



Long Finance & Distributed Futures



An open source research programme for Smart Ledgers and new technologies

To Be, To Have, To Know Smart Ledgers & Identity Authentication

Report Launch – Tuesday, February 12
London

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<http://www.distributedfutures.net>



@LongFinance (#DistributedFutures)

Smart Ledgers & Identity Authentication

Welcome!



Professor Michael Mainelli
Executive Chairman, Z/Yen Group



Sponsored By



The Z/yen Group





Agenda

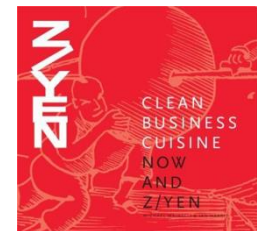
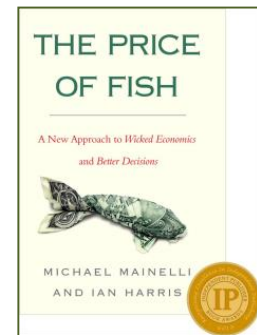
- | | |
|---------------|--|
| 08:45 – 09:00 | Registration |
| 09:00 – 09:25 | Welcome and Introduction
<i>Michael Mainelli, Executive Chairman, Z/Yen Group</i> |
| 09:25 – 10:00 | “Smart Ledgers & Identity Authentication” Report Walkthrough
<i>Hugh Morris, CEO ChainZy</i> |
| 10:00 – 10:40 | Panel Discussion and Questions |
| 10.40 – 10:45 | Summary |
| 10:45 | Formal Close |



Z/Yen



- ◆ Special – City of London’s leading commercial think-tank, established 1994
- ◆ Services – projects, strategy, expertise on demand, coaching, research, analytics, modern systems
- ◆ Sectors – technology, finance, voluntary, professional services, outsourcing
 - Independent Publisher Book Awards Finance, Investment & Economics Gold Prize 2012 for ***The Price of Fish***
 - British Computer Society **IT Director of the Year** 2004 for PropheZy and VizZy
 - DTI **Smart Award** 2003 for PropheZy
 - *Sunday Times* Book of the Week, ***Clean Business Cuisine***
 - £1.9M **Foresight Challenge Award** for Financial Laboratory visualising financial risk 1997





Established 2004

**Networking, debates and
speakers you don't usually
meet elsewhere**

Chatham House Rule

**www.thefinanser.com/
www.fsclub.net**

Distributed Futures Programme



We work in partnership with many stakeholders to learn together and build the vital infrastructure needed to make Smart Ledgers a success.

Our research is structured around four themes:

- ◆ Society
- ◆ Technology
- ◆ Economics
- ◆ Politics

And is directed at four outcomes:

- ◆ Expanding frontiers
- ◆ Changing systems
- ◆ Delivering services
- ◆ Building communities

www.distributedfutures.net

Distributed Futures Research

Responsibility Without Power?
The Governance Of Multi- Distributed Ledgers (aka Blockchains)




Useful Links: [Blockchain Structure](#), [Blockchain Governance](#), [Blockchain Security](#)

November 2016

CARDANO FOUNDATION




Liquidity Or Leakage?
Planning Problems With Cryptocurrencies




March 2016

CARDANO FOUNDATION





The Missing Links In The Chains?
Mutual Distributed Ledger (aka Blockchain) Standards



November 2016

CARDANO FOUNDATION

Cyber-Catastrophe Insurance - Better Securities On Smart Ledgers



November 2016

CARDANO FOUNDATION



Get Smart About Scandinavia's Past Lessons For Future Finance




March 2016

CARDANO FOUNDATION






Pensions and Distributed Ledgers

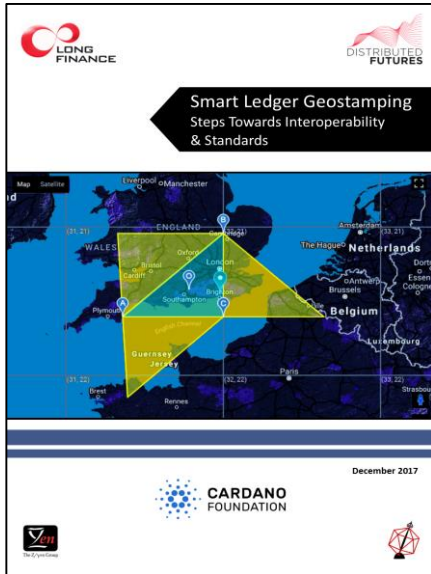


April 2016

CARDANO FOUNDATION



Distributed Futures Research



Smart Ledger Geostamping
Steps Towards Interoperability & Standards

December 2017

CARDANO FOUNDATION



The Economic Impact Of Smart Ledgers On World Trade

April 2018

CARDANO FOUNDATION



The Quantum Countdown
Quantum Computing And The Future Of Smart Ledger Transactions

February 2018

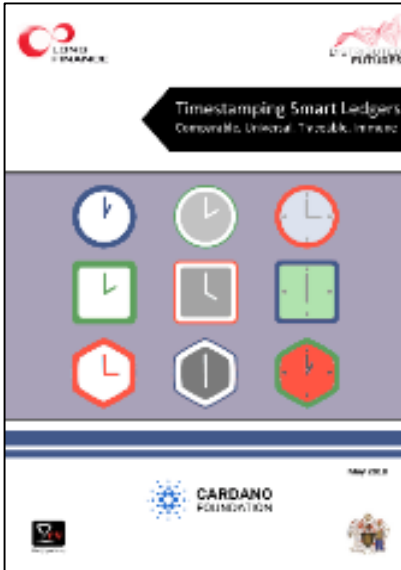
CARDANO FOUNDATION



Smart Junctions Index

September 2018

CARDANO FOUNDATION



Timestamping Smart Ledgers
Cosmos, Utxo, Trickle, Immuo

May 2018

CARDANO FOUNDATION



The Road to Resilient, Auditable & DeFi-ized Payments

September 2018

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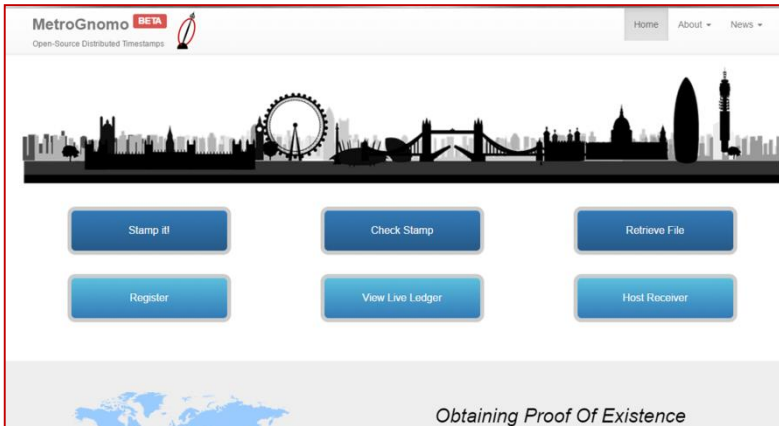
Terminology Evolving

- ◆ **ledger** – a record of transactions
- ◆ **distributed** – divided among several or many, in multiple locations
- ◆ **mutual** – shared in common, or owned by a community
- ◆ **mutual distributed ledger (MDL)** - a record of transactions shared in common and stored in multiple locations
- ◆ **mutual distributed ledger technology** – a technology that provides an immutable record of transactions shared in common and stored in multiple locations
- ◆ **blockchain** - “a transaction database shared by all nodes participating in a system based on the Bitcoin protocol”
- ◆ **smart ledger** – MDL with embedded, executable code



Smart Ledgers Hold Immense Promise

Financial Instruments, Records, Models		Public Records		Private, Semi-Private/Semi-Public		Physical Keys, Intellectual Property, Other Records	
Currencies	Derivatives	Land & Property Titles	Vehicle Registries	Contracts	ID	Home Key	Hotel Key
Commodities	Insurance Policies	Shipping Registries	Satellite Registries	Signature	Will	Office Key	Car Key
Trading Records	Private and Public Equities	Business License	Business Ownership Records	Trust	Escrow	Deposit Box Key	Mail Box Key
Certificates of Deposit	Bonds	Incorporation / Dissolution Records	Regulatory Records	Other Classifiable Data	High School / University Degrees	Internet Of Things	Copyrights & Patents
Voting Rights (Financial Services)	Credit Data	Criminal Records	Passport	Professional Qualifications	Certifications	Licenses	Digital Rights Management
Collateral Management	Client Monies Segregation	Birth / Death Certificates	Voting ID	Human Resources Records	Medical Records	Trademarks	Proof Of Authenticity / Authorship
Mortgage / Loan Records	Crowd-Funding	Health & Safety Inspections	Tax Returns	Accounting Records	Business Transaction Records	Cultural Events	Historical Events
P2P Lending	Microfinance	Building & Other Types Of Permits	Court Records	Locational Data	Genome & DNA	Documentaries	Big Data
Account Portability	Airmiles / Corporate Tokens	Government / Listed Companies	Accounts & Annual Reports	Arbitration	Genealogy Trees	SIM Cards	Archives

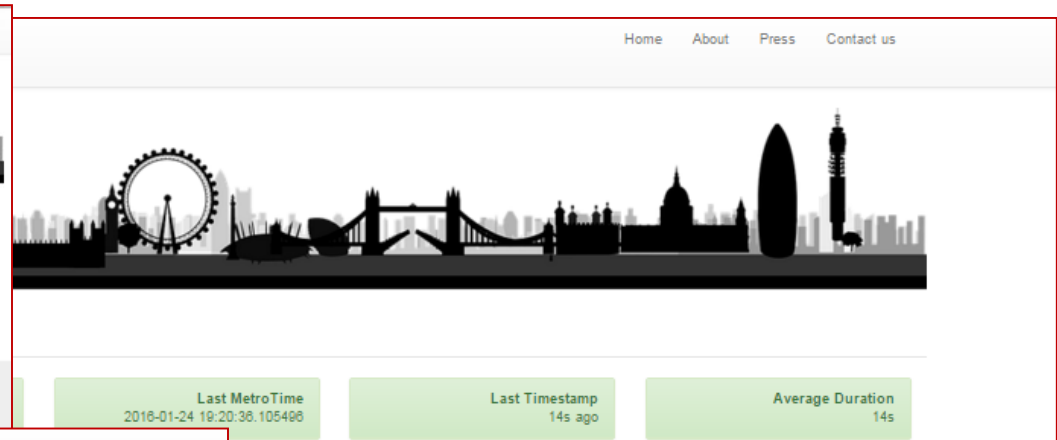



MetroGnomo BETA
Open-Source Distributed Timestamps

Home About News

Stamp it! Check Stamp Retrieve File Register View Live Ledger Host Receiver

Obtaining Proof Of Existence

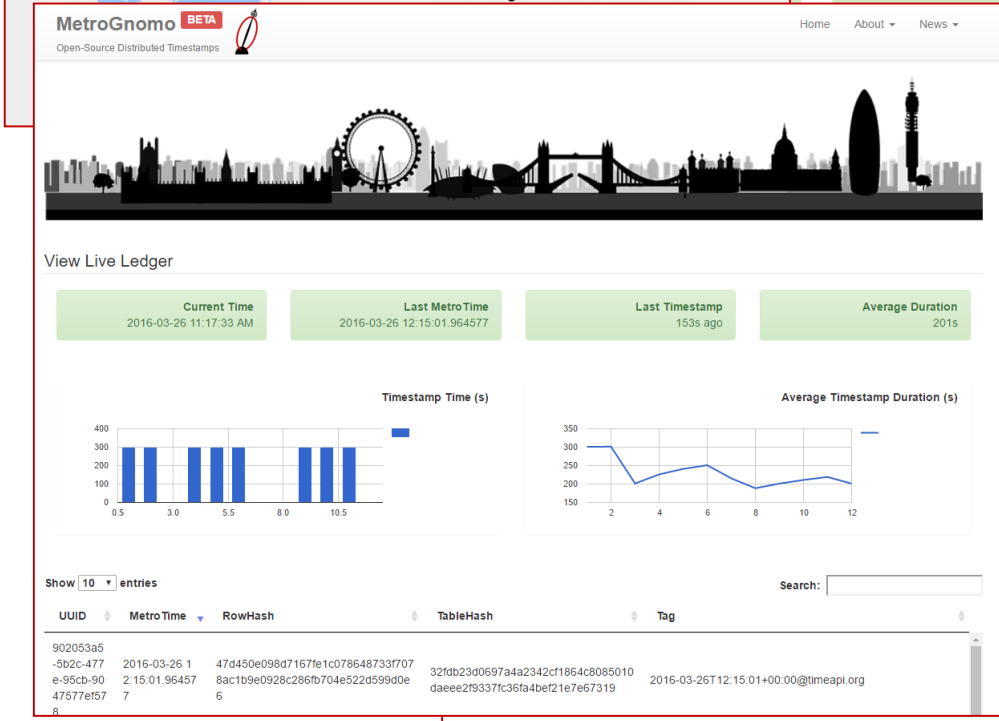


Home About Press Contact us

Last Metro Time
2016-01-24 19:20:36.105496

Last Timestamp
14s ago

Average Duration
14s



MetroGnomo BETA
Open-Source Distributed Timestamps

Home About News

View Live Ledger

Current Time
2016-03-26 11:17:33 AM

Last Metro Time
2016-03-26 12:15:01.964577

Last Timestamp
153s ago

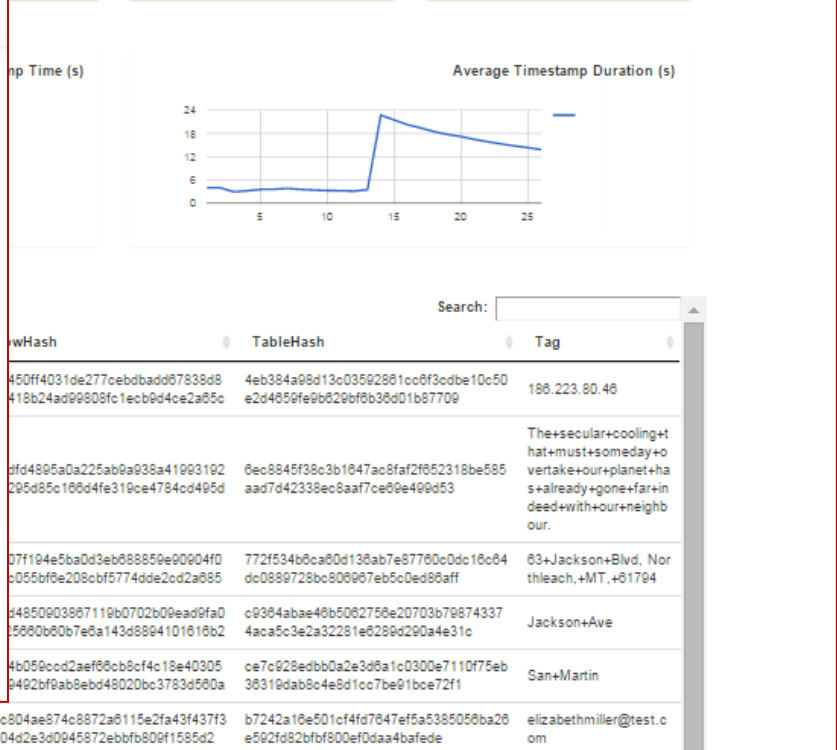
Average Duration
201s

Timestamp Time (s)

Average Timestamp Duration (s)

Show 10 entries

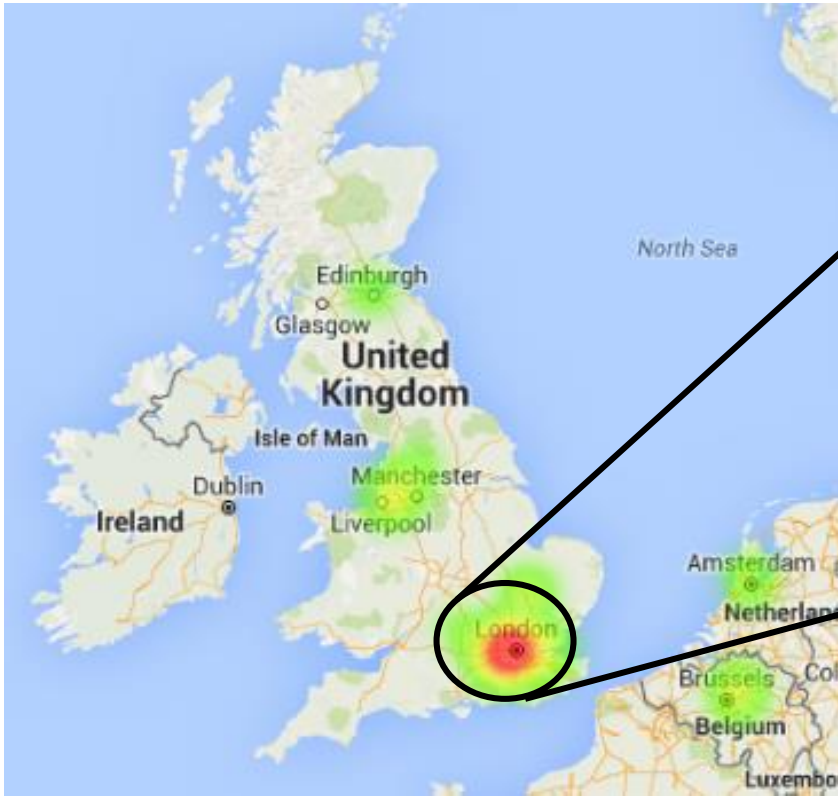
UUID	Metro Time	RowHash	TableHash	Tag
902053a5	2016-03-26 1	47d450e098d71671e1c078648733707	32fdb23d0697a4a2342cf1864c9085010	2016-03-26T12:15:01+00:00@tmeapi.org
-5b2c-477	2:15:01.96457	8ac1b9e0928c286fb704e522d599d0e	daee2f9337fc36fa4bef21e7e67319	
e-95cb-90	7	6		
47577ef57				



Search:

RowHash	TableHash	Tag
450ff4031de277cebdabd07838d8 418b24ad998093fc1ecb9d4ce2a85c	4eb384a98d13c03592881cc0f3cdbe10c50 e2d4659fe9b629bfb36d01b97709	186.223.80.46
df44895a0a225ab9a938a41993192 2650b00b7e6a143d8894101810b2	6ec8845f38c3b1647ac8faf2f652318be585 aad7d42338ec8aaf7ce09e490d53	The+seular+cooling+hat+must+someday+overtake+our+planet+has+already+gone+far+in+deed+with+our+neighbor.
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64850903867119b0702b09ead9fa0 5880b00b7e6a143d8894101810b2	c9364abae46b5062756e20703b79874337 4aca5c3e2a32281e6289d290a4e31c	Jackson+Ave
4b05eccd2aef68cbcf4c18e40305 9492bf9ab8ebd48020bc3783d580a	ce7c928eddb0a2e3d6a1c0300e7110f75eb 38319dab8c4e8d1cc7be91bce72f1	San+Martin
0185e888-4a74-49fb-8c0 c-cb55cc4f417f	2016-01-24 19:20:26.909764	
cbc804ae874c8872a6115e2fa43f437f3 d404d2e3d0945872ebfb809f1585d2	b7242a18e501cf4fd7647ef5a5385058ba28 e592fd82bfb800ef0daa4bafade	elizabethmiller@test.com

Application: Clinical Trials

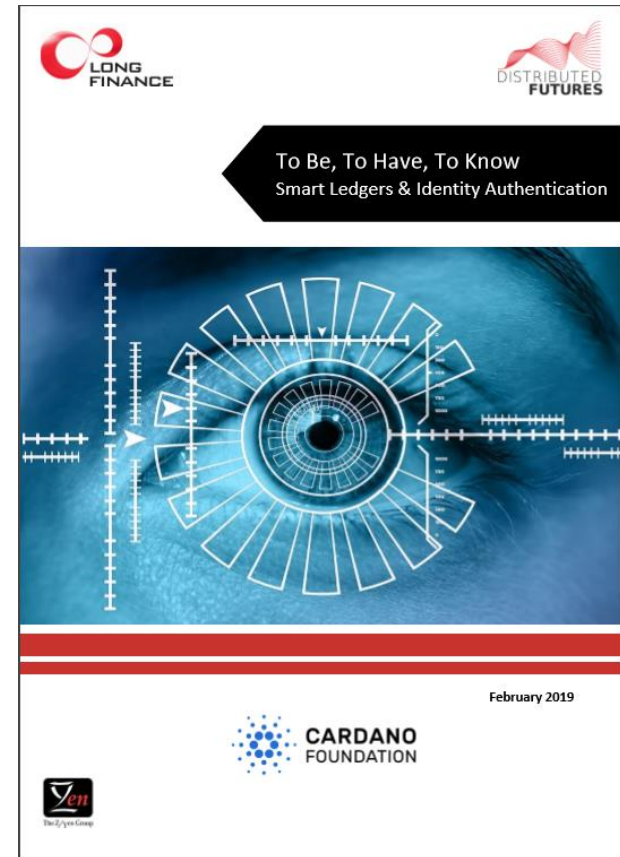


Report Walkthrough

To Be, To Have, To Know Smart Ledgers & Identity Authentication



Hugh Morris
ChainZy CEO





Smart Ledgers & Identity Authentication

- ◆ **Introduction** – what kind of world do we want for identity?
- ◆ **Synchronic Identity**
- ◆ **Diachronic Identity**
- ◆ **Identity Management And Authentication**
- ◆ **Monopolies** – and their drawbacks
- ◆ **Commercial / State Multiplicity**
- ◆ **Considerations**
- ◆ **Conclusions**

Classes of Identity

◆ Individuals

- People

◆ Entities

- Companies, partnerships etc.
- Sports teams
- Governmental organisations

◆ Places

- Towns, cities
- Property, land

◆ Animals

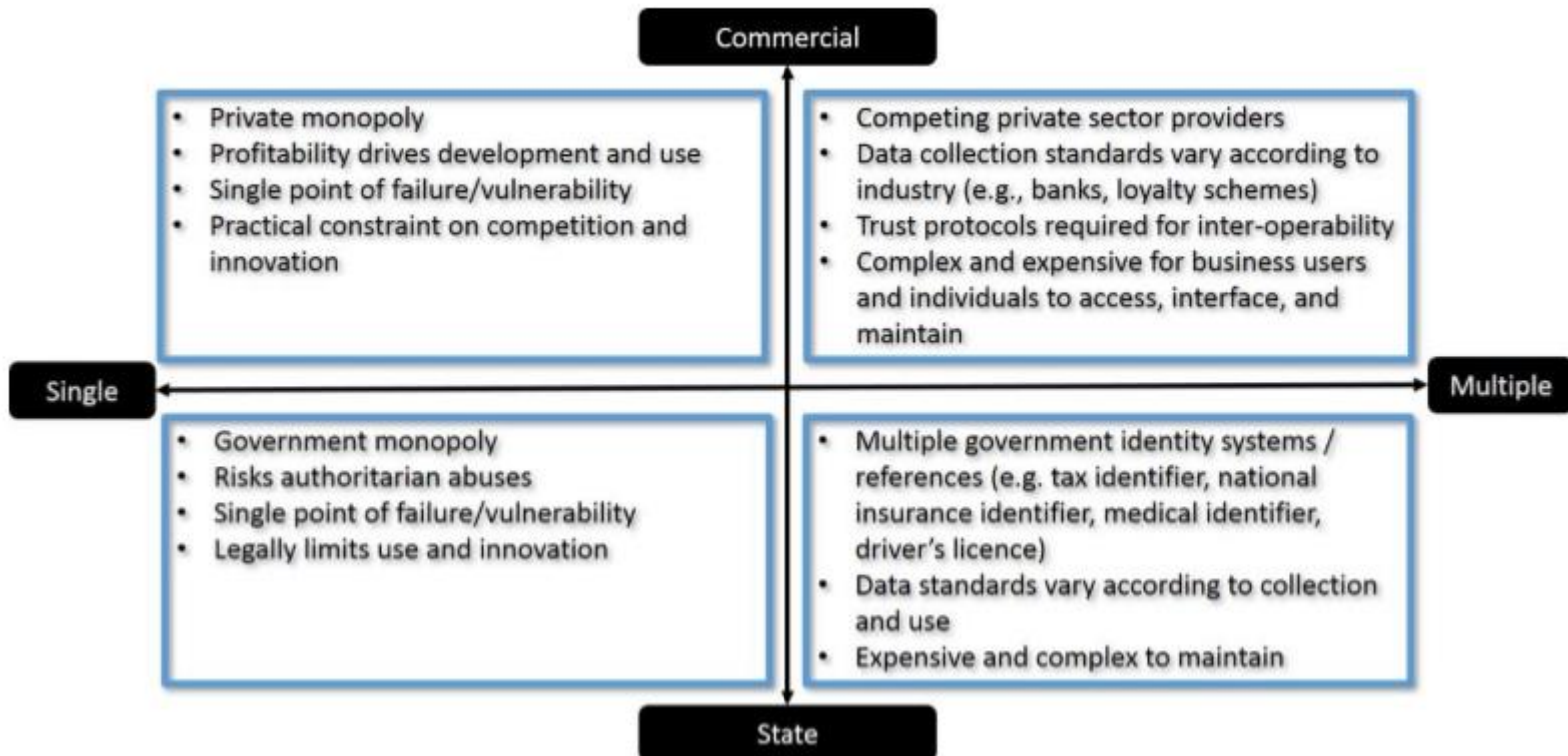
- As creatures
- The food chain

◆ Objects

- Single
- Compound

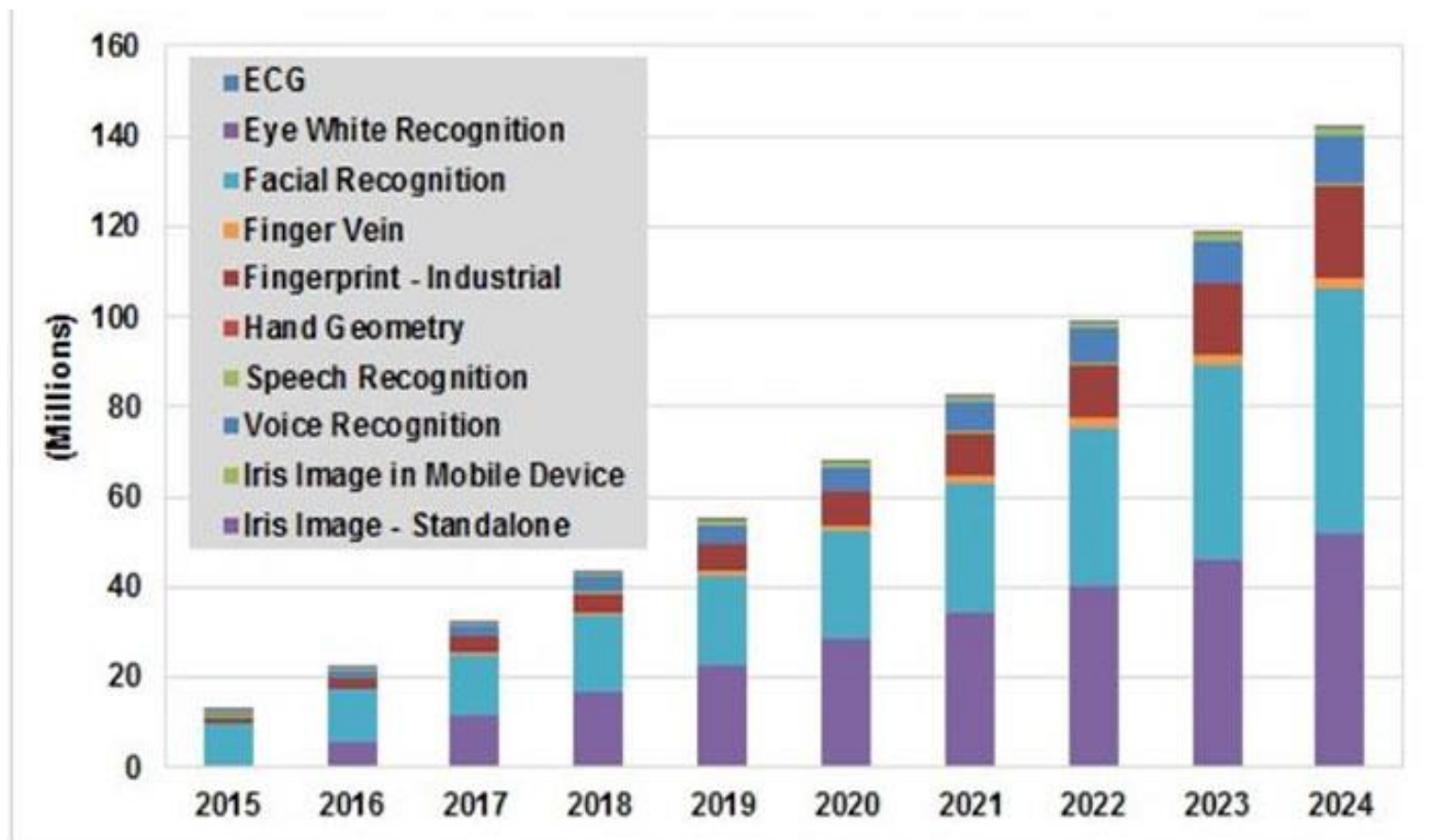
Implementation Models

- ◆ The key choices are how identity management and authentication systems are implemented



Growing Use of Biometrics

- ◆ Biometrics is a developing set of modalities



Biometrics – Benefits and Risks

- ◆ **Biometric Modalities in Action**
- ◆ **Ease and Acceptability of Use**
- ◆ **Environmental Factors**
- ◆ **FAR and FRR**
- ◆ **Ease of ‘Spoofing’**
- ◆ **Costs and Template Sizes**
- ◆ **Data Storage and Security**

Politics and Identity

◆ National Identity Cards

- China
- India
- UK
- Estonia

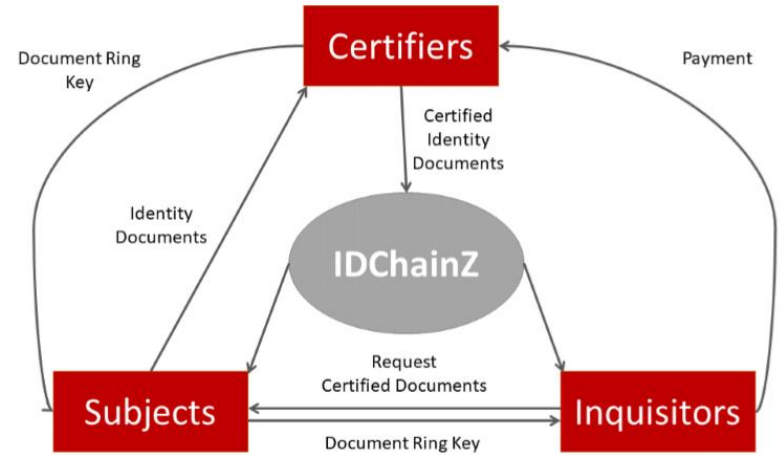
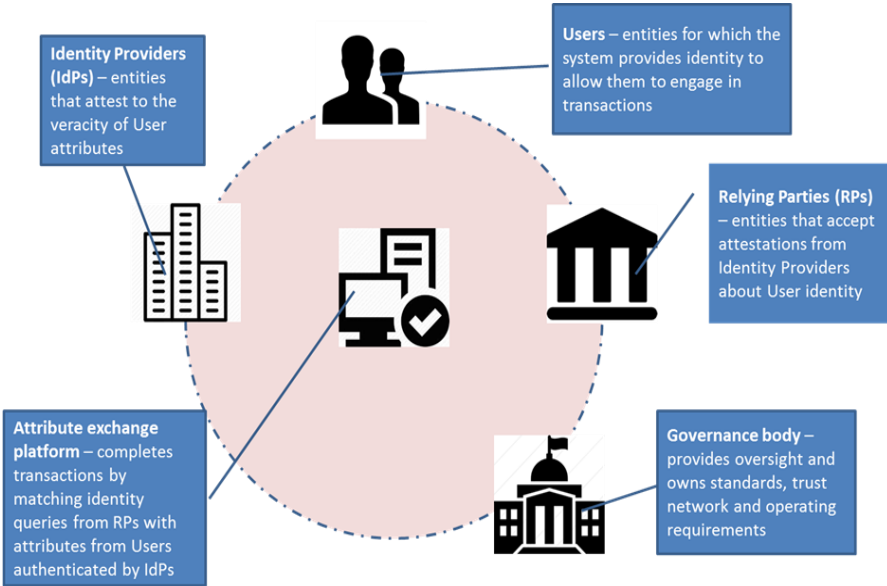
◆ Supra-governmental Interventions

◆ Security and Privacy

◆ Use and Misuse

◆ Special Case: Refugees

IDChainZ



1) User saves selected Identity ring files onto a new sub-ring for the Relying Party



New Sub-Ring

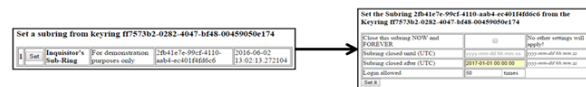
Sub-keyring RID (KRID)	2b417e-99cf-4110-aab4-ec401f4fd6c6
Sub-keyring Name	Relying Party Sub-Ring
Description	For demonstration purposes only

Copy the following ticket over:

```

[1] F: Emitter: "ElasticWindows-DK.png.pdf", "Content": "2016-06-02 12:56:20 1301011", "IssuedAt": "201606021256201301011"
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```

2) User sets time and use limits on the Relying Party's ring



Set a subring from keyring ff7573b2-0282-4047-b648-00459050e174

Inquirer's Sub-Ring	For demonstration purposes only	2b417e-99cf-4110-aab4-ec401f4fd6c6	2016-06-02 17:02:15 372104
---------------------	---------------------------------	------------------------------------	----------------------------

Set the subring 2b417e-99cf-4110-aab4-ec401f4fd6c6 from the keyring ff7573b2-0282-4047-b648-00459050e174

Close this subring NOW and remove it	Yes	No other settings will apply
Subring closed until (UTC)	never	Subring will be open
Subring closed after (UTC)	2017-01-01 00:00:00	Subring will be open until
Close subring	OK	Cancel

3) User sends the Relying Party the key for this limited access ring

Inquirer's Ring Key:
2fb41e7e-99cf-4110-aab4-ec401f4fd6c6

Access:

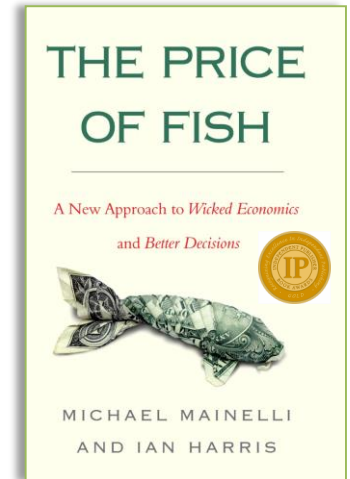
- 1) by App
- 2) or <https://185.77.66.18:3000/api>

Panel Discussion And Questions

When Would We Know Our Commerce Is Working?



“Get a big picture grip on the details.”
Chao Kli Ning



Thank you!