EUROPEAN CENTRAL BANK
EUROSYSTEM

Successful Standardisation needs New Thinking

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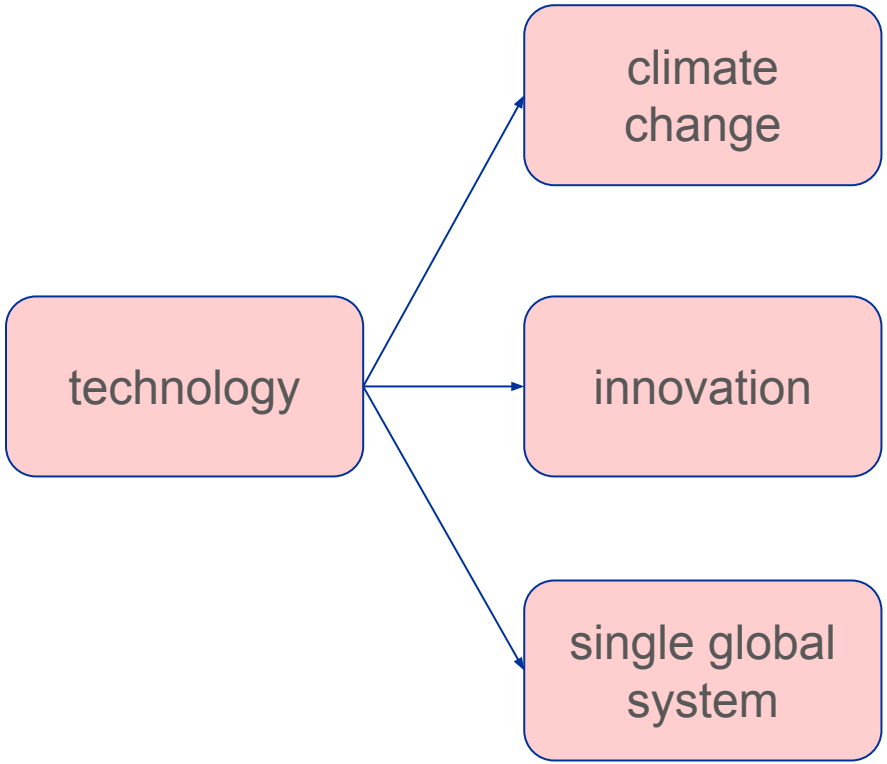
no time for comfort

Historic shifts at work in the world



urgency

hope

complexity

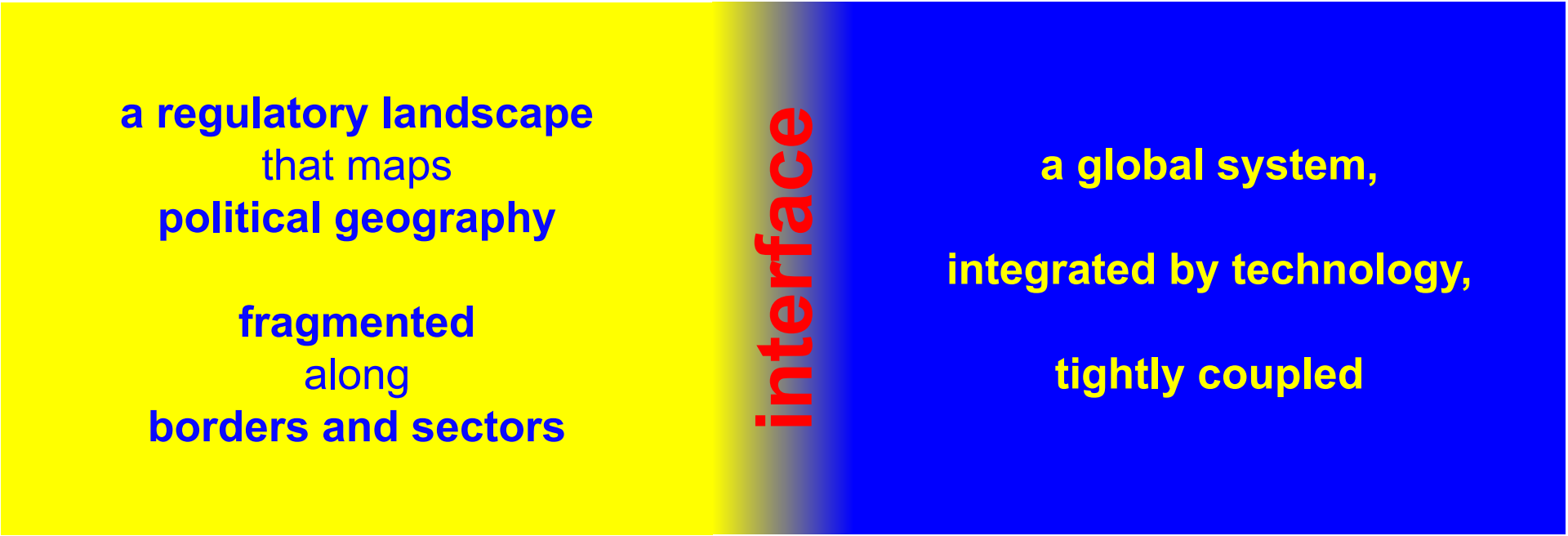
challenge

uncertainty

Historic shifts at work in the world

past	present	future
humans are dynamic in a static world	humans are static in a dynamic world	one complex adaptive system

Systemic structural mismatch, and a critical interface



both are here to stay

we must revisit the design of the interface

Systemic structural mismatch II, and another critical interface

data practices evolved from human language

remain free style, even in large systems

Coherence?

tech systems at global scale, all interconnected

demand rigorous discipline, also in (some) concepts

Standardisation rests on good will and hope, as leaders are absent:

- gentle, quasi-static drift from free-style towards some discipline
- diversity to harmonisation to standardisation: waiting for consensus

Standardisation needs a radical rethink!

A logic incompatible with the reality of a dynamic, competitive game

- cost of moving is certain
- benefits depend on consensus emerging among competitors

searching for a principle

Search for a Principle for reconciling the entire economic system into one tech-compatible vision

humans brain

small, slow

human institutions

fragmented, stable

technology

see a single, global organism,

a fast, complex adaptive system,

now with a nervous system

economy

want more, compete

environment

limits, threats

Foundational notions (1)

Economy

- an immaterial system, not accessible to our senses
- a real force; transcends political, legal, societal structures
- central to our welfare, organises human activity

Representations

- enable brain and systems to access the world outside
- enable communication among brains and systems
- brains and systems process them, create more of them
- enable brains and systems to act on the world outside
- measurement & simulations produce complex representations

Foundational notions (2)

Fact

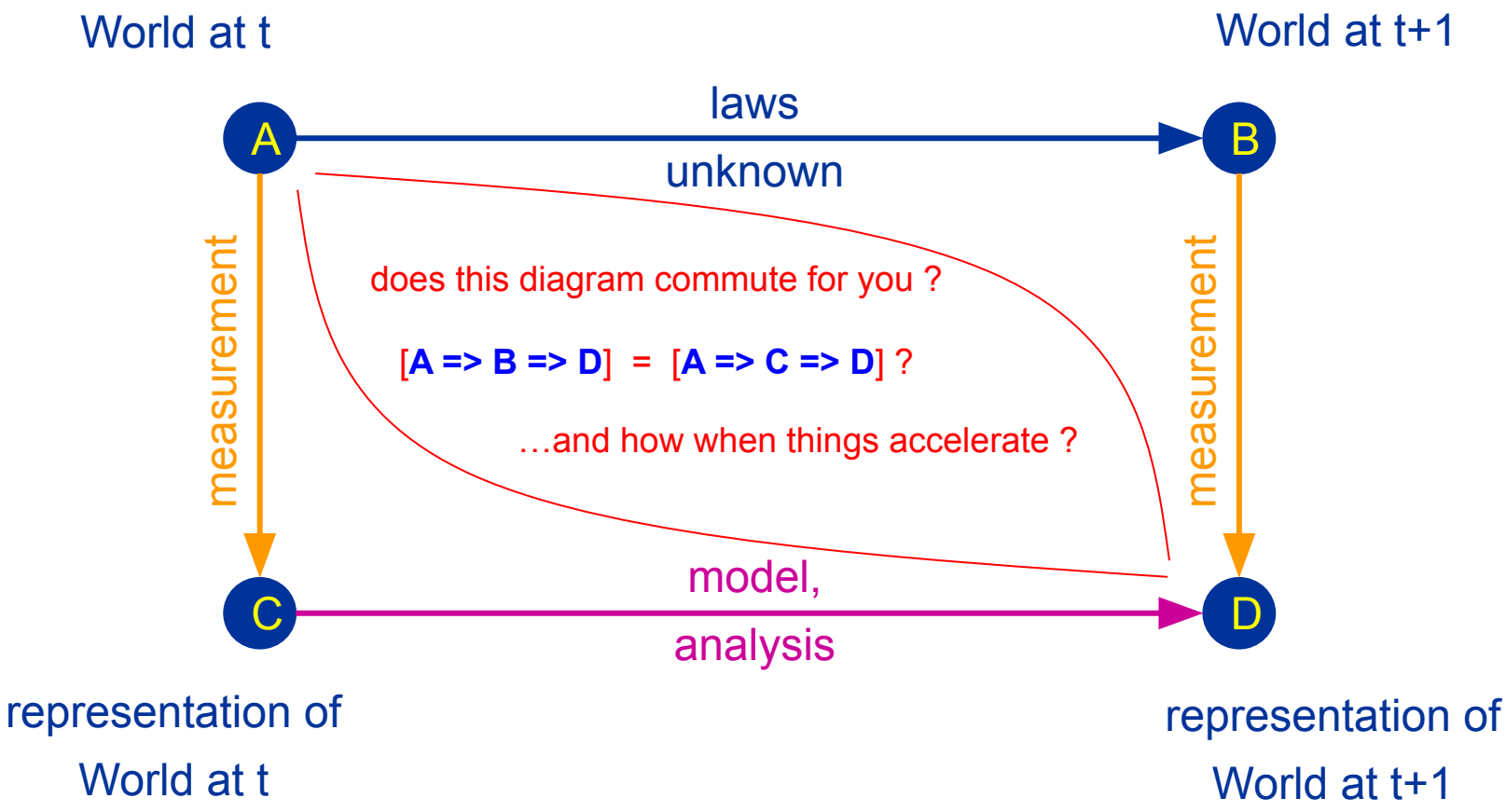
- something we all agree upon

  e.g. the “identity” of a person, established by law

- we share the same representation, perhaps

Control

- a central goal: our ability to keep the world as we like it
- we should want control by design, not by luck


World at t
World at t+1
A
B
C
D
laws
unknown
measurement
measurement
does this diagram commute for you ?
[A => B => D] = [A => C => D] ?
…and how when things accelerate ?
model,
analysis
representation of
World at t
representation of
World at t+1

The substance of the economy: can we conceive a “theory” for control in the tech age?

the complex flesh

„organic“

- emotions, psychology
- culture, religion, politics
- business, environment

the world of human activity, economic theory and analysis, competition and policy

identify and isolate a computable skeleton of the complex system

supports, enables

a simple skeleton

„mechanical“

- generated from few types of simple elements
- digital, standardisable

the world of global standards and cooperation, of systemic measurement and simulation, of sustainable digitalisation

exploring design

Specifications for effective control

"measurement – analysis – action" matches the scale, shape and speed of events:

- serves all actors, across all levels, all sub-systems
- global, real-time, nimble,
- espouses the substance of the system

A fully automated chain, from real world to analytical output – even to action

"Skeleton data" must be:

- radically standardised, globally
- available in a (logically) single, safe, global-scale, public-good infrastructure

the same data serves operations and measurement: implications for skeleton design

the skeleton must be designed to:

- serve operations and measurement alike, as well as analysis and simulation
- espouse the substance of the economic system
- represent facts of the system: things we agree upon
- serve as a grid for organising non-fact data
- fit into a (logically) single, safe, global-scale, public-good infrastructure

reporting won't go global, real-time. We need a new paradigm for measurement:

the same data serves operations and measurement

design must foresee application of the "skeleton" idea to the entire system:

an international, technical, public institution to run the infrastructure

Contracts & Parties

- both facts by law: each one is anchored in a legal system
- contracts form a network that connects parties, globally

Contracts and Parties can generate much of the economic system

- asset: a contract with the sovereign (e.g. a “title deed”)
- party: a contract with the sovereign (passport, registration)

Pando

50.000 trees on 42 hectares in Utah: a single organism.

all trees are clones.
all grow from a single underground root system.

A tree lives 100 to 130 years.
The system is thousands of years old.

The Economic System

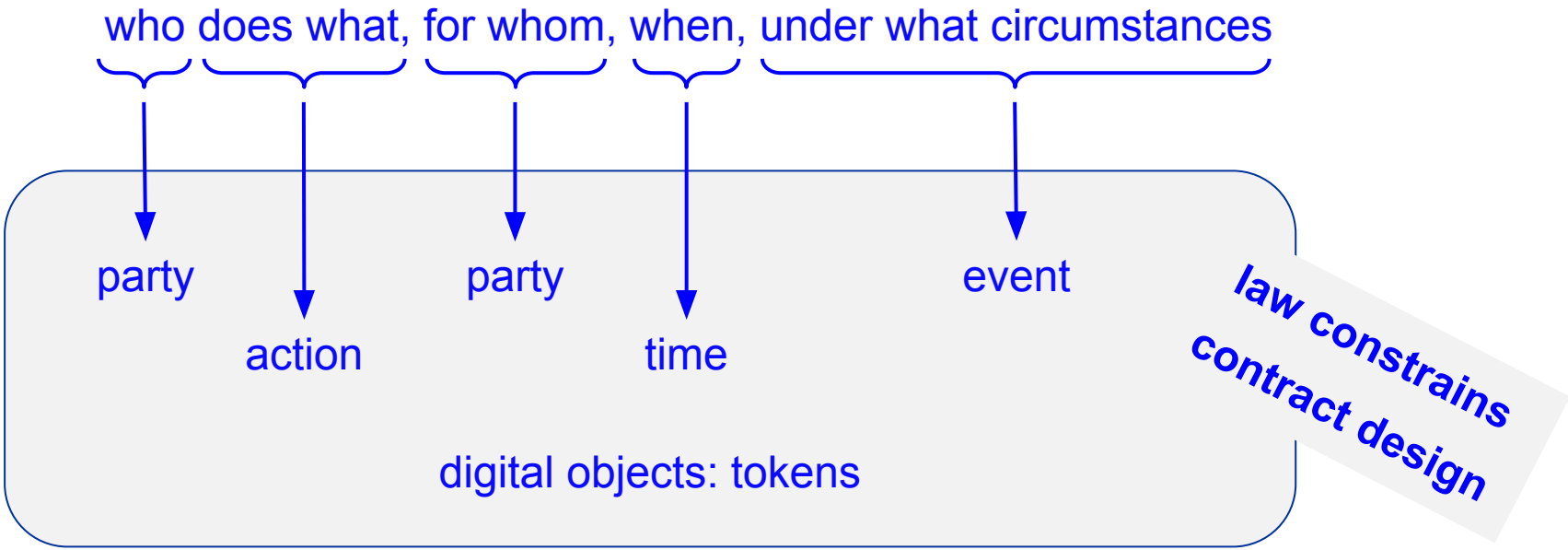
Millions of businesses on the globe: a single organism.

each business a bunch of contracts (R. Coase, 1937).
all businesses grow on a single, global network of contracts

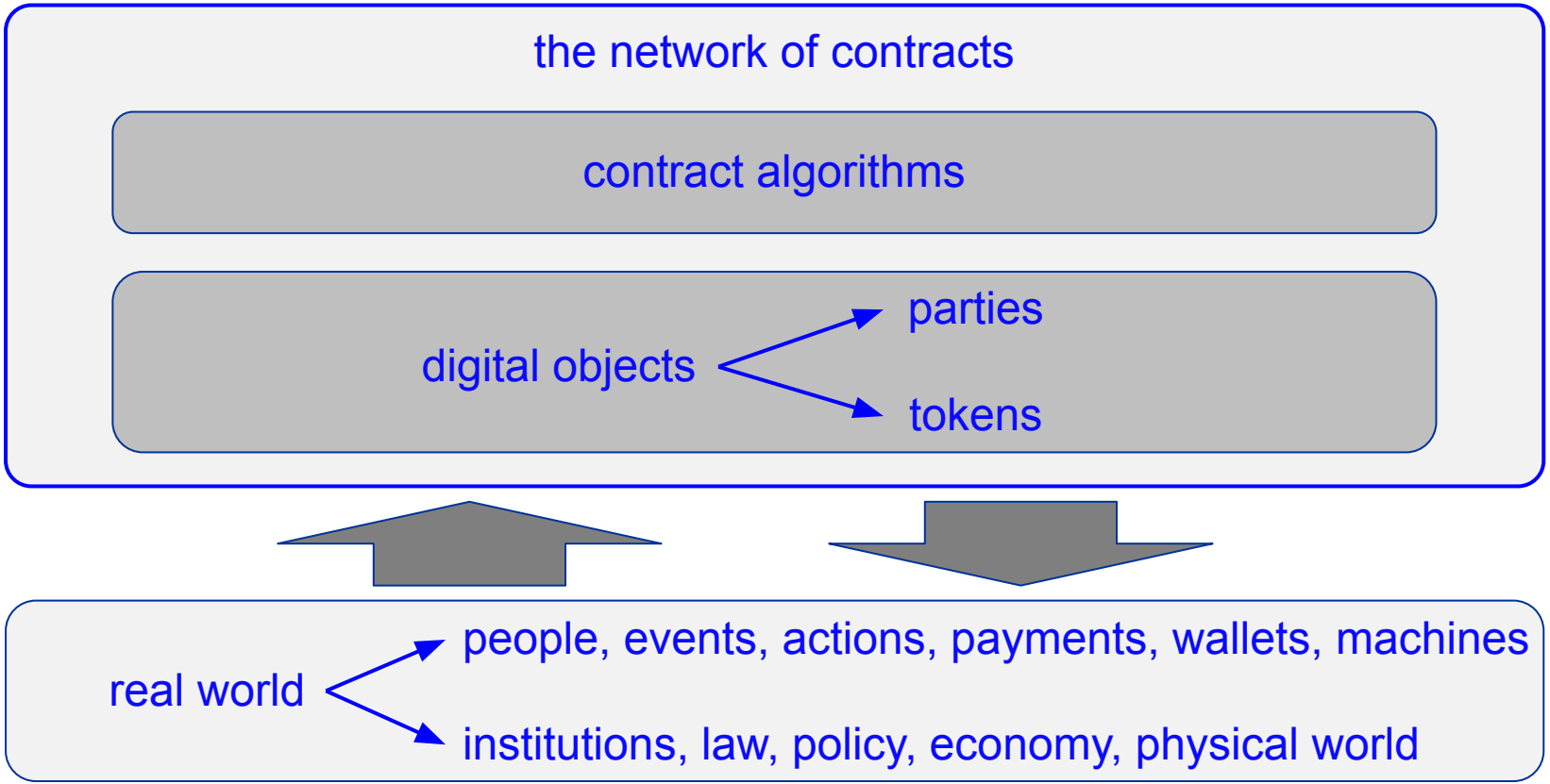
A business may fail.
The network of contracts lives on.

* Ronald Coase, the nature of the firm, 1937

a contract is an algorithm that says:



for a good start on this topic, see ACTUS (www.actusfrf.org)


the network of contracts
contract algorithms
digital objects
parties
tokens
real world
people, events, actions, payments, wallets, machines
institutions, law, policy, economy, physical world

leadership for standardisation

To think that two and two are four

And neither five nor three

The heart of man has long been sore

And long ‘tis like to be

A.E. Housman

Standardisation must become a subject of public interest

- Effective standardisation needs leadership and engaged focus, across sectors
  - raise awareness of technical realities for all to see
  - name the emperor's clothes – no applause for lip service and impotent policies
  - cooperate across big fields (e.g. environment, digitalisation)

- Standardisation of fundamental elements demands rigorous, global discipline
  - Network Cloud basics: global standards, local law, data in public infrastructure
  - other standardisation would be guided and driven by the Network Cloud

Standardisation could become a more structured process

- Standardisation would progress by category of objects, as today

- Categories of objects would be treated by relevance to sustainable digitalisation
  - relevant: global standard, mandated by law in participating countries
  - others: process as today – should be made easier by progress on N.o.C. side

- For each category of objects
  - identification first
  - representation next, thin at first, deeper as clarity and consensus progress
  - for facts by law: connect global infrastructure to official sources of truth

Some initial topics for standardisation, driven by the Network Cloud

- a general algorithmic language for all types of contracts (e.g. ACTUS)

•parties: legal entities: an LEI for all, accurate real-time, at zero fee

people: ultimately an LEI for each person

•tokens: other digital objects referenced in contracts

- actions, events to be explored – start simple, grow from there
- physical objects as referenced in actions and events in contracts

getting started

An opportunity for Academia and Philanthropy

- Economic theory needs a Nobel-prize-worthy extension
  - economy as a complex adaptive system in the tech age
  - sustainable digitalisation as technology races on
  - stability by control in the context of the systemic structural mismatch

- A rewarding subject for philanthropy
  - financing research into big new ideas
  - potential for a noteworthy legacy

A new deal offered to authorities: “want better eggs? Offer better chicken!”

What if science took a serious, honest look at the digital-age economic system’s stability?

What if industry asked regulators to build global data infrastructure?

A New Deal for Sustainable Digitalisation:

- **Authorities, together, provide global public goods** (data infrastructures and standards)
- **Industry generates more and better data, faster**, at lower burden, and builds safer tech

The system becomes measurable, sustained stability control possible

Many policy goals could be given credible technical implementation

1000s of Bns of future tech investment could become more efficient, safer and greener

The LEI: an easy first step, a test-bed, and a showcase for mutual benefits

The **Global LEI System** a shared, global, public-good, digital-age infrastructure? Give it:

- A new **business model**: automated bulk-feed of LEI from official, local sources of identity
  - zero fee for registration: eliminates the “proportionality barrier”
  - universal coverage, thanks to near-zero-cost
  - real-time accuracy, thanks to automated feed from source of official truth
- **Organisational design**: make GLEIF a public, technical institution, the seed of more
- **Legislation** that establishes the LEI as national infrastructure in countries willing

LEI: Legal Entity Identifier

Questions, comments, critiques, ideas, thoughts and suggestions gratefully welcome

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