

An open source research programme for Smart Ledgers and new technologies

The Economic Impact Of Smart Ledgers On World Trade

Report Launch – Thursday, 19 April 2018
London

<http://www.distributedfutures.net>

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@LongFinance (#DistributedFutures)



Sponsored By



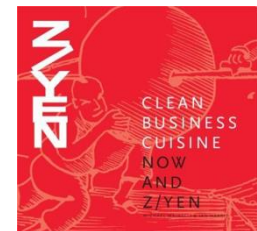
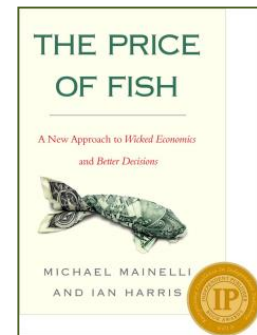
The Z/zen Group

Agenda

- | | |
|---------------|---|
| 08:45 – 09:00 | Registration |
| 09:00 – 09:25 | Welcome, Introduction and Background
<i>Michael Mainelli, Executive Chairman, Z/Yen Group</i> |
| 09:25 – 10:00 | The Economic Impact of Smart Ledgers on World Trade -
Report Walkthrough
<i>Graham Brough, Chief Executive, Cebr</i>
<i>Cristian Niculescu-Marcu, Micro-Team Leader, Cebr</i>
<i>Beatriz Cruz, Senior Economist, Cebr</i> |
| 10:00 – 10:40 | Panel Discussion and Questions
<i>Including: Sally Hughes, CEO of IACCM and Agnès Hugot, Co-Founder
of Fast Track Trade</i> |
| 10.40 – 10:45 | Summary |
| 10:45 | Formal Close |



- ◆ Special – City of London’s leading commercial think-tank
- ◆ 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





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.

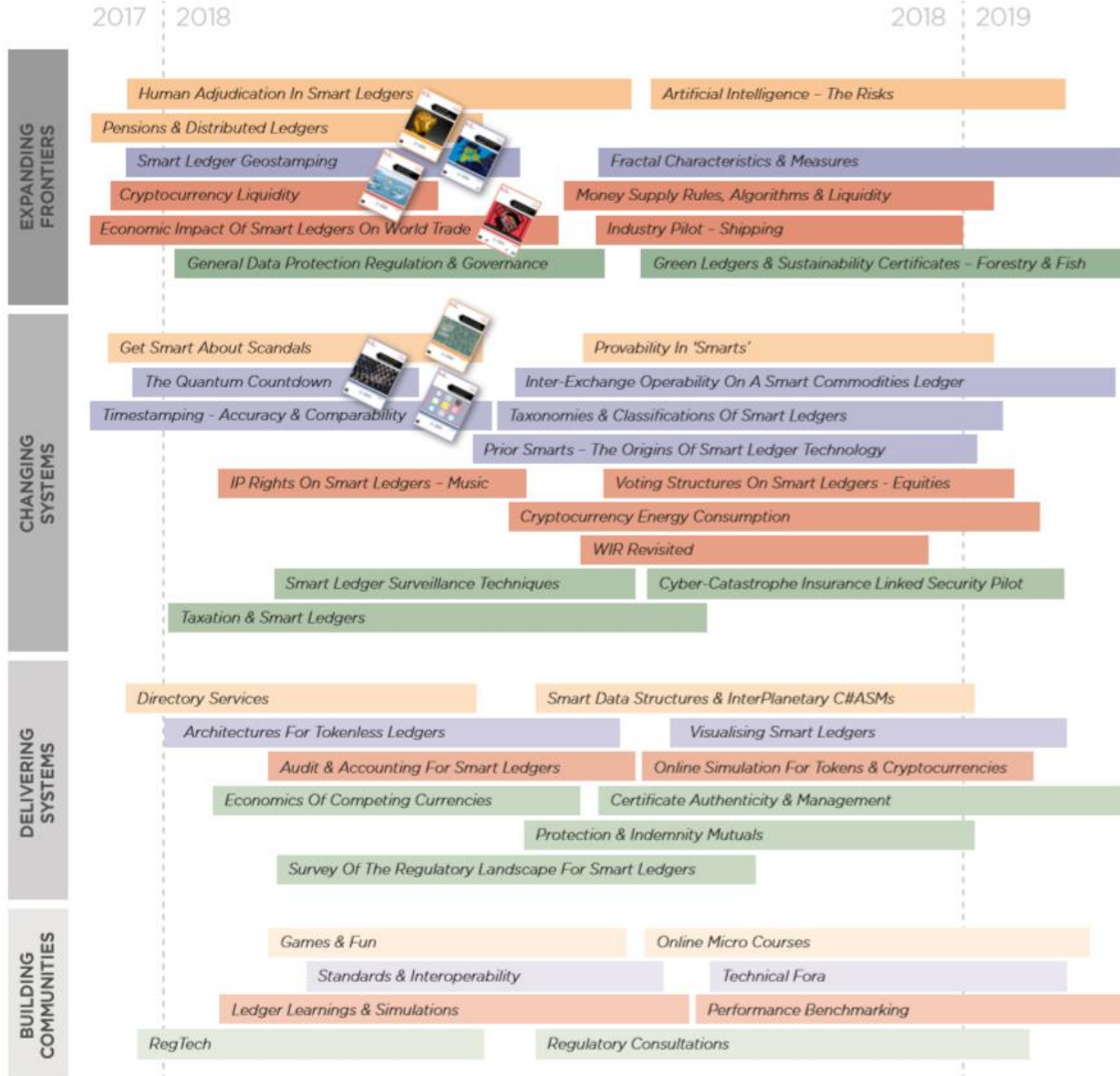
Our research is structured around four themes:

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

And it's directed at four outcomes:

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

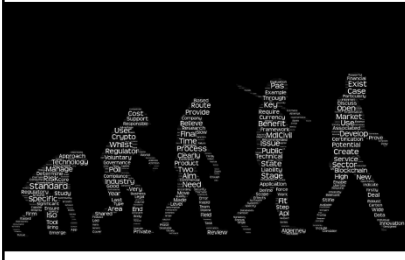
Timeline



Distributed Futures Research

LONG FINANCE **DISTRIBUTED FUTURES**

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




November 2016

CARDANO FOUNDATION

STATES OF ALDERNEY **pwc**

LONG FINANCE **DISTRIBUTED FUTURES**

**Responsibility Without Power?
The Governance Of Mutual Distributed
Ledgers (aka Blockchains)**

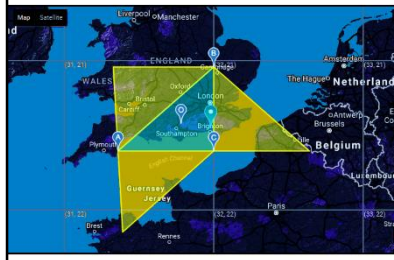


July 2016

CARDANO FOUNDATION

LONG FINANCE **DISTRIBUTED FUTURES**

**Smart Ledger Geostamping
Steps Towards Interoperability
& Standards**




December 2017

CARDANO FOUNDATION

LONG FINANCE **DISTRIBUTED FUTURES**

**The Quantum Countdown
Quantum Computing And The Future
Of Smart Ledger Encryption**

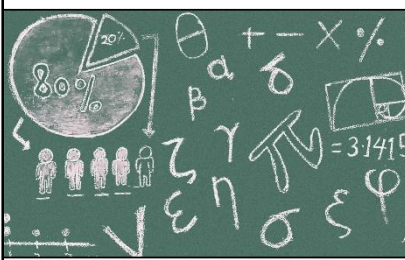


February 2018

CARDANO FOUNDATION

LONG FINANCE **DISTRIBUTED FUTURES**

**Get Smart About Scandals
Past Lessons For Future Finance**




March 2018

CARDANO FOUNDATION

LONG FINANCE **DISTRIBUTED FUTURES**

**Liquidity Or Leakage
Plumbing Problems
With Cryptocurrencies**



March 2018

CARDANO FOUNDATION

LONG FINANCE **DISTRIBUTED FUTURES**

**The Economic Impact Of Smart
Ledgers On World Trade**




April 2018

CARDANO FOUNDATION

LONG FINANCE **DISTRIBUTED FUTURES**

**Pensions and
Distributed Ledgers**



April 2018

CARDANO FOUNDATION

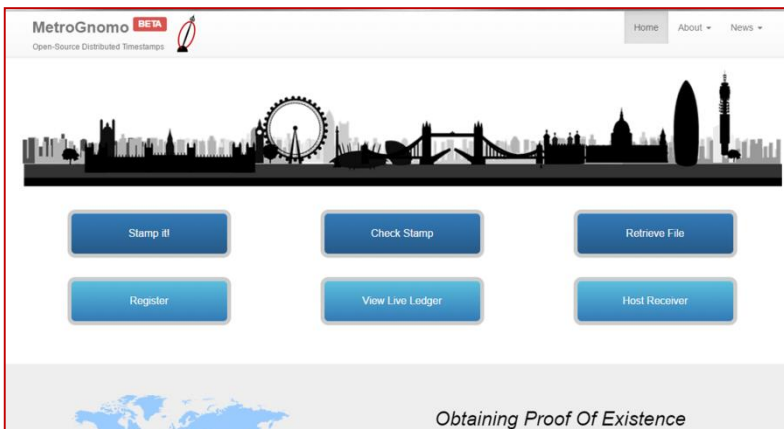
Terminology Evolving

- ◆ **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

Area	Possible Applications
Financial instruments, records, models	Currency, private and public equities, certificates of deposit, bonds, derivatives, insurance policies, voting rights associated with financial instruments, commodities, derivatives, trading records, credit data, collateral management, client monies segregation, mortgage or loan records, crowd-funding, P2P lending, microfinance, (micro)charity donations, account portability, airmiles & corporate tokens, etc.
Public records	Land and property titles, vehicle registries, shipping registries, satellite registries, business license, business ownership/incorporation/dissolution records, regulatory records, criminal records, passport, birth/death certificates, voting ID, health and safety inspections, tax returns, building and other types of permits, court records, government/listed companies/civil society, accounts and annual reports, etc.
Private records	Contracts, ID, signature, will, trust, escrow, any other type of classifiable personal data (e.g. physical details, date of birth, taste) etc.
Semi-private/semi-public records	High school/university degrees and professional qualifications, grades, certifications, human resources records, medical records, accounting records, business transaction records, locational data, delivery records, genome and DNA, arbitration, genealogy trees, clinical trials, etc.
Physical keys	Key to home, hotel, office, car, locker, deposit box, mail box, Internet of Things, etc.
Intellectual property	Copyrights, licenses, patents, digital rights management of music, rights management of intellectual property such as patents or trademarks, proof of authenticity or authorship, etc.
Other records	Cultural, historical events, documentary (e.g. video, photos, audio), (big) data (weather, temperatures, traffic), SIM cards, archives, geostamping, etc.

Application: MetroGnomo – Timestamping & Datalogging

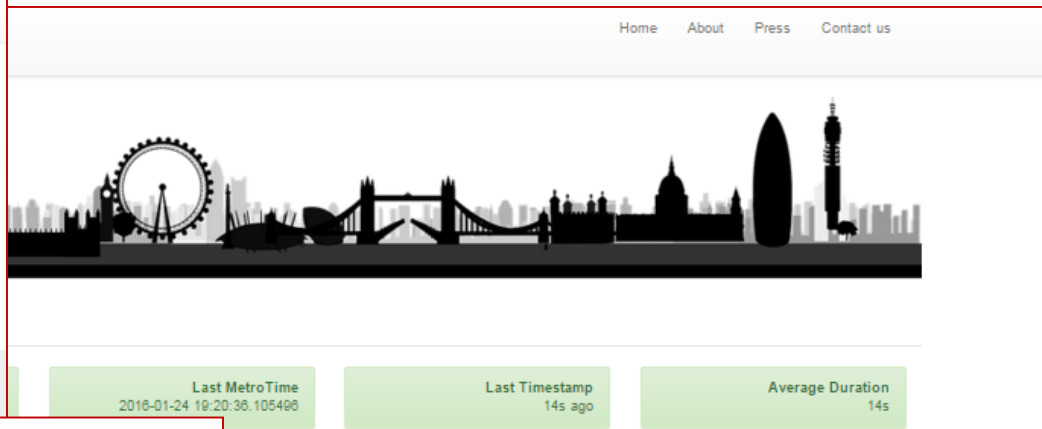



MetroGnomo BETA
Open-Source Distributed Timestamps

Home About News

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

Obtaining Proof Of Existence

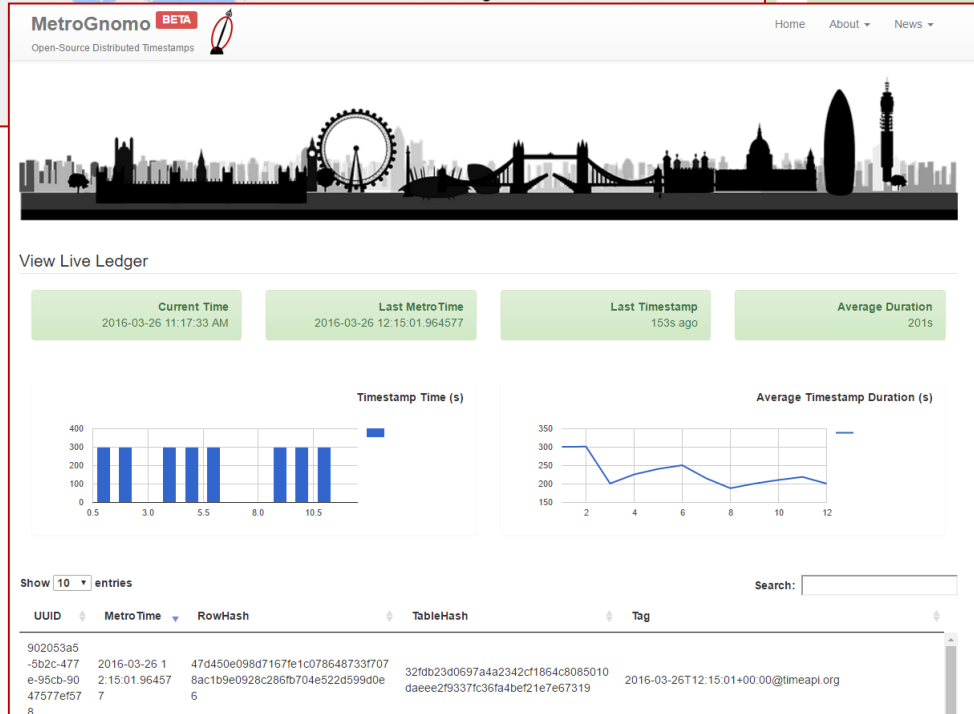


Home About Press Contact us

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

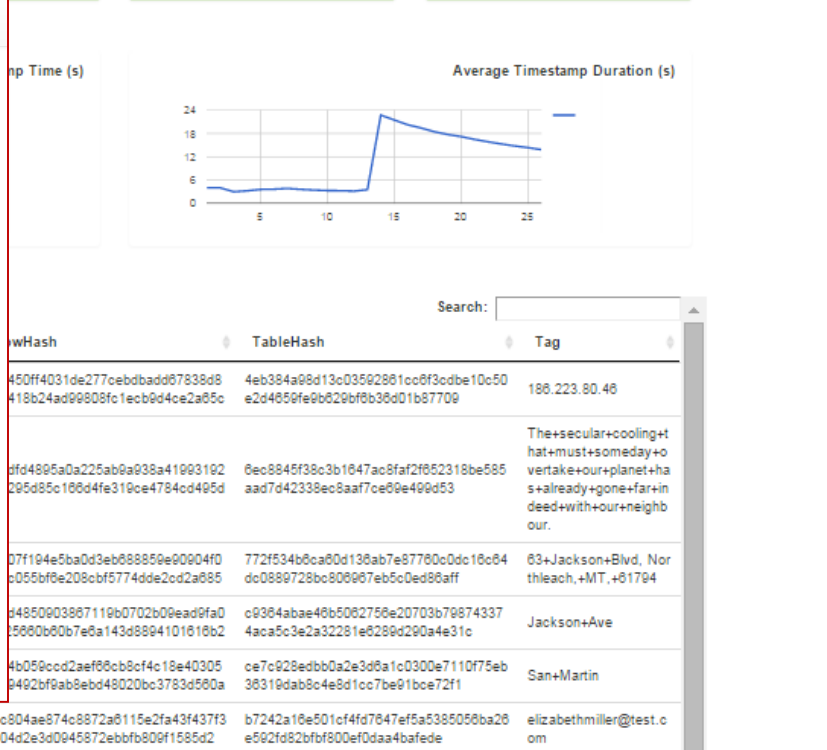
Average Duration
201s

Timestamp Time (s)

Average Timestamp Duration (s)

Show 10 entries

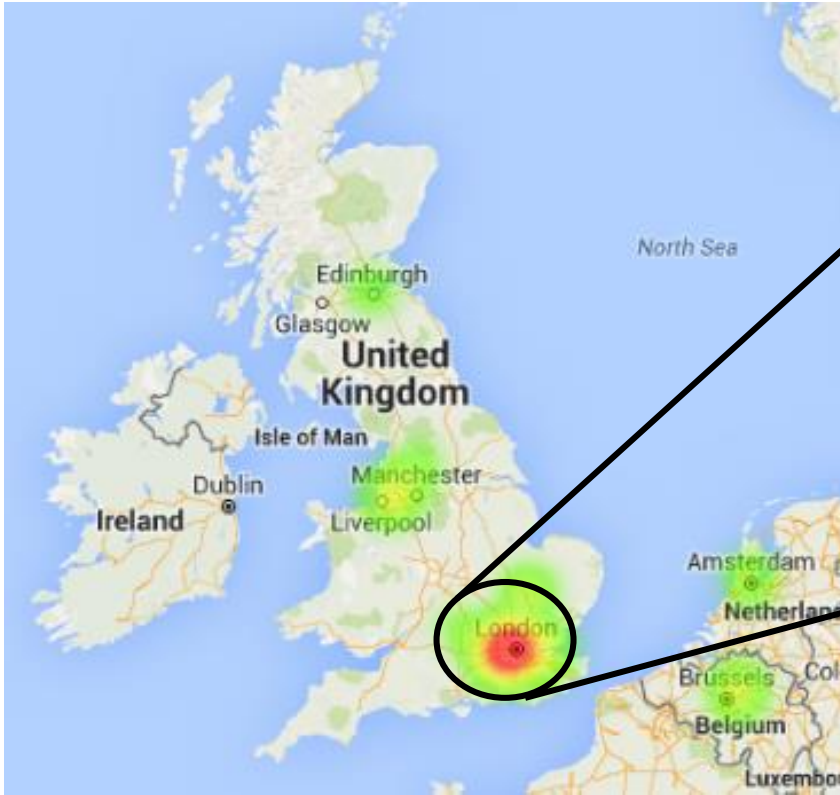
UUID	Metro Time	RowHash	TableHash	Tag
902053a5				
-5b2c-477	2016-03-26 1	47d450e098d71671e1c0786487337f07	32fdb23d0697a4a2342cf1864c9085010	
e-95cb-90	2:15:01.96457	8ac1b9e0928c286fb704e522d599d0e	daee2f9337fc36fa4bef1e7e67319	2016-03-26T12:15:01+00:00@timeapp.org
47577ef57	7	6		



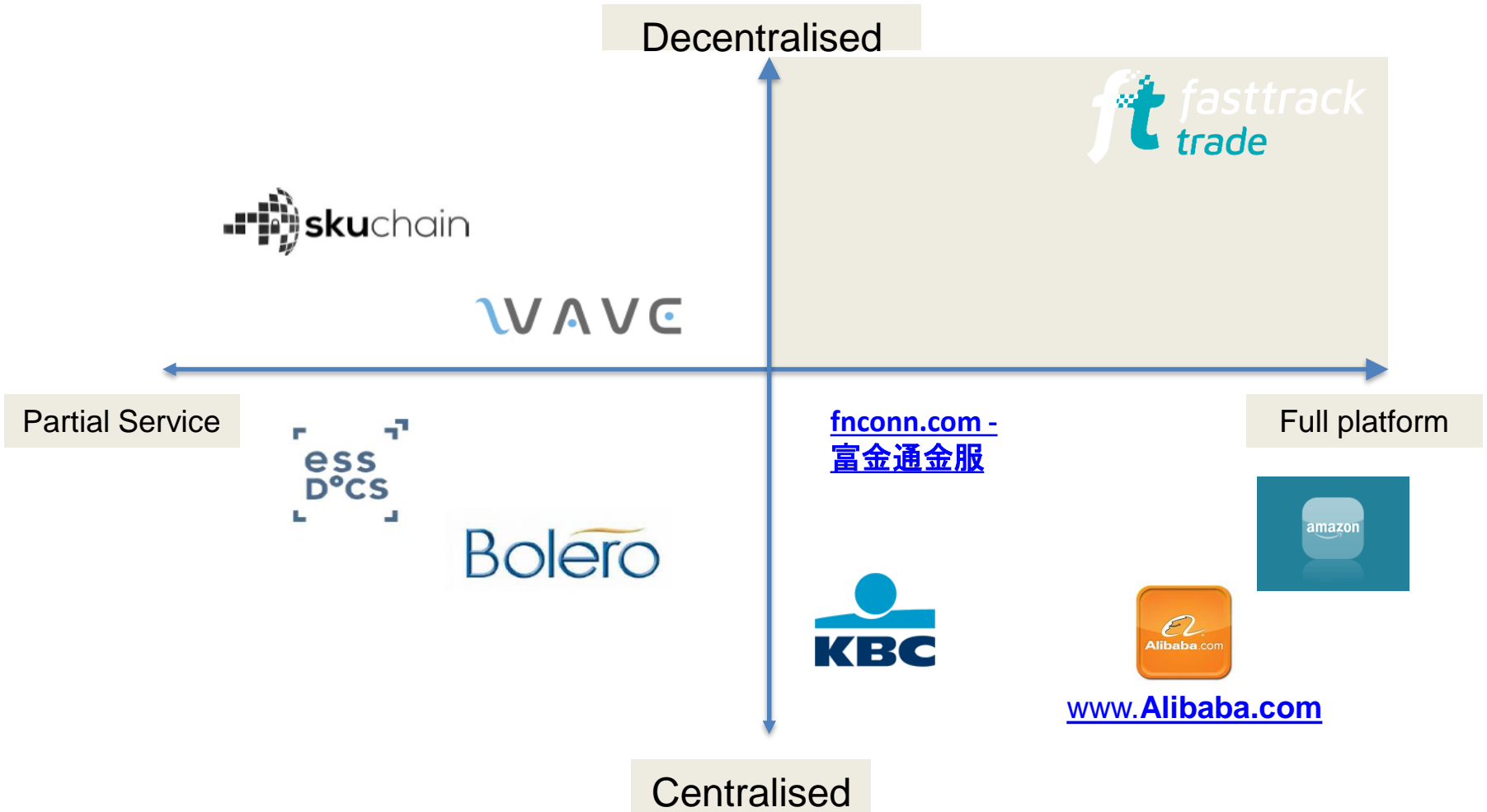
Search:

RowHash	TableHash	Tag
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07f194e5ba0d3eb88859e90904f0 c055bf6e208cbf5774dde2cd2a885	772f534b6ca60d138ab7e87780c0dc16c84 dc089728bc808967eb5c0ed88aff	63+Jackson+Bldv, Northleach,+MT,+61794
64850903867119b0702b09ead9fa0 5880b00b7e6a143d8894101810b2	c9364abae46b5062756e20703b79874337 4aca5c3e2a32281e6289d290a4e31c	Jackson+Ave
4b05eccd2aef68cb8cf4c18e40305 9492bf9ab8ebd48020bc3783d580a	ce7c928eddb0a2e3d6a1c0300e7110f75eb 38319dab8c4e8d1cc7be91bce72f1	San+Martin
0185e888-4a74-49fb-8c0 c-cb55cc4f417f	2016-01-24 19:20:26.909764	
cbc804ae874c8872a6115e2fa43f437f3 d404d2e3d0945872ebfb809f1585d2	b7242a18e501cf4fd7647ef5a5385058ba26 e592fd82bfb800ef0daa4bafade	elizabethmiller@test.com

Application: Clinical Trials



Decentralised Digital Trade Platforms



Limited Scope



Smart Ledger Application Area	Reduce Risks	Enhance Rewards	Increase Certainty (reduce volatility)
Identity			
Documentation			
Agreements			
Payments			
Transactions			

Report Walkthrough

The Economic Impact Of Smart Ledgers On World Trade



Graham Brough



Cristian Niculescu-Marcu
(Author)



Beatriz Cruz
(Author)

Economic Impact of Smart Ledgers: Approach

- ◆ Background On Global Trade
- ◆ Background On Smart Ledgers
- ◆ Modelling
- ◆ Building The Economic Impacts
- ◆ Further Applications Of Smart Ledger Technology
- ◆ Conclusions
- ◆ IACCM Survey Results
- ◆ What About Brexit?

Global Trade In Context

- International trade facilitates wealth and prosperity.
- An effective global trading system allows goods and services to flow to where they are needed most, through price signalling.
- In turn, trade generates value through economies of scale and specialisation.
- International trade allows countries to exploit economies of scale by producing for a bigger mass market than would be achievable domestically. Global trade has fallen from around \$18tn in 2014 to approx. \$15tn in 2016

Barriers

◆ Direct Barriers

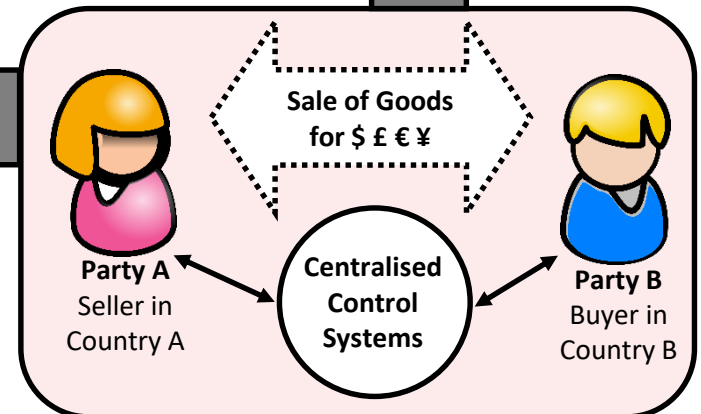
- * Tariffs
- * Embargos

◆ Indirect (Non-Tariff) Barriers

- * Quotas
- * Domestic subsidies
- * Customs delays
- * Varying degrees of development
- * Cultural & linguistic differences

Potential Problems

- ◆ Data flows liable to leaks & breaches
- ◆ Lack of control
- ◆ Need for data repositories
- ◆ Centralised checking/verification services
- ◆ Agent action/adaptation constraints



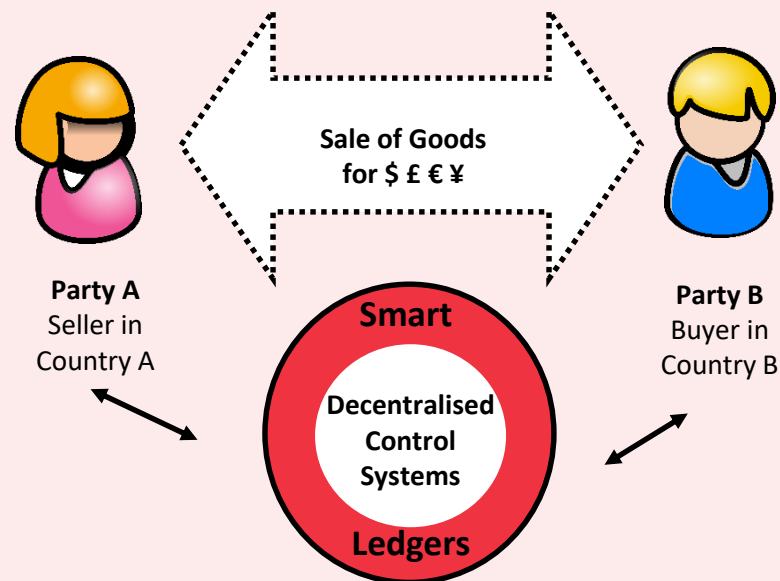
Background On Smart Ledgers

- Smart Ledgers are mutual distributed ledgers (MDLs, aka blockchains) with embedded, executable code.
- MDLs are multi-organisational databases with a super-audit trail that rely on cryptography to ensure their functionality and integrity, as well as to control viewing permissions.
- Smart Ledgers are able to specify rules about the use of data within the MDL, for example “release this ship’s location four hours after it has been recorded on the MDL.”
- International trade is an area where Smart Ledger technology could have tangible, practical applications.

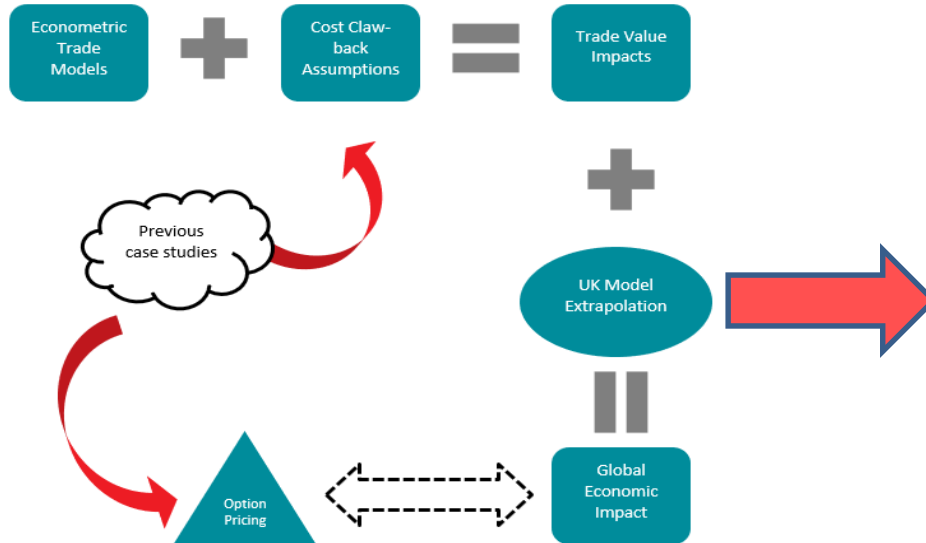
Smart Ledger Proposition

- ◆ Automated solutions relying on collaborative platforms
- ◆ Fewer information asymmetries
- ◆ Better control over central third parties
- ◆ Identity, documentation, and agreement exchange
 - *Identity validation
 - *Documentation & consolidation of trade information
 - *Agreement exchange & payment clearing
 - *Provenance - security/integrity of supply chain

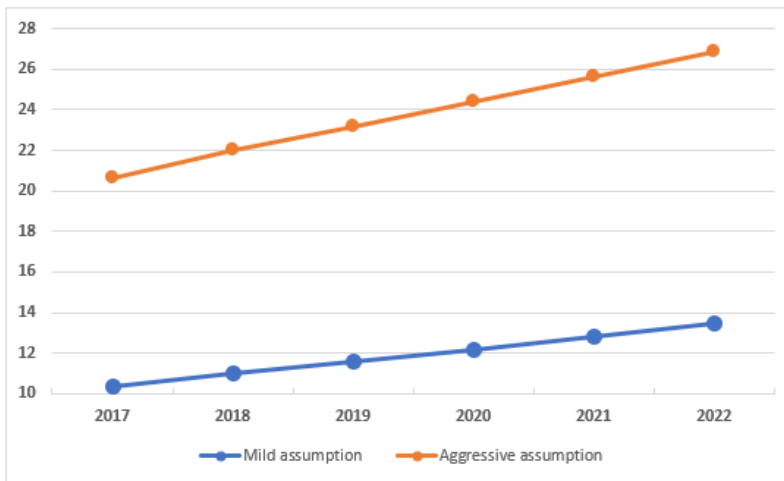
Identity, Documentation, and Agreement Exchange



Results: \$35-\$140bn Uplift In Trade



Forward projection of global economic impacts (USD bn)

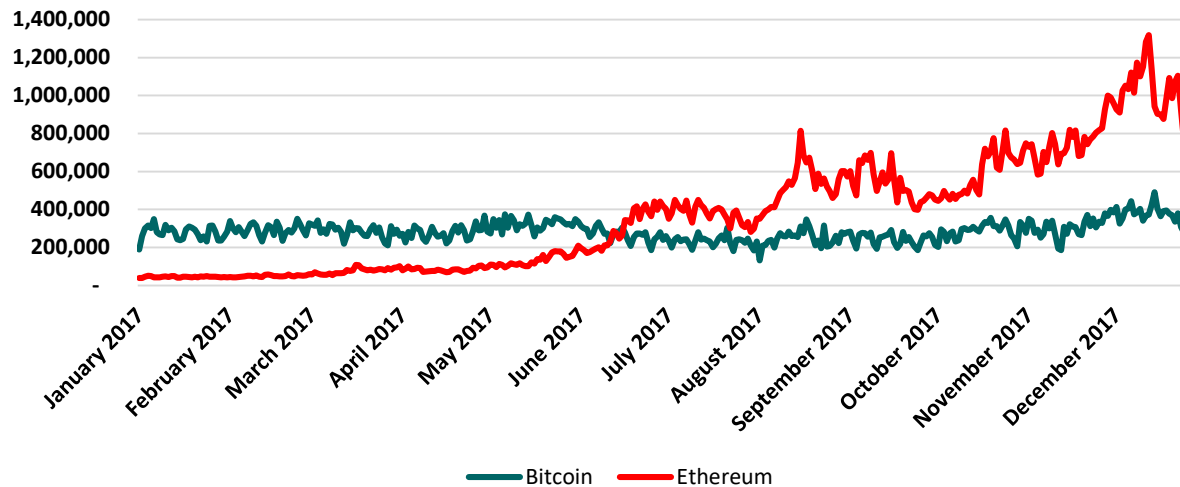


	Global USD GDP Uplift	Current Global GDP (USD bn)	Potential global labour market impact
Low scenario	10.33	79,281	449,319
High scenario	20.66	79,281	898,639

- Trade is not an end in itself, it is simply a mechanism to facilitate greater global prosperity and well-being.
- The increased trade will help global GDP through gains in scope and scale.
- These are conservative static calculations, they do not reflect dynamic impacts such as the creation of wholly new industries and the organic effects of new ideas and ways of doing things.

Further Applications Of Smart Ledger Technology

◆ Beyond Cryptocurrencies?



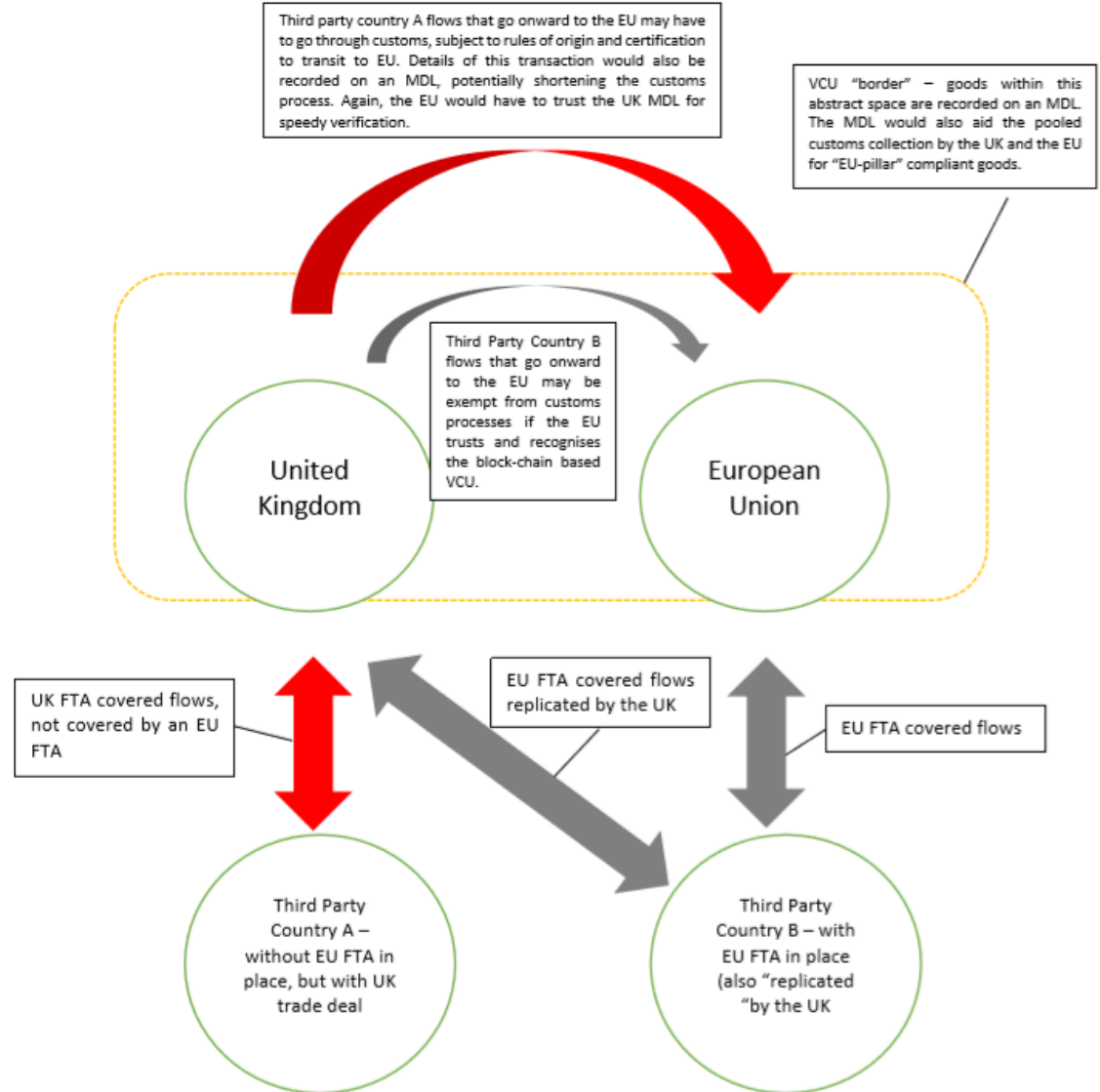
◆ Government Operations

- Taxation
- Policing
- National defence
- Health resources

◆ Internal Trade

What About Brexit?

Illustration of Cebr's Virtual Customs Union concept, coupled with a Smart Ledger solution



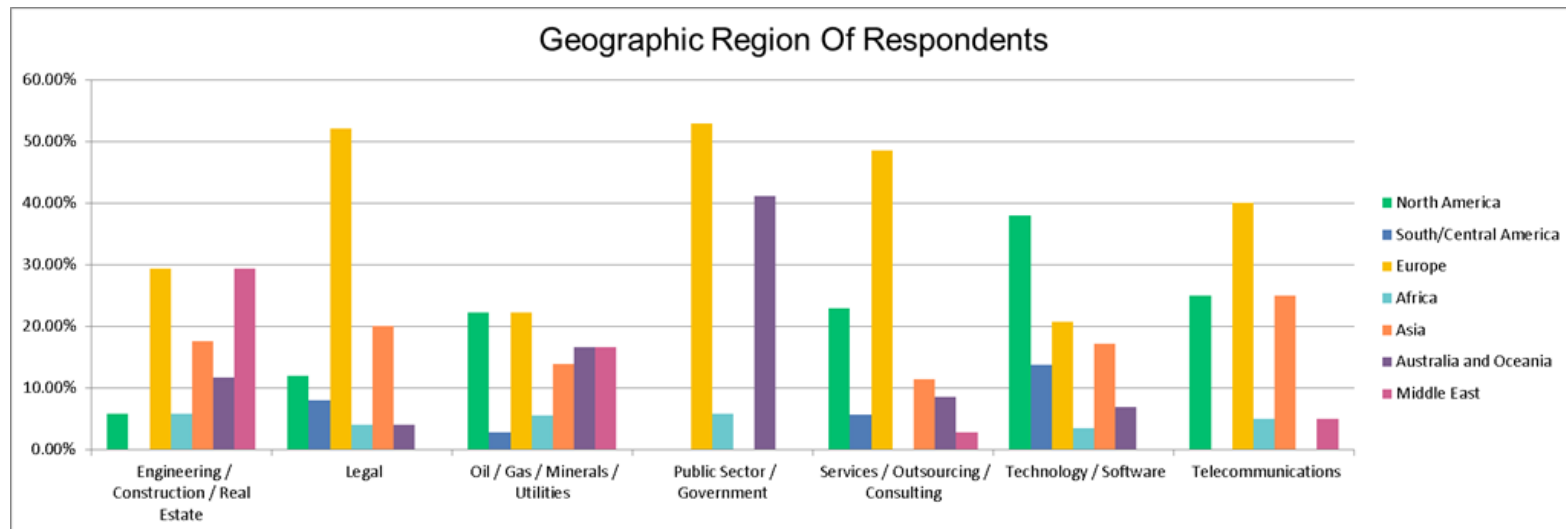
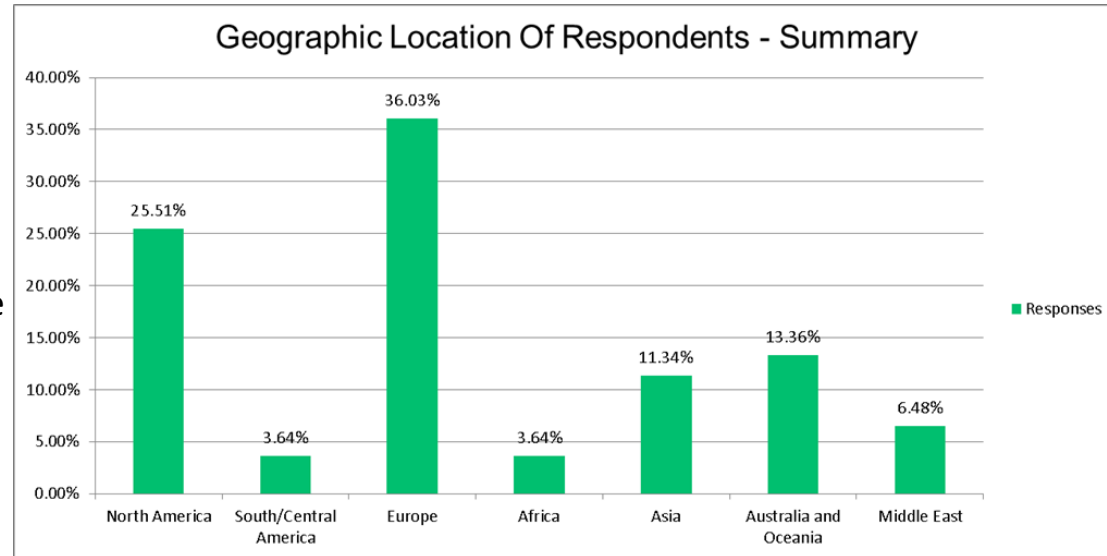
Conclusions

- ◆ Smart Ledger technology could boost world trade in goods by at least \$35 billion dollars per annum.
- ◆ The cost of importing a single container could, therefore, be reduced by around \$46, by simplifying procedures.
- ◆ These potential benefits are driven by a 2.5% cost clawback assumption, supported by case studies on previous technological advancements in trade and industry feedback.
- ◆ If reduced uncertainty is, also, taken into account, using option pricing theory, the potential gains become even larger, with a potential monthly net cost saving of \$172 million (or, approximately, \$2 billion per annum).
- ◆ This would boost world GDP by \$10 to \$20 billion and could, potentially, add between 450,000 and 900,000 to the worldwide demand for labour, boosting wages and living standards worldwide.

IACCM Survey Results

◆ IACCM received responses from 247 of its members, of which 179 were from the top seven industry sectors:

- 1) Engineering, Construction, and Real Estate
- 2) Legal
- 3) Oil, Gas, Minerals, and Utilities
- 4) Public Sector and Government
- 5) Services, Outsourcing, and Consulting
- 6) Technology and Software
- 7) Telecommunications





A platform that **instantly connects** buyers and sellers with service providers who offer **on-demand financing, insurance, and logistics.**





ftt fasttrack
trade
Commerce Beyond Frontiers

FTT creates **trust** by enabling buyers and sellers to prove their identity and exist as a **digital business**.



Make a deal *wherever* you are.

What is Fast Track Trade?

CONNECT - A platform that instantly connects **buyers and sellers with service providers** who offer on-demand financing, insurance, and logistics.

SECURE - FTT is powered by a secured blockchain, that makes small value transactions **fast, safe, and transparent.**

TRUST - FTT creates **trust** by enabling buyers and sellers to prove their identity and exist as a **digital business.**

ACCESS - SMEs access FTT on a **smartphone** or a **desktop.**



Who are Fast Track Trade users?

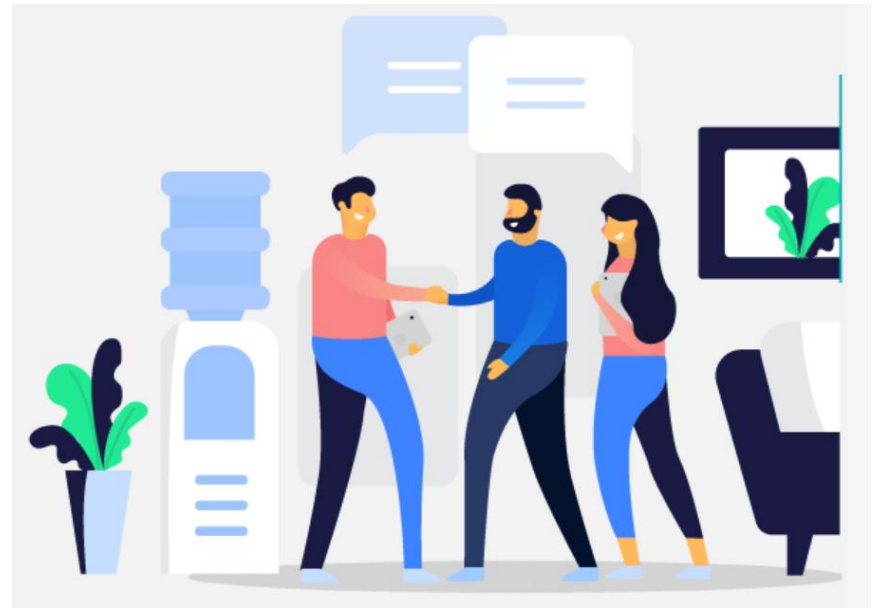
SMEs drive national economies forward.

FTT targets **every SME** that wants to **exist digitally**.

FTT supports the **most dynamic** SMEs growing internationally, and **family businesses** seeking to go **digital**.

FTT wants to support SMEs who are:

- ◆ **Small** (less than 5 people)
- ◆ **Young** (less than 5y and especially less than 1y)
- ◆ Involved in sectors such as manufacturing, wholesale trade, construction, logistics

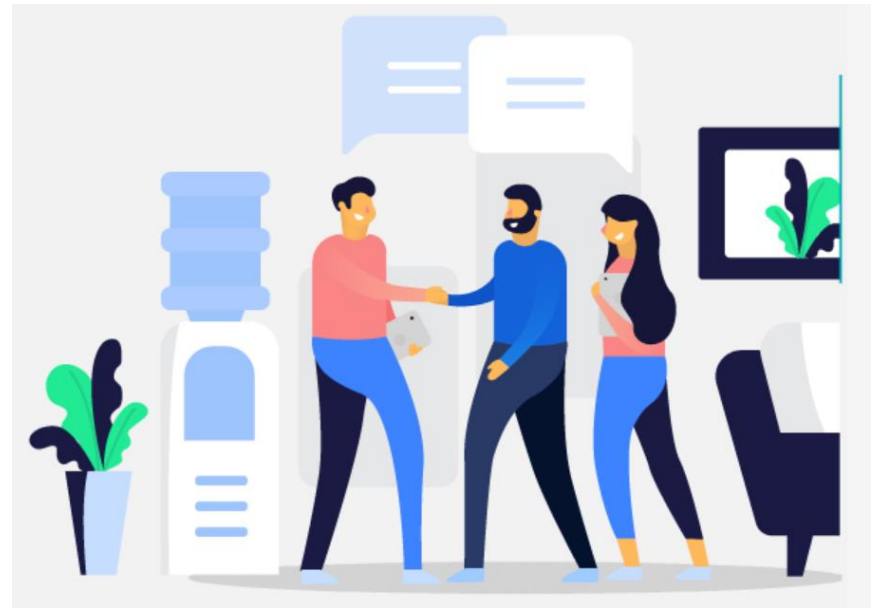


What challenges does FTT solve for SMEs?

SMEs face **many challenges**:

- ◆ Finding each other
 - Digital businesses are easily buried
 - Reliable suppliers or customers are difficult to find
- ◆ Affording online payment and ERP systems
- ◆ Securing financing
- ◆ Protecting key people and business assets

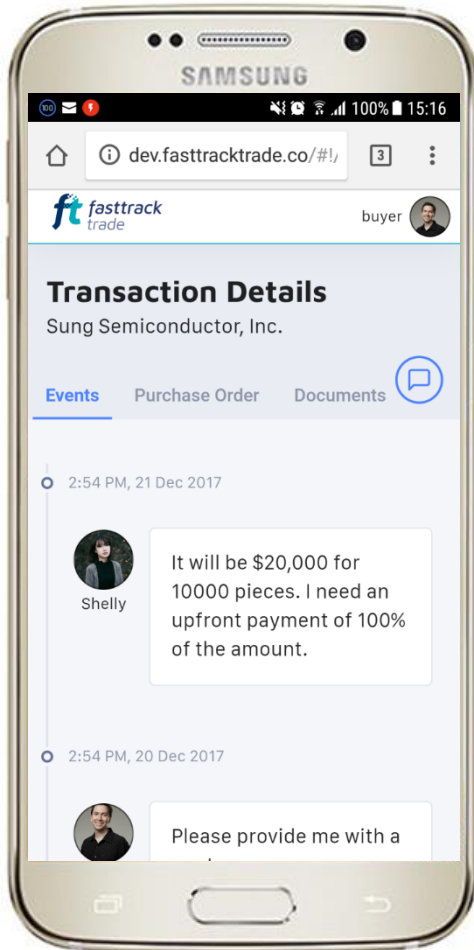
FTT addresses **all these challenges!**



Grab your trade
in 5 clicks!

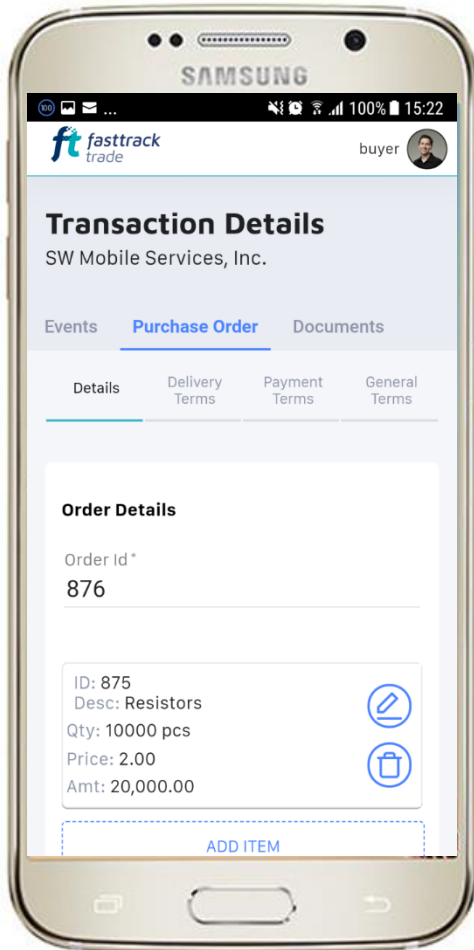
The screenshot displays the fasttrack trade dashboard for a user named 'buyer'. The main content area is titled 'Identity check' and provides details for 'Titan Gears Pte. Ltd' (200314345D, Singapore). The page is divided into two columns: a list of registration details on the left and corresponding document thumbnails on the right. The registration details include: Identity status (Verified), Date of status acquisition (21/03/2018), Country of registration (Singapore), Registration organism (ACRA), Registration number (1234567K), Registration date (10/10/2018), Registered name (Titan Gears Pte Ltd), and Registered address (5, River Valley Road, Singapore 345765). Below this, the details for 'Director 1' are shown: First name (John), Last Name (Doe), Birth date (10/02/1960), Gender (Male), ID document type (FIN), and ID number (T3454826R). Three document thumbnails are visible: 'ACRA', 'Proof of address', and 'DIRECTOR 1 ID', each with a download icon.

Field	Value
Identity status	Verified
Date of status acquisition	21/03/2018
Country of registration	Singapore
Registration organism	ACRA
Registration number	1234567K
Registration date	10/10/2018
Registered name	Titan Gears Pte Ltd
Registered address	5, River Valley Road Singapore 345765
Director 1	
First name	John
Last Name	Doe
Birth date	10/02/1960
Gender	Male
ID document type	FIN
ID number	T3454826R



1

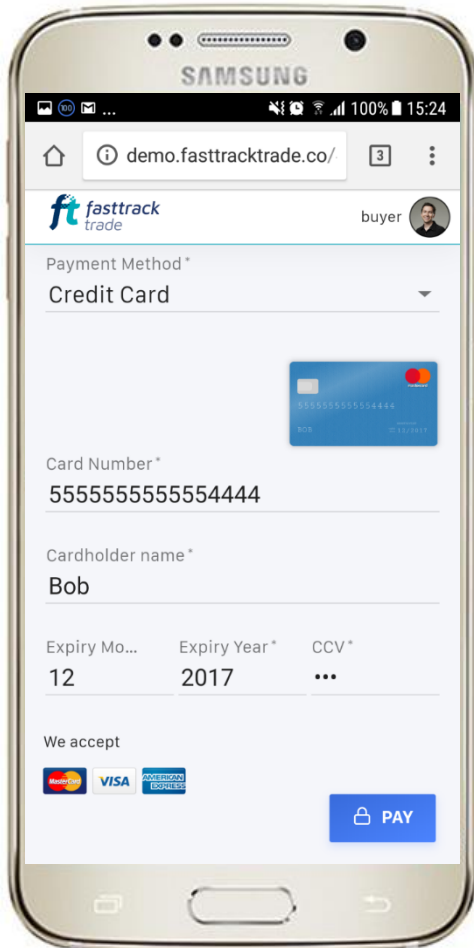
Connect with trustworthy
partners



2

Manage your purchase online

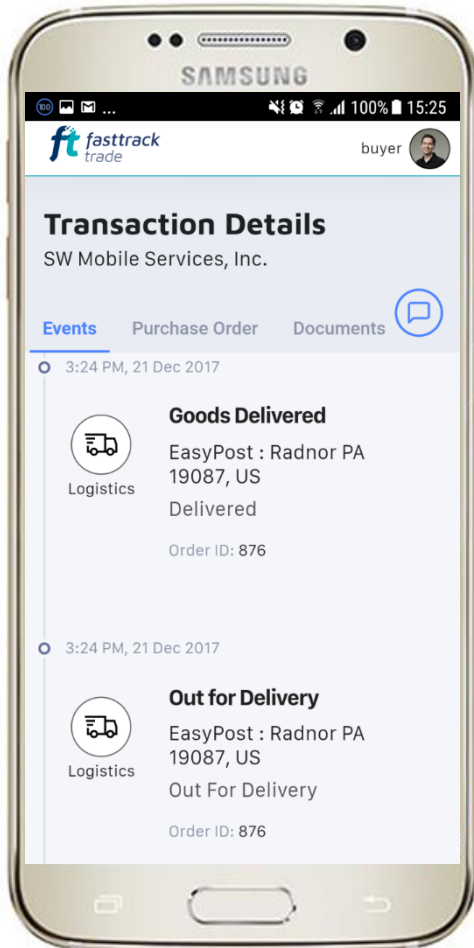
Set PO terms and share automatically generated trade documents with your supplier.



3

Pay easily and securely

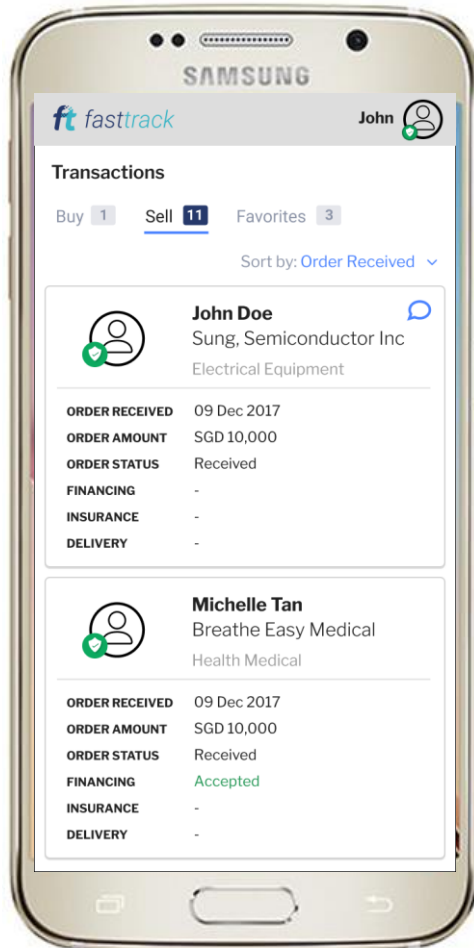
Pay your supplier directly online using credit card, bank transfer or even cash.



4

Track delivery

Get instant visibility on your parcels during the delivery.

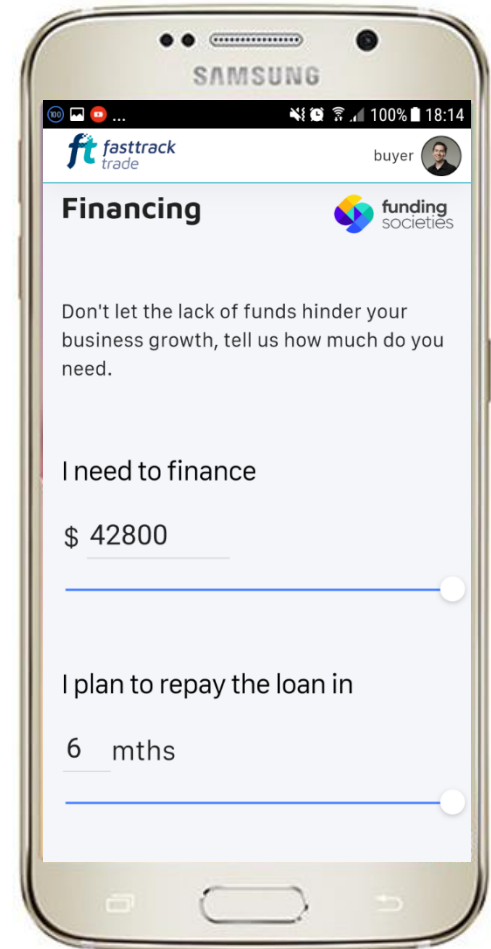


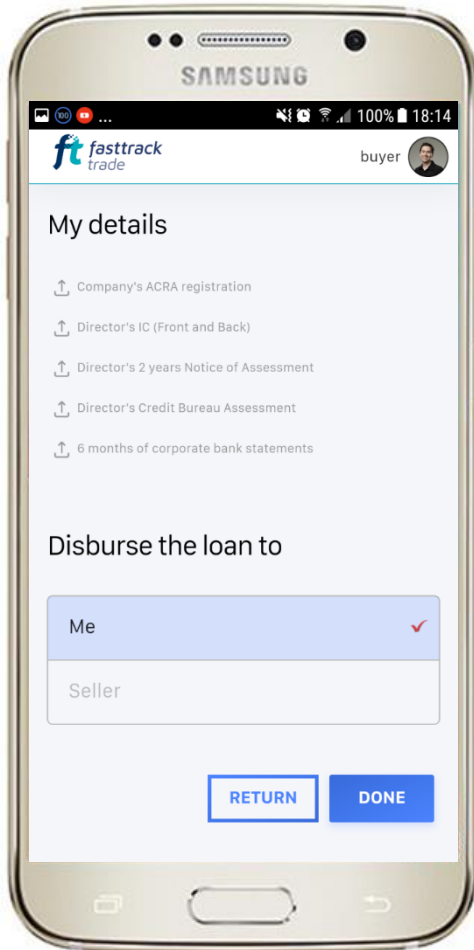
5

Monitor your purchases

Get a comprehensive view of your procurement through a dynamic dashboard

Request financing in 5 clicks!

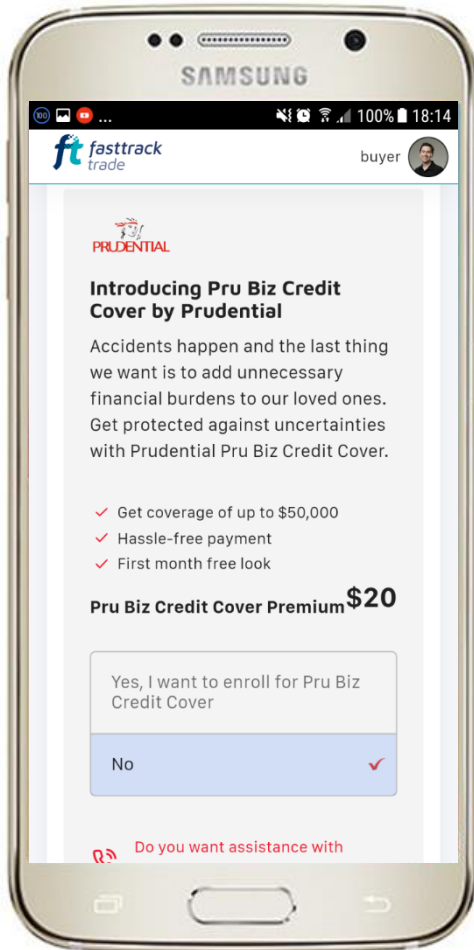




1

Securely provide
information to selected
investors

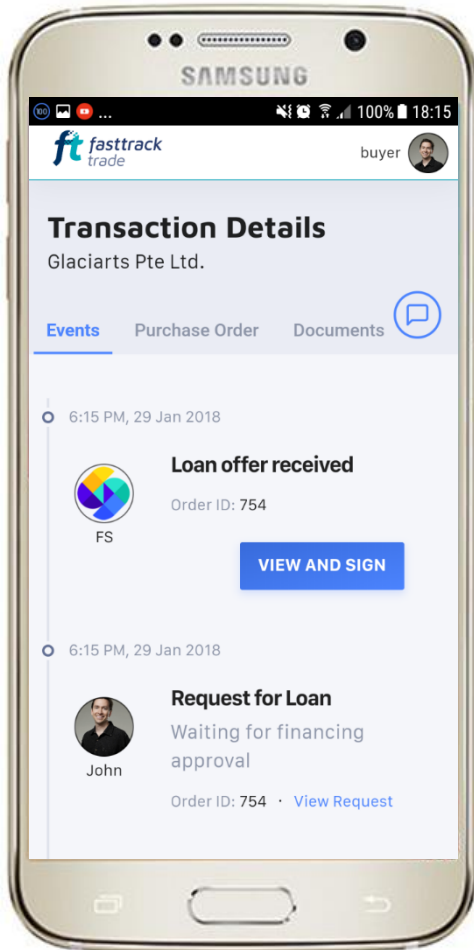
Upload and share your
documents with them



2

Insure yourself against
uncertainty

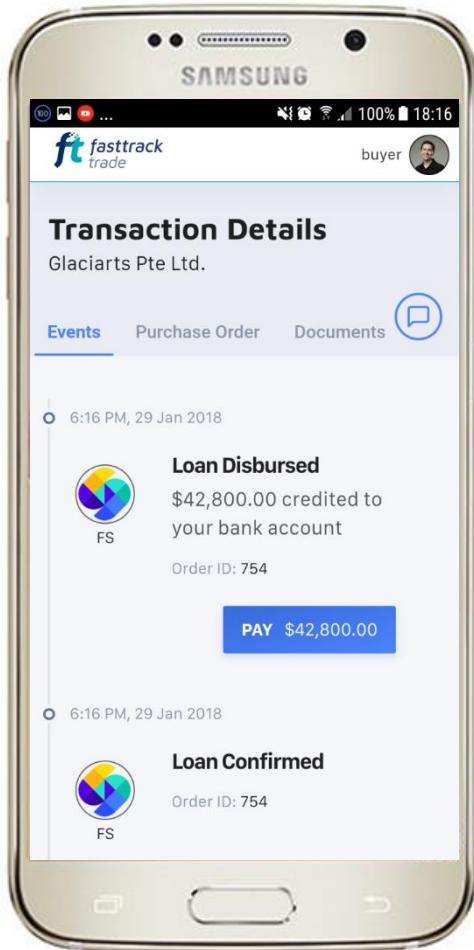
Get instant insurance coverage



3

Select & sign your
financing offer online

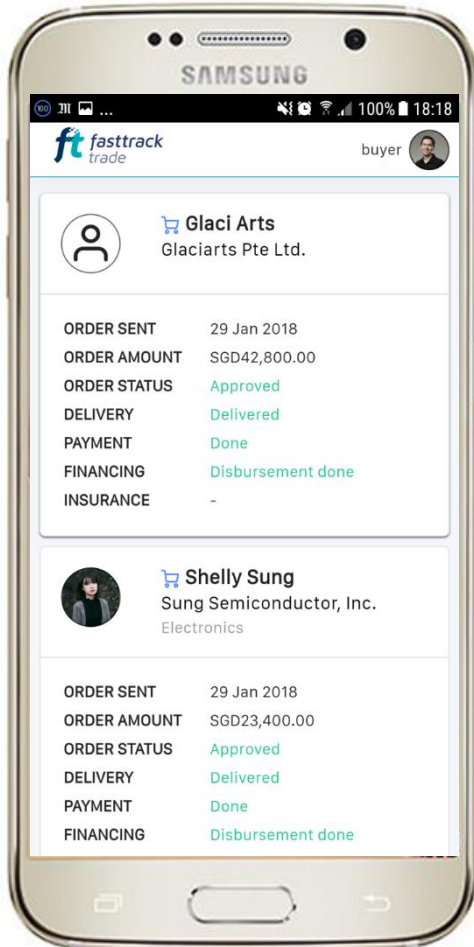
Access and store financing
documents online



4

Obtain loan disbursement

Within 48 hours of approval



5

Repay your loan and interest

Increase your credit rating by
repaying on time

FTT is powered by a **secure** blockchain, that makes small value transactions **fast**, **safe**, and **transparent**.





ftt **fasttrack**
trade
Commerce Beyond Frontiers

Be all in!

www.fasttracktrade.co

Ann, Insurer
London

Tom, Buyer
Seychelles

Sri, Seller
Bangladesh

Kim, Banker
Singapore

Paul, Seller
Nigeria

Pam, Buyer
Toronto

Muru, Logistic
New Delhi

Kelly, Buyer
Guana



The Economic Impact Of Smart Ledgers On World Trade

Panel Discussion

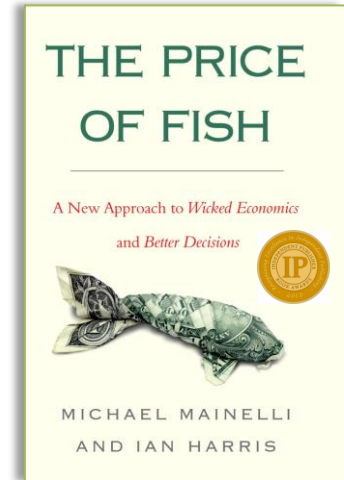
Economic Impact: For Discussion

1. The report does not look at 'services' - what are the perceived benefits here? Other areas of benefit?
2. How important are Smart Ledgers to the wider 'digitisation' of world trade?
3. What should the UK be doing?

When Would We Know Our Commerce Is Working?



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



Thank you!