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Achieving simplicity in transacting:
The role of contracts in our society and how we
can model the EU economy via contracts



THE OPEN TRUST FABRIC Initiative



Agenda

- Introduction
- Measuring the economy
- The role of contracts
- The data challenge
- Preliminary results

Who we are



Open Fabric for Trusted Global Trade

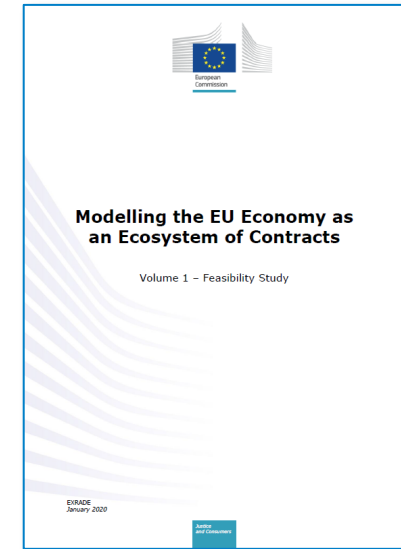
A system of transacting and relationships that is open, secure, data-minimizing and democratic!

www.opentrustfabric.org



Background to the project

- 2019 – Started **Feasibility Study**
- Sept 2019 - EU Commission Event - Brussels - interim results
- Jan 2020 - Exrade SRL published the feasibility study for the European Commission "[Modelling the European Economy as an Ecosystem of Contracts](https://op.europa.eu/s/ooU)"
- June 2020 – Started the **Methodological Study** and initiated **Open Trust Fabric Initiative**
- More details are available here: <https://opentrustfabric.org/about/>

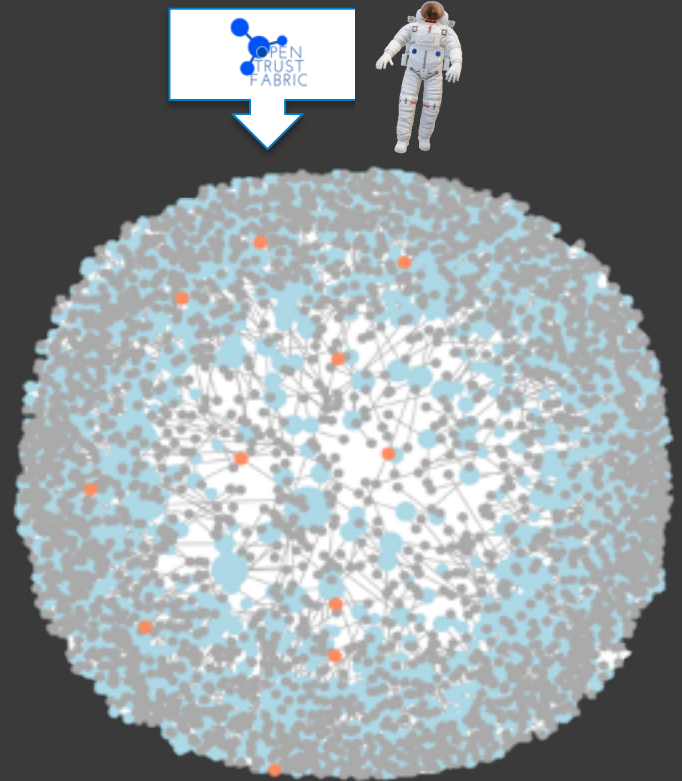


<https://op.europa.eu/s/ooU>

Reporting economies as an ecosystem of contracts

The EU Economy as an Ecosystem of Contracts

Connecting the legal and
accounting worlds



What is the issue with MEASURING the Economy ?

Past

- Static Representation
- Data reflecting standards Goods and Service trade
- Not capturing welfare gains from innovative services

New trends emerging

- WWW
- Platforms
- App Economy
- Servitisation

Present

- Dynamic Representation
- Servification and digitalisation of services
- Tokenization of Assets and resources
- New and more data types (API Traffic)

Future

- New Economic indicators
- Real time monitoring
- Better policies and impact assessment

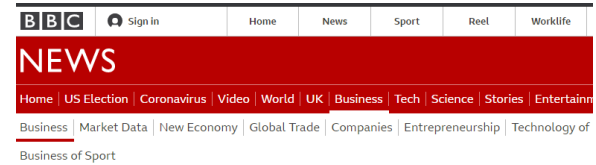
What is the issue with GDP

GDP cannot measure the non-material economy:

- Unpaid services (article writing on Wikipedia)
- Business model variance (free services in exchange for advertising)
- Quality of services (quality is not measure in prices)

Check out the Open Trust Fabric website for related insights -

<https://opentrustfabric.org/what-is-gdp>



Does GDP tell the whole economic story?

By Dharshini David

Jahreswirtschaftsbericht

11.02.2019, 16:07 Uhr

Ist das BIP noch der richtige Maßstab?

Mit dem Bruttoinlandsprodukt (BIP) messen Ökonomen die Wirtschaftskraft. Umweltschäden fließen dabei allerdings ebenso wenig ein wie die Digitalisierung. von LISA NEUBAUER

LE MONDE diplomatique

NUMERO DU MOIS ARCHIVES CARTES AUDIO MANIÈRE DE VOIR HORS-SÉRIES BLOGS À PROPOS



« L'Atlas Mondes émergents » • 2012
chapitre 1 | Fractures • pages 40, 41, 42 et 43

Le PIB, une mesure qui ne dit pas tout

Pendant des décennies, la mesure du produit i développement. Pourtant, que vaut cette hiéra quantitative, ignorant sa dimension qualitative dévasté de Detroit que dans une famille de péc réellement les indicateurs de richesse tradition



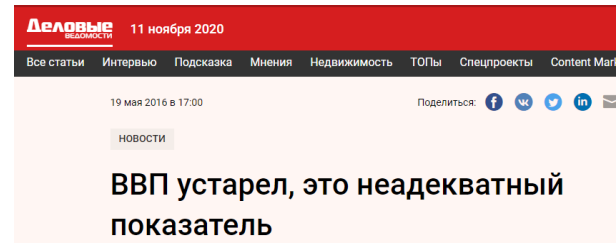
Today Weekly edition

Menu

Explaining the world, daily
The Economist

The Economist explains

Why GDP is a poor measure of progress



INDEPENDENT PREMIUM

When measuring the economy, numbers are no longer good enough

Many of the yardsticks we use to assess economic performance today are outdated relics of the past, which is why GDP is a useless barometer for Britain.

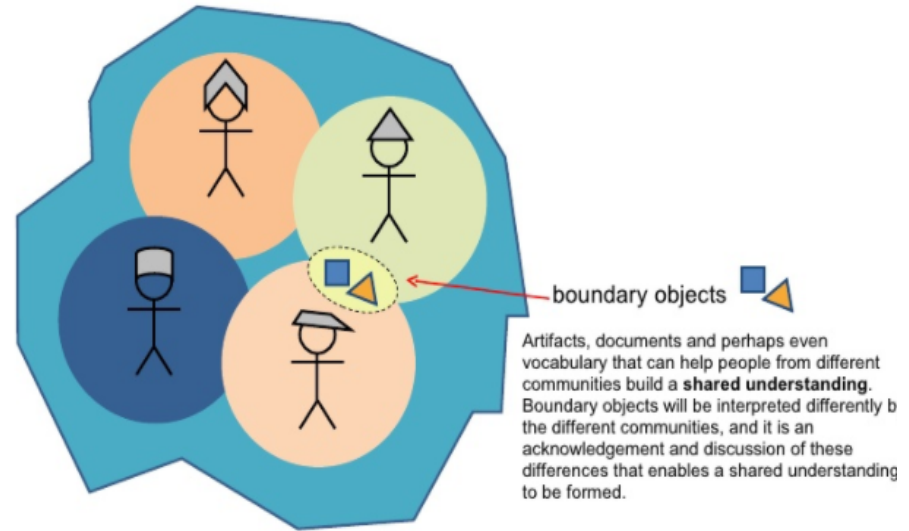
Contracts are “Boundary Objects”

“A boundary object is any object that is part of multiple social worlds and facilitates communication between them.”

Susan Leigh Star and James Griesemer 1989

"Contracts are becoming boundary objects between domains and offer a **rich modelling framework to cluster and analyse transactional data and events and extract expectations and intangible “meaning” from peer-to-peer relations.**"

EU Commission Study, Luigi Telesca 2019



Distributed Intelligence: From Reflective Practitioners to Reflective Communities, Gerhard Fischer. Center for LifeLong Learning & Design (L3D) Department of Computer Science and Institute of Cognitive Science, University of Colorado, Boulder, <http://l3d.cs.colorado.edu/~gerhard/>, may 2005.

About Contracts and their Economic role

"...“contracts” are foundational artefacts for the structuring and organisation of our world..." (Nobel Prize Awarding Committee)

"...contracts are tools that are capable of enhancing cooperation among parties - boundary objects favoring cooperation across divisions, functions and hierarchies and tools offering better monitoring frameworks..."

"Contract economics is about understanding the cost of contract creation, the financial impacts of risk allocation and acceptance, managing the operational costs associated with contract performance, identifying friction points throughout the contract lifecycle and tackling the sources of contract value erosion."

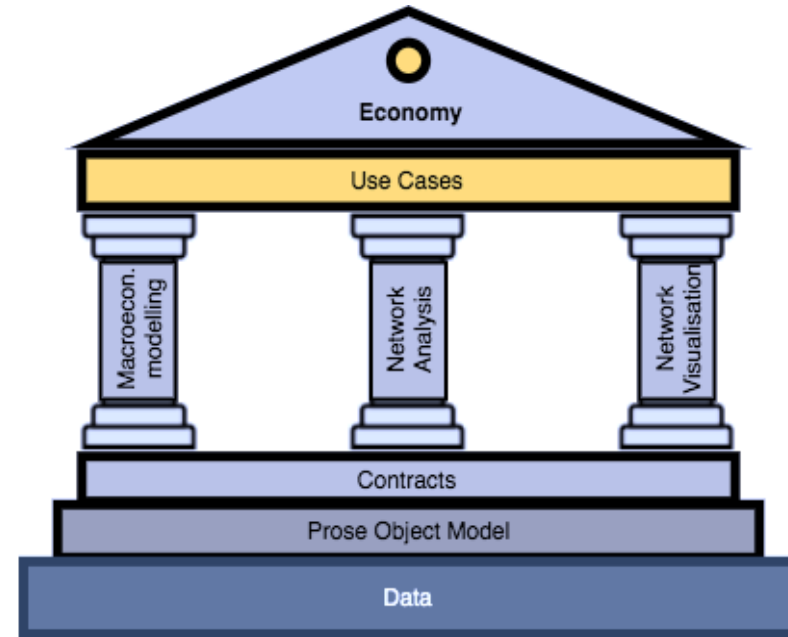
<https://www.worldcc.com/Resources/Content-Hub/View/ArticleId/10006/Faster-Contracts-Better-Contracts>

Contracts “should” matter

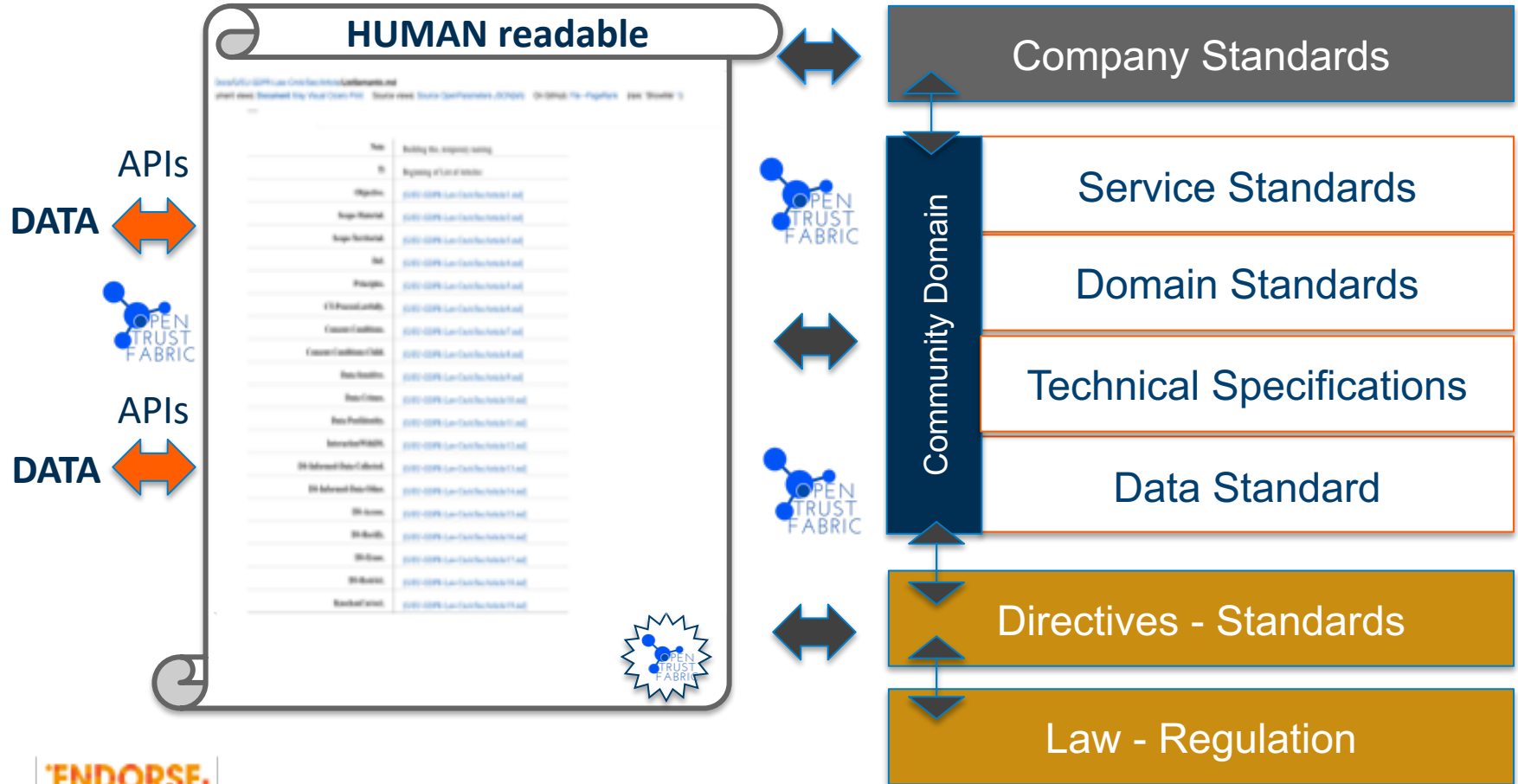
Contracts can offer a cohesive and consistent view of the economy, including a dynamic visual representation of the economy that facilitates better decision making (Basole et al. 2015) and prepares regulators to better tackle global systemic crises.

Globally, all economies are now connected and inter-dependent because of the massive usage of Information and Communication Technologies (ICT) and digital infrastructure (Tilson, Lyytinen & Sørensen 2010; de Reuver, Sørensen & Basole, 2018).

A shock can propagate faster and further, influence global trade and impact our lives in ways that are unprecedented.



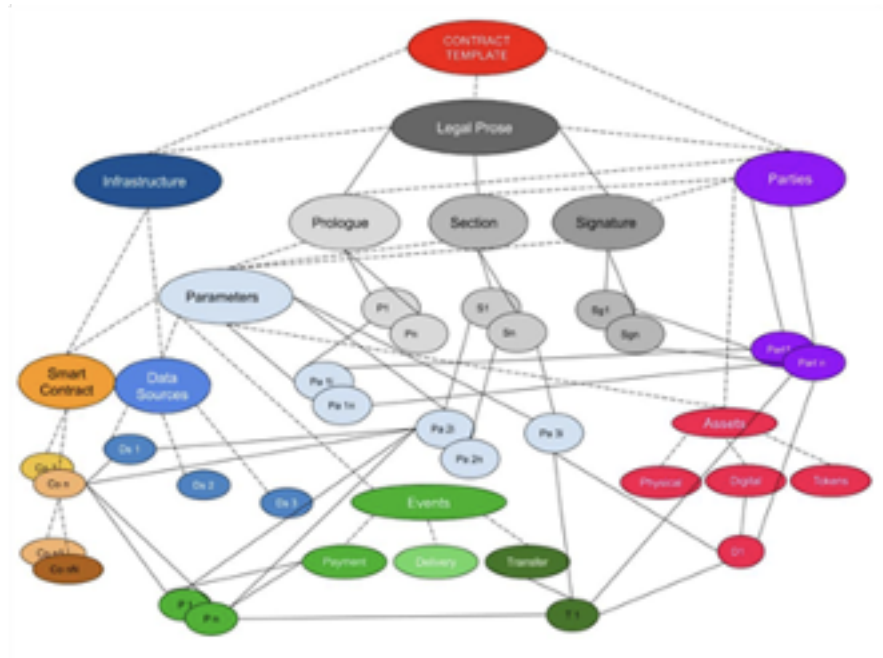
The Role of Contracts, Data and Standards



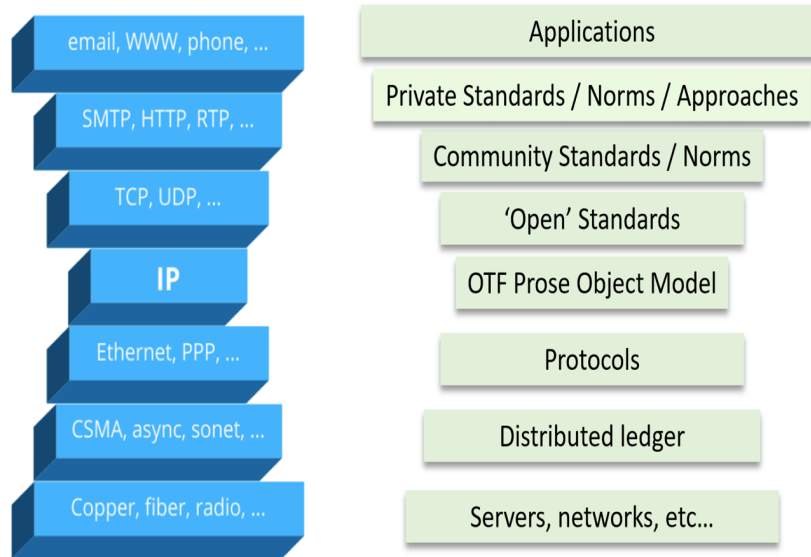
Each Contract can be represented by a Prose Object graph performing in an ecosystem

... where contracts are a blend of:

- **Prose** – **human readable** but including the use of standards and visualization to simplify and allow for efficiency in production, understanding, and delivery
- **Metadata** – for ease of measurement of performance – both process efficiency and outcomes
- **Code** – to enable automation of appropriate activities



The OTF Stack



For the 'Internet Stack,' the IP protocol played a **pivotal role** in the scaling and diffusion of the internet, becoming the key interoperable protocol at the heart of it.

For the contract world, the OTF Prose Object Model can be the equivalent "**generative**" layer.

Ecosystem Representation using Contract data

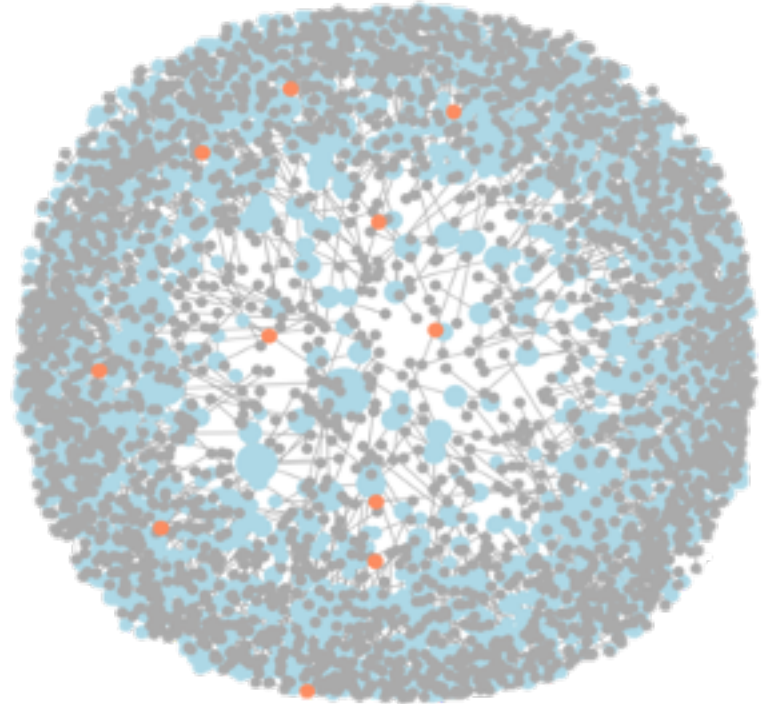
In the graph we can identify:

Nodes: Actors and actants as in Actor-Network Theory.

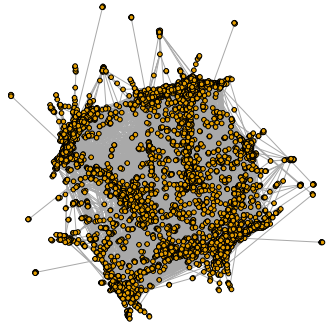
Edges: Reviews representing Contracts (and anything related, e.g. transactions).

Edge weight: Intensity of transactions (e.g., money exchanged).

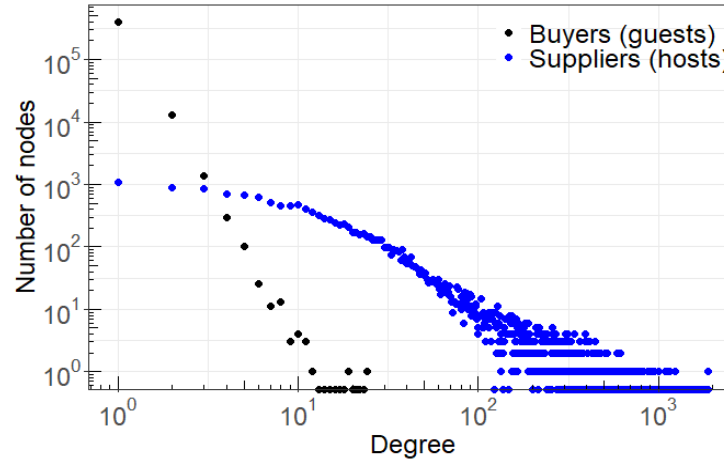
Edge direction: the type or relation and information flow (symmetrical, asymmetrical, indirect, direct)



Modelling the economy as an ecosystem of contracts



e.g. supply chain network
(procurement contracts), AirBnB
(tenancy contracts)



Most ecosystems of contracts have very unequal distribution of economic benefits

Economic benefit

?

Policy parameter
(e.g. tax rate)

Data

Collect data on several ecosystems of contracts

Analysis

Analyze the data to find common properties

Model

Develop a theoretical model that matches the data

Policy

Use the model for in-silico experiments

The OTF Taxonomy

Why GitHub? Team Enterprise Explore Marketplace Pricing Search Sign in Sign up

OpenTrustFabric / OTF-Ontology Watch 1 Star 0 Fork 0

<> Code Open Trust Fa... OpenTru... Projects Security Insights

1 repository 0 members

Go to file Code

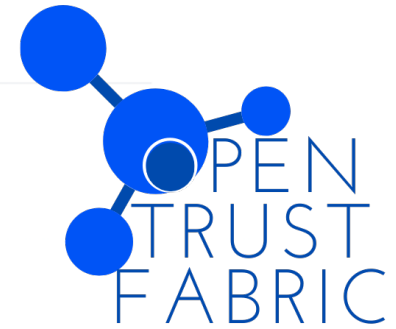
jamesghazard Adding png OTF-Graph 721f910 on Dec 18, 2020 8 commits

Asset	Initial set of categories - with README.md stubs	3 months ago
Event	Model -> Event	3 months ago
Geo	Initial set of categories - with README.md stubs	3 months ago
Person	Add reference to EU Commission /Person/Entity/LEI-ISO.md	3 months ago
Time	Initial set of categories - with README.md stubs	3 months ago
Tool	Add /Model/Sec/ - change /Model/Doc/ to /Model/Form/	3 months ago
.gitignore	Initial set of categories - with README.md stubs	3 months ago
LICENSE	Initial set of categories - with README.md stubs	3 months ago
OTF-Graph.png	Adding png OTF-Graph	last month
README.md	Initial set of categories - with README.md stubs	3 months ago

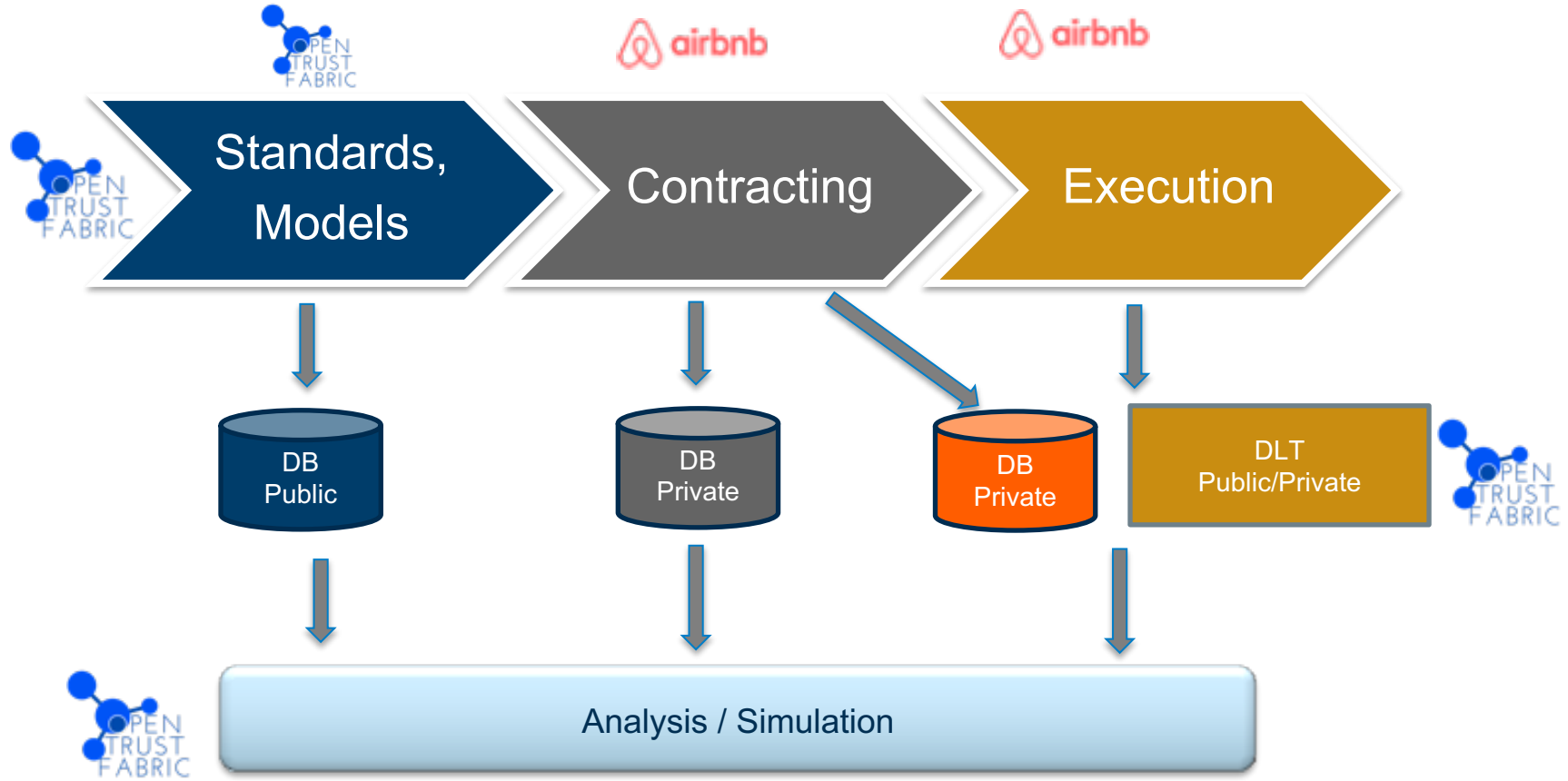
About
Crowd-sourcing a comprehensive ontology for digitally modeling an economy as an ecosystem of contracts (graph).
Readme
CC0-1.0 License

Releases
No releases published

Packages
No packages published



Contract Data Collection

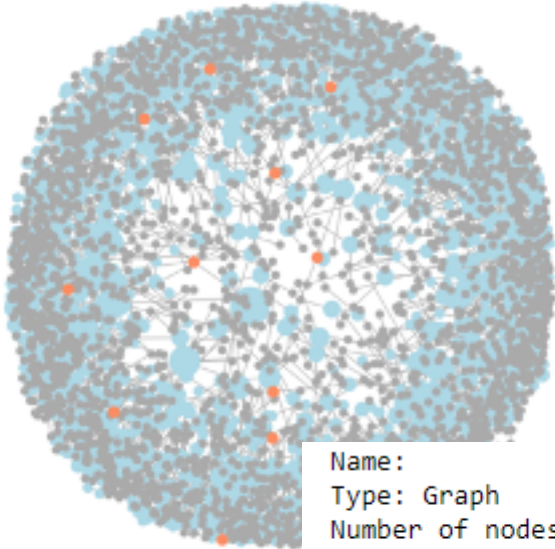


Example – AirBnB Case Study before and after the shock

Analysed  data for **Amsterdam city** before and after **Covid-19**

Pre-Pandemic

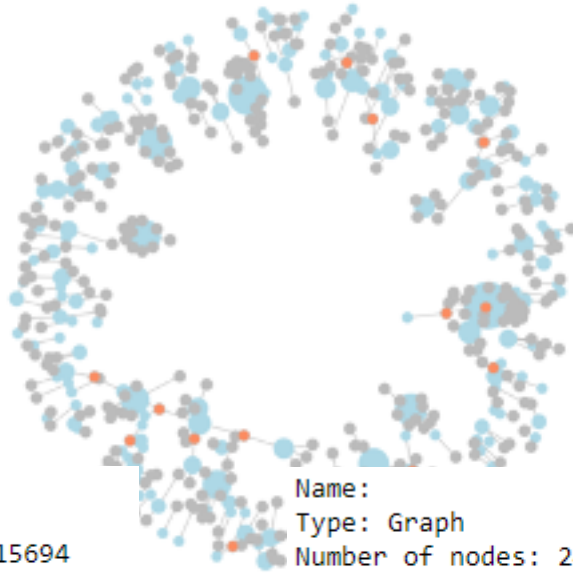
B&B Amsterdam



Name:
Type: Graph
Number of nodes: 15694
Number of edges: 11946
Average degree: 1.5224

Post-Pandemic

B&B Amsterdam



Name:
Type: Graph
Number of nodes: 247
Number of edges: 157
Average degree: 1.2713

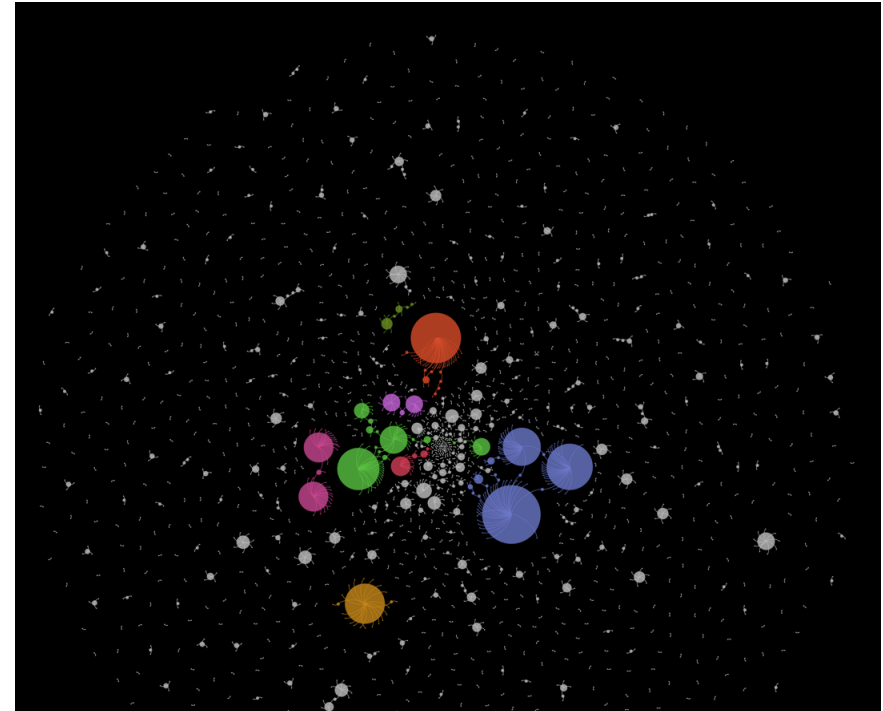
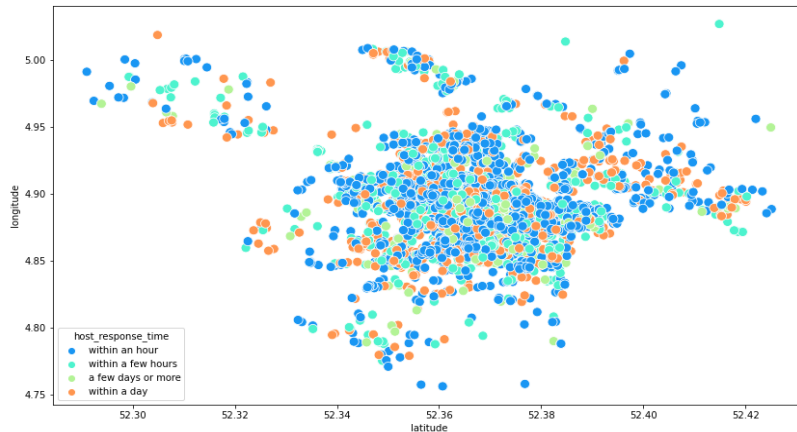
Dots = individual listings
Connections = individual
Reviews/Contracts.

Data source:  **Inside Airbnb**
Adding data to the debate

Example – AirBnB Case Study after the shock on 7 cities

Network on host and reviewers in 7 major
European capitals Post-covid

The preliminary analysis provided additional
insights. For example, we considered the
geographical location of companies divided by
response time.



Name:
Type: Graph
Number of nodes: 4668
Number of edges: 2945
Average degree: 1.2618



	<u>Revenue</u>	<u>Mkt Cap./Value</u>
Airbnb	~\$5Bn	\$120Bn* ¹



Expedia	~\$12Bn	\$20Bn* ¹
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cottages.com	~\$0.14Bn* ²	\$1.3Bn* ³
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Earlier research, focusing on managerial aspects (Sveiby, 1997), distinguished between three types of intangible assets (Telesca & Hazard 2019):

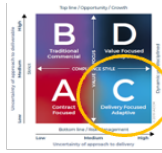
- Individual competences
- Internal Structure (assets and resources such as patents, databases)
- External Structure (relations, partners, networks of suppliers and clients).

*¹ Based on Feb 2021 data

*² 2019 revenue of parent company Awaze Vacation Rentals Ltd

*³ Based on reported sale price in 2018

Discovering the "intangible side of the economy" via Contracts



Note: Value is not solely the financial value of the contract but can include societal values as agreed between the parties

Standard Clause Groups

Mapping

Other community & open standards

Mapping

Other private standards

Mapping

Information architectures

Mapping

Level of digitisation

Mapping

Nature of Regulation

Mapping

Other

Mapping

OTF Repository

Relational Indicators



The 9 Principles of Relational Contracting

+ Other relational indicators

'Connectedness' Indicators

Relational Coefficient Ω

Traditional / Arms Length 1

Relational Contract Ω

Relational Ecosystem Ω^n

Connectedness Coefficient λ

'Traditional' - Bi-lateral Non-digital 1

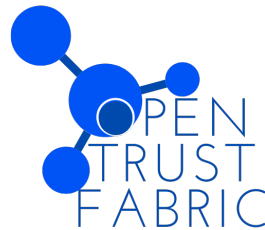
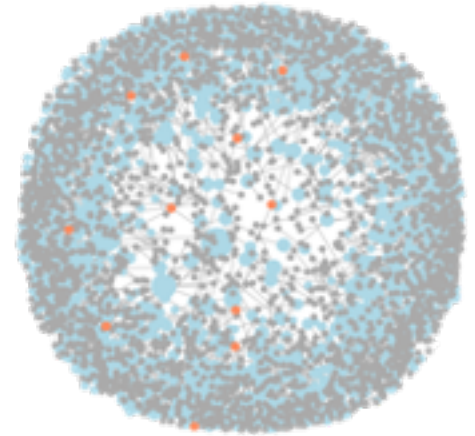
Internal platform λ

'Multi sided' Platform λ^n

Ecosystem λ^m

Adjusted Contract Value

Contract value $\times \Omega \times \lambda$



It's time to join forces – Looking to partner

Support OTF research

Survey



OTF Data Standard

Modelling the Economy as an Ecosystem of Contracts

We are conducting this survey as part of the EU Commission Study "Modelling the EU Economy as an ecosystem of contracts". We would like to understand more about the use and impact of "standards" in the contracting process. "Standards" may refer to industry or sector specific standards, cross-sector contracting standards, internal company standards, counter-party standards, local, national or supra-national standards. In the questions below we have provided some examples to support your understanding of what we are looking for and to help you answer the question as accurately as possible.

This survey should take you no more than 5 minutes to complete.
By completing this survey, you agree to the information being sent to and processed by OpenTrust Fabric (OTF). OTF is a consortium made up of WorldCC, Trakti, Macrocism, Infocamere, Extrade and Common Accord and the overall initiative is sponsored by the European Commission, Directorate-General of Justice. This information will be stored and processed by OTF purely for research purposes and will not be sent to any other third party.

Standard Templates

Data Sources

Contribute in OTF (individuals)

Workgroups

- Standardisation
- Modelling
- Technology
- Analysis
- Economics



Support the OTF

Collaborate as Partner

- Governments
- Non-Profits
- Standardisation Bodies
- Enterprises
- Tech Companies
- Data Providers

Thank you and please get in touch

On social media

Follow us for regular updates on the project!



www.linkedin.com/company/open-trust-fabric/

<https://twitter.com/OpenTrustFabric>



For more information, please contact: info@opentrustfabric.org

Find out more on our website: <https://opentrustfabric.org>

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