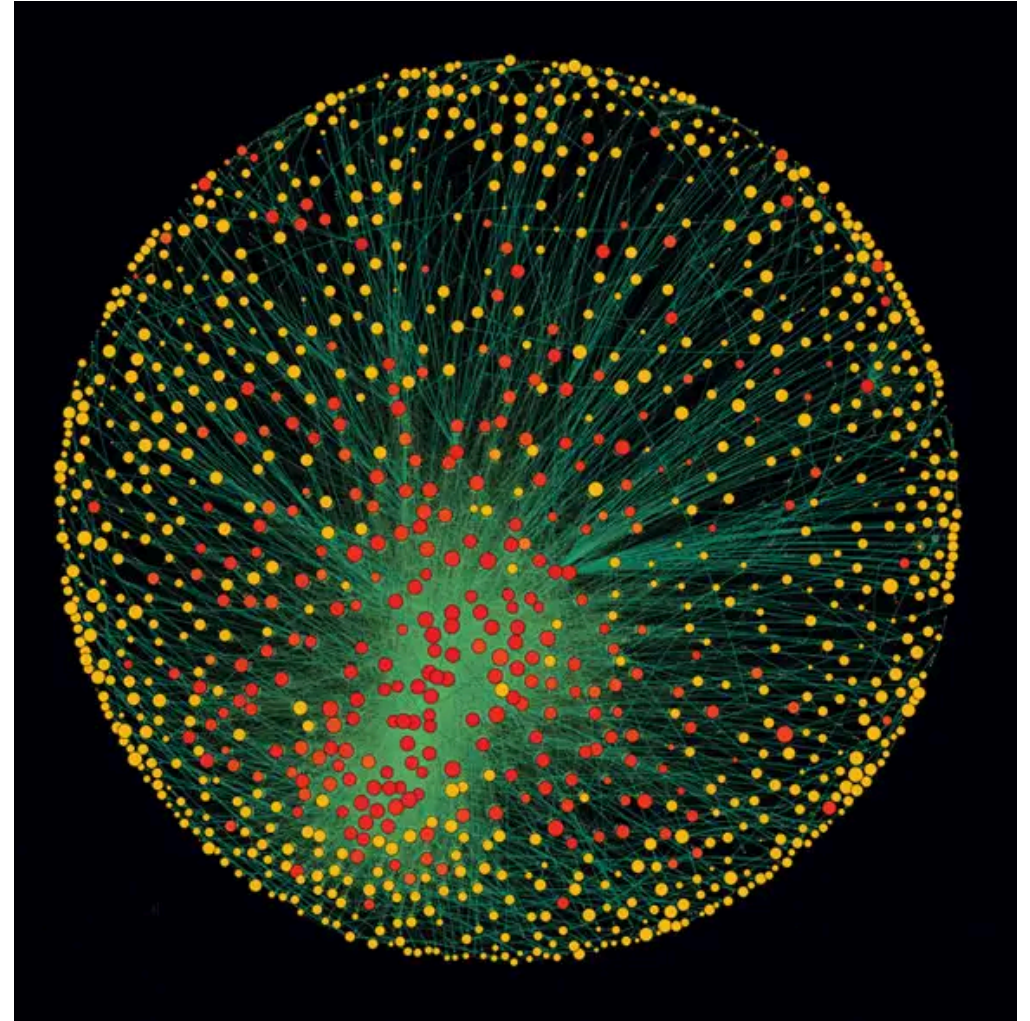
*SELF-ORGANIZATION: A TELEOLOGICAL
FORCE?*

*UNIVERSAL STATISTICAL PROPERTIES:
SCALING LAWS*

FORMAL REPRESENTATION AS NETWORKS

COMPLEX BEHAVIOR FROM SIMPLE RULES

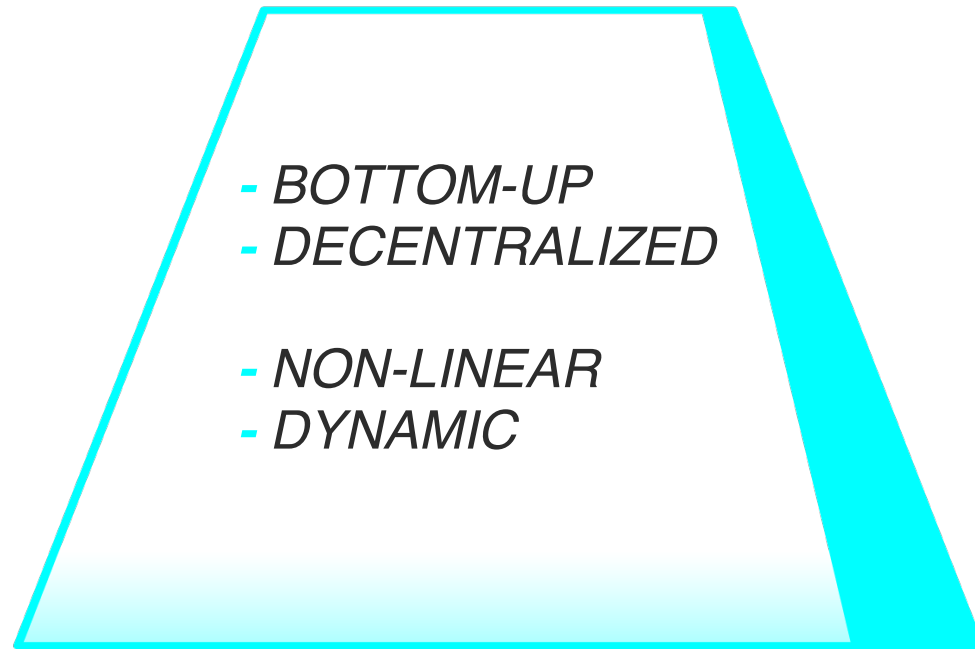
COLLECTIVE INTELLIGENCE



DECENTRALIZED DECISION-MAKING
ALGORITHMIC
AGENT-BASED MODELS
SIMULATIONS

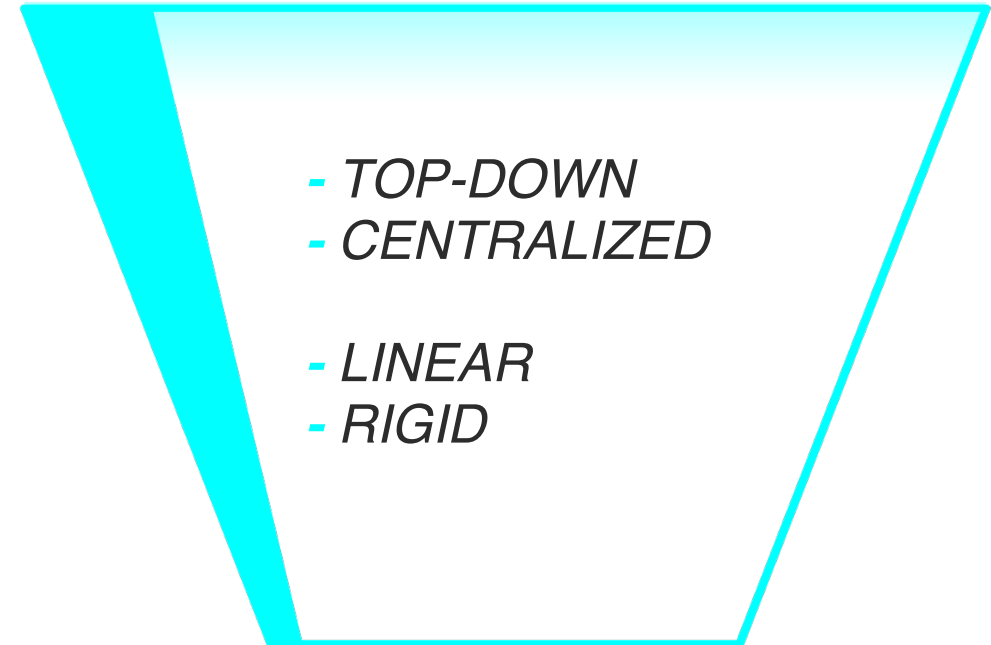


NATURE'S DECENTRALIZED ORGANIZATION



COLLECTIVE INTELLIGENCE

HUMAN PYRAMIDS OF POWER



SYSTEMIC FAILURES

1985–2000 *THE INTERNET OF INFORMATION*

2000–2015 *THE INTERNET OF SERVICES*

SINCE 2015 *THE INTERNET OF VALUE*

SINCE 2020 *DEFI*



DEFI

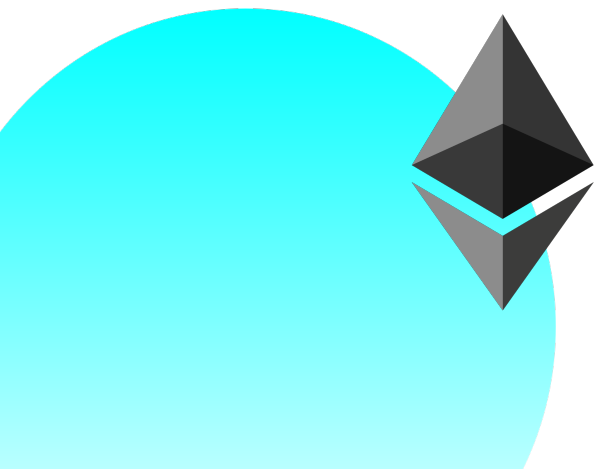
OPEN

TRUSTLESS

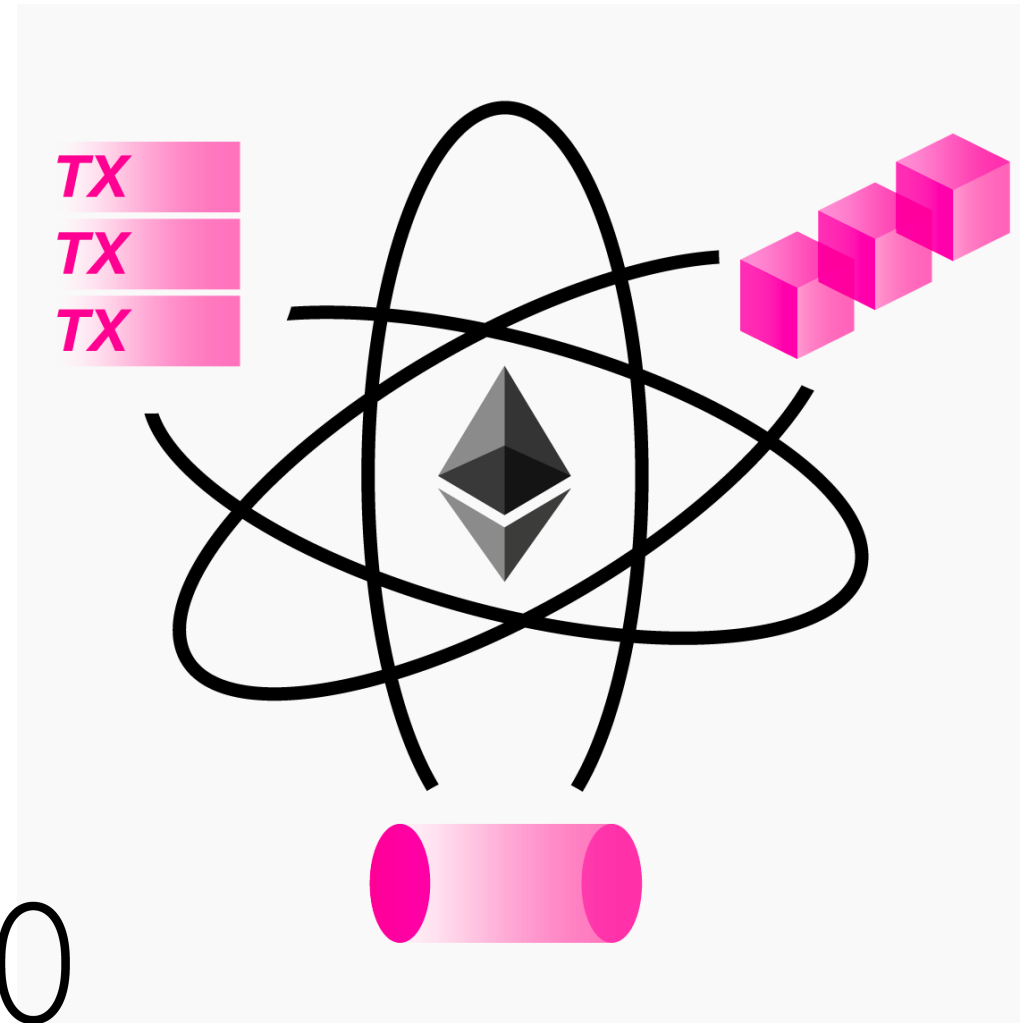
PERMISSIONLESS

NO INTERMEDIARIES

USES DLT AND SMART CONTRACTS



ERC20





2015
ETHEREUM



2018
UNISWAP



EARLY 2020
YEARN FINANCE

DEFI SUMMER OF 2020

	APRIL	SEPTEMBER
UNISWAP MONTHLY VOLUME ¹	\$ 170M	\$ 15B
TOTAL VALUE LOCKED IN DEFI ¹	\$ 800M	\$ 10B

¹: FINEMATICS

CEFI

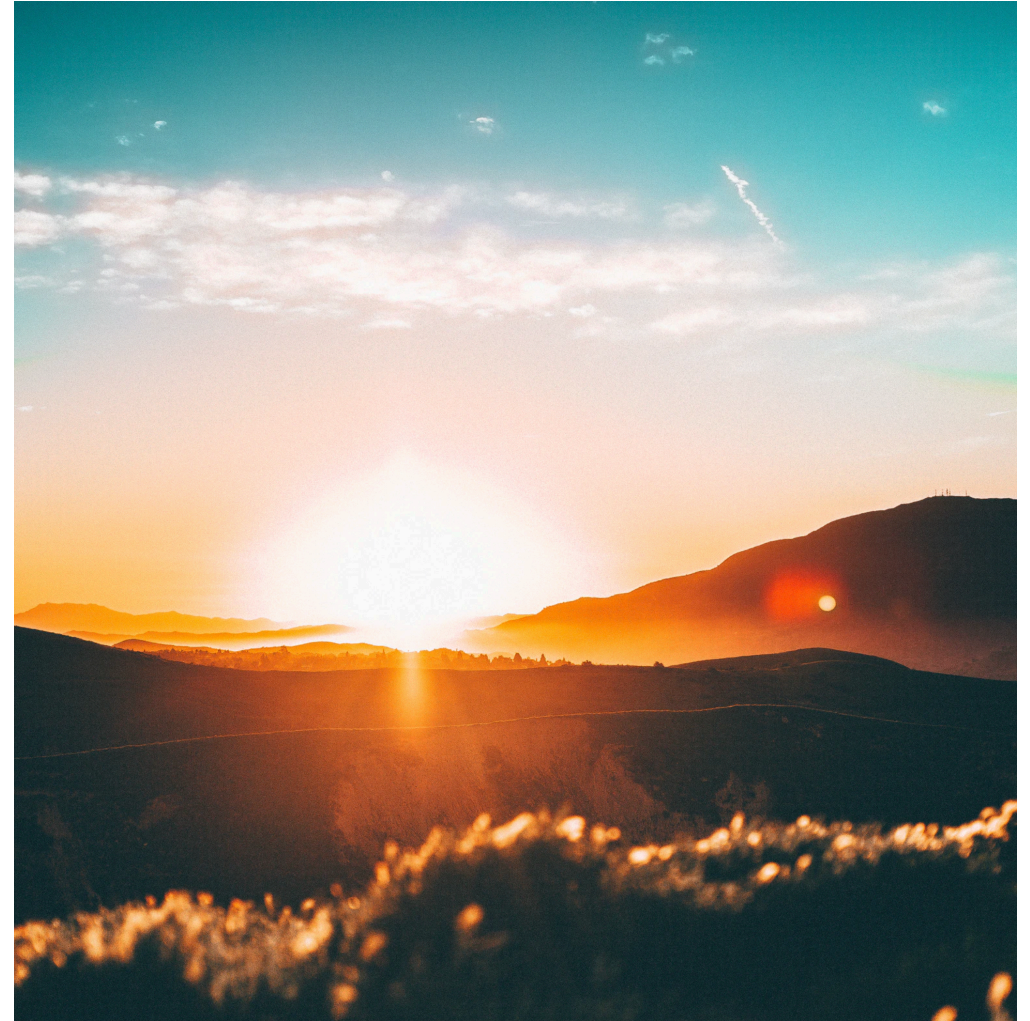
- *CULTURE OF GREED AND FRAUD*
- *IDEOLOGICAL*
- *BAD BLUEPRINT FOR COMPLEXITY*
- *INEFFICIENT AND NON-TRANSPARENT*
- *PROPRIETARY TECHNOLOGY AND LEGACY ISSUES*
- *INEQUALITY AND BARRIERS TO ENTRY*
- *REOCCURRING CRISIS*

DEFI

- *COLLABORATION AND GOVERNANCE*
- *?*
- *DECENTRALIZED NETWORKS*
- *EFFICIENT AND TRANSPARENT BY DESIGN*
- *OPEN-SOURCE PROJECTS*
- *FAIR*
- *RESILIENCE, ADAPTIVITY, AND SUSTAINABILITY?*

DEMOCRATIZATION OF FINANCE? RESILIENCE BY DESIGN?

- *BUGS IN SMART CONTRACTS*
- *HACKS*
- *CODE IS LAW*
- *IN-GROUP FIGHTING*
- *SCALABILITY*
- *REGULATION*
- *INTEROPERABILITY PROTOCOLS*
- *CROSS-CHAIN LIQUIDITY*
- *CENTRALIZATION*



ADAM SMITH WAS RIGHT,
BUT IN AN UNEXPECTED
WAY.



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