



# FIG WORKING WEEK 2017

Surveying the world of tomorrow –  
From digitalisation to augmented reality

May 29 - June 2 Helsinki Finland



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## Improving Access to Credit in Property Markets using Blockchain

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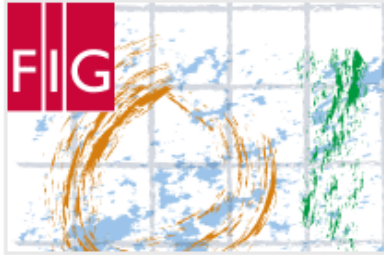


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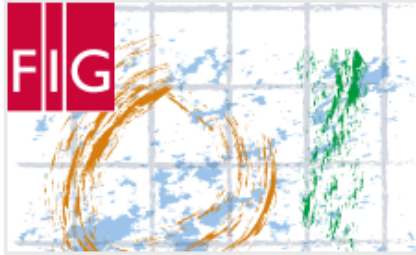




## Structure of Presentation

- **Introduction**
- **Factors contributing to better property markets**
- **Scope**
- **Parameters of Access to Credit**
- **Role of Blockchain in Access to Credit**
- **Framework for universal financial access using blockchain**
- **Is blockchain always secure enough for access to credit?**
- **Block chain Hacks - Need for ISO**
- **Wannacry Ransomware**
- **Risk management and other sources of access to credit**
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## Introduction

“Giving the poor access to credit allows them to immediately put into practice what they already know – to weave, to husk rice patty, raise cows, peddle a rickshaw. And the cash they earn is then a tool, a key that unlocks a host of other abilities and allows them to explore their own potential. Often borrows teach each other new techniques that allow them to better use their survival skills. They teach far better than we ever could.” -  
(*Yunus, M, Banker to the Poor, p. 140, 2003*).

- Without the ability to use property as collateral for loans, the titles in owners' hands still represent “dead capital” – assets that cannot be collateralised or sold.
- numeric commitments to help promote financial inclusion and achieve Universal Financial Access by 2020 ( UFA 2020 ) (*2015 World Bank Group-IMF Spring Meetings*)





# Factors contributing to better property markets

Health of property markets = function  $f$  (Appropriate regulation, property rights, access to credit, effective governance, rational dispute resolution, financial transparency)

where  $f$  can

be defined as “health of property markets function” with the form based on knowledge of the parameters in the country.





## Scope

Health of property markets = function  $f$  (Appropriate regulation, property rights, access to credit, effective governance, rational dispute resolution, financial transparency) -- -- -- (1)

Access to credit = function  $g$  ( access to banks, soundness of the banks , microlending of banks, credit bureau, Other sources including venture capitalists)

where  $g$  can be defined as “access to credit function” with the form based on knowledge of the parameters in the country. -- -- -- (2)

*source : international property markets scorecard*



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## Scope

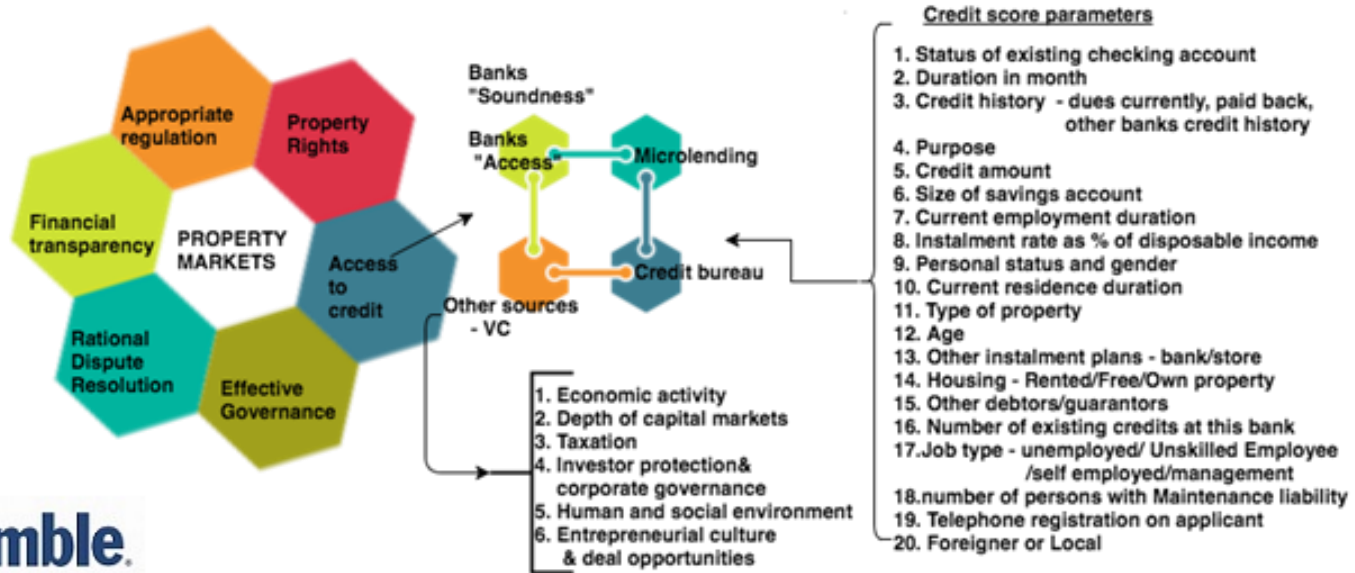
- Banks granting access to credit = function  $h$  (*access to banks, soundness of the banks, microlending*)  
------(4)
- Venture capitalists and private index = function  $j$  (*economic activity, depth of capital markets, taxation, investor protection and corporate governance, human and social environment, entrepreneurial culture and deal opportunities*)  
(Groh et al )----- (5)
- Depth of capital markets = function  $k$  (*Size of the stock market, Stock market liquidity, IPO's and public issuing activity, M&A Market activity, Debt and Credit market, Banks non performing loans and financial market sophistication*)  
----- (6)
- Entrepreneurial culture and deal opportunities = function  $l$  (*Innovation, Scientific and technical journal activities, ease of starting and running a business, simplicity of closing a business, corporate R&D*)----- (7)





## Parameters of Access to Credit

The credit gap is very high in the regions Africa and Asia with over-59% requirement and this can be also correlated to lack of adequate number of credit bureaus in these regions (Stein, Peer et al 2010)





## Banking crisis and impact @ Access to Credit

“Banking crisis is marked by bank runs that lead to the demise of financial institutions, or by the demise of a financial institution that starts a string of similar demises” (Reinhart 2009).

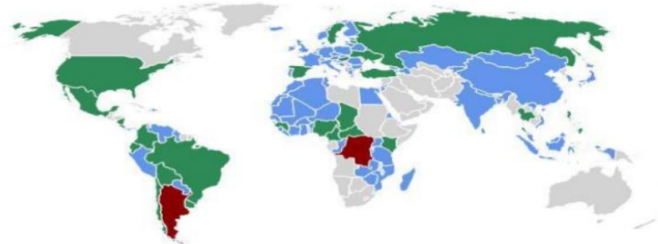


Figure 3 : Frequency of Systemic Banking Crises Around the World, 1970–2011  
Source : Laeven, Luc et al, 2012



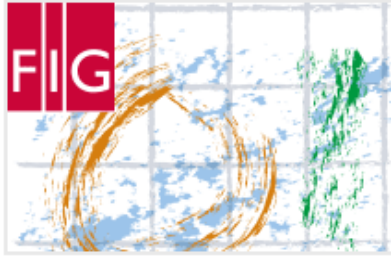
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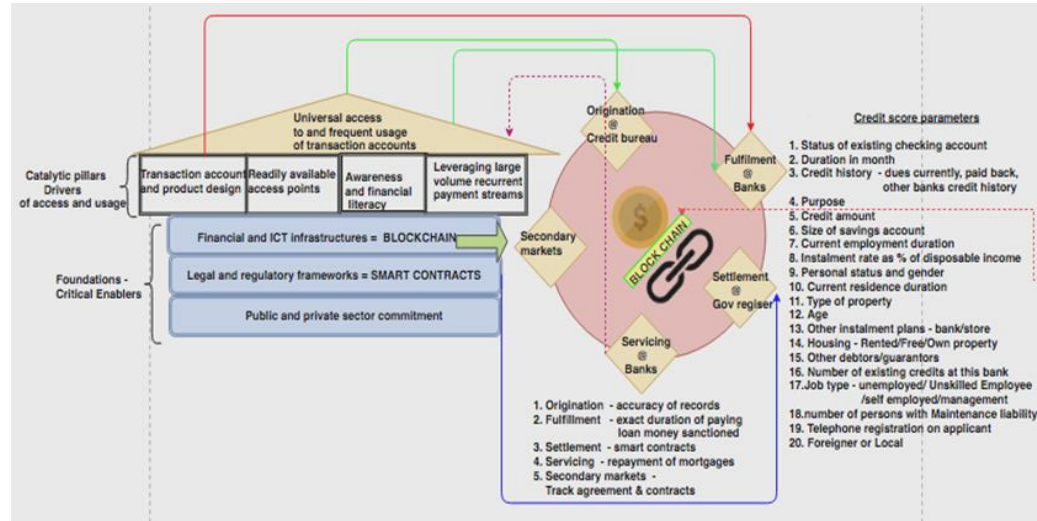
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## Framework - Universal financial access @ Blockchain

“Developing and accelerating electronic merchant payments at the broader level can help countries advance financial access and financial inclusion.... Using basic payment or savings accounts can gradually lead to access to and usage of other financial services, such as credit, insurance or pensions. The three foundational enablers are also highly relevant levers for helping to improve the usage and adoption of electronic payments by merchants” (WorldBank, 2016).

Fig : Universal financial access to credit using Blockchain



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## Alternative Financing for access to credit?

- Crowdfunding powered by blockchain technology in short term can lead to a decentralized bitcoin ecosystem, and actually address scalability issues. ex : Kickstarter, Indiegogo.
- Crowdfunding platforms powered by blockchain 2.0 technology bypass the requirement of third party trust. They allow individuals in property markets to raise funds by custom made digital currencies and selling “cryptographic shares” to early backers - get tokens that represent shares of the property they support and can actually benefit from the token value appreciation.

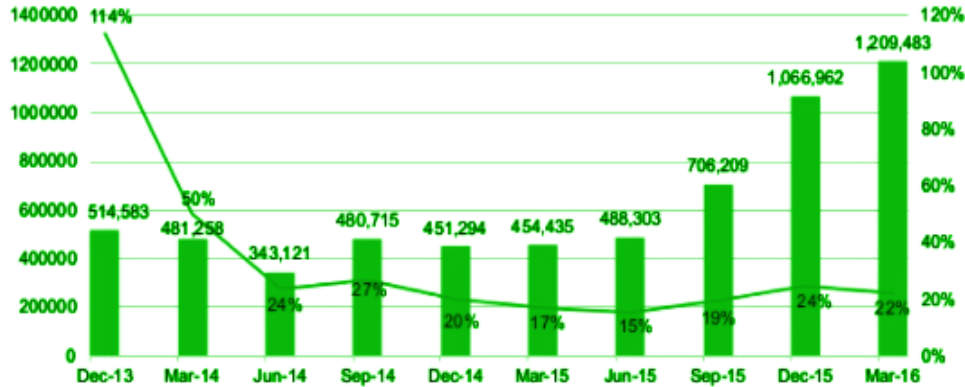
Loan refinancing				58%
Credit card payoff				28%
Home improvement			4%	
Small business loans	1%			
Other			9%	

Fig : uses of market places loans, Source : (Stagars, 2016)



## Growth of e-wallets and blockchain users

Number of New Wallets Added Each Quarter



Blockchain Wallet Users  
Source: blockchain.info

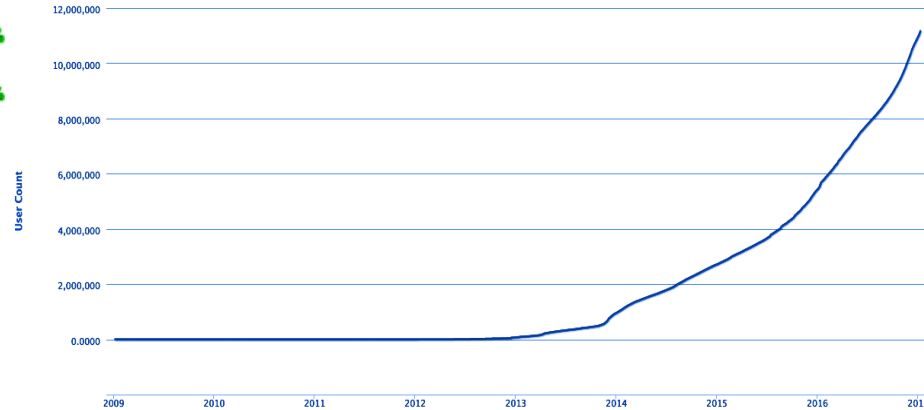


Figure : Number of new wallets added each quarter. Source : Coindesk, 2017





## Ghana - Bitland : strong correlation



Figure : Bitland charts price and market cap variation since two months (as of Jan 2017)

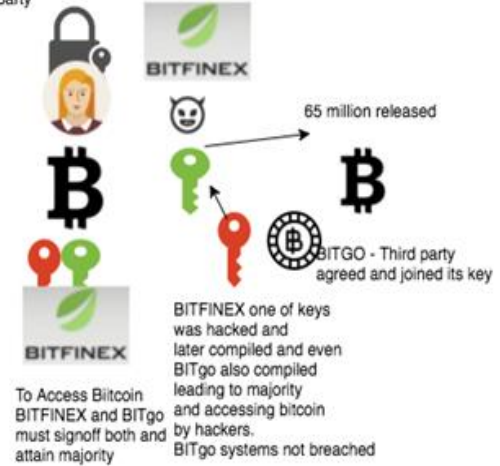
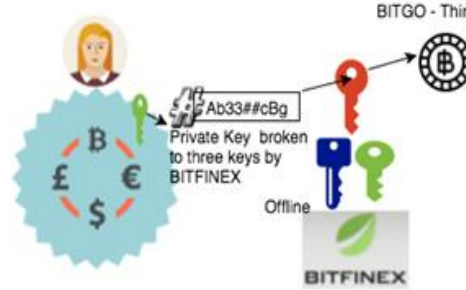
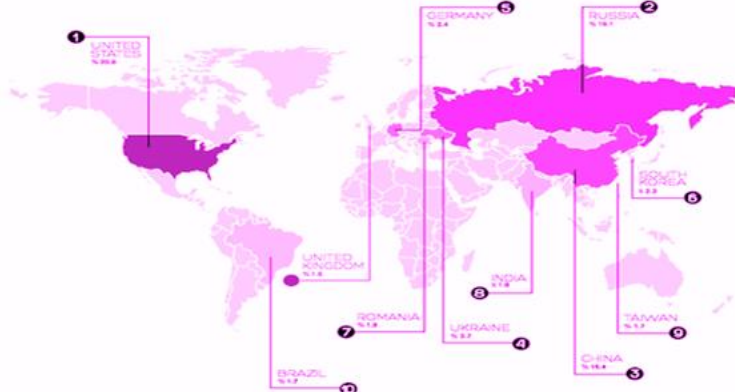
- Land could be held as equity, as currently no banks are really willing to lend against unregistered lands. Bitland will be issuing a digital currency called Cadastrals.  
price in Phase 1 will be 10,000 satoshi (\$0.04 USD)  
Phase 2 it rise to 30,000 satoshi.
- The weaker access to credit can have improved access to credit if financial infrastructure and technology can be improved and thus becomes a case for use of Blockchain to improve the access of credit.
- *Correlation of blockchain to access to credit is seen very strong in Africa and Asia as the financial infrastructure and Land title registration infrastructure is deemed to be less in these regions.*





## Blockchain hacks : Need for ISO

Q3 Top 10 Countries  
% by country of origin





## Wannacry - Ransomware

source : Ransomware Infections by Region, January 2015 – April 2016

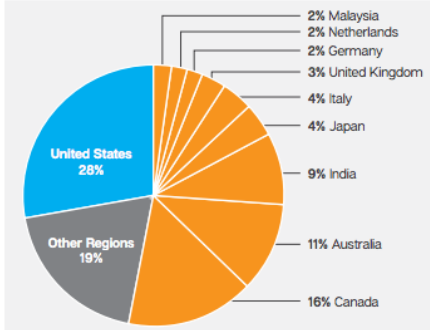
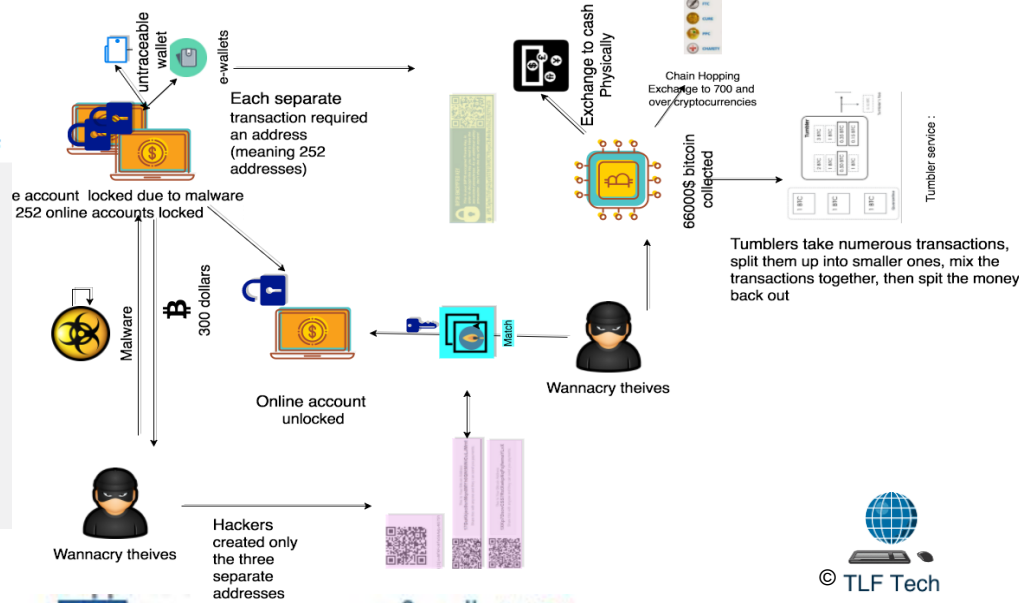
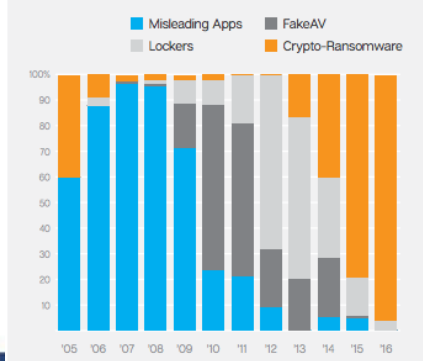


Figure 2 Percentage of New Families of Misleading Apps, Fake AV, Locker Ransomware, and Crypto-Ransomware Identified Between 2005 and June 2016





## Standards Australia : ISO

Government services that survey respondents would like to see using blockchain technologies to improve efficiencies and public access

Land Transfers and Property Title registrations	72.1%
Personal Identification and Passport Documentation	68.9%
Management of Health Records	65.6%
Vehicle Registrations	54.1%
Welfare Distribution and Monitoring	37.7%
Urban planning; wider pedestrian sidewalks, increased times for crossings	21.3%
Public Transport Scheduling	16.4%

Source: Blockchain survey, Standards Australia analysis

### Liaison Committees from ISO/TC 307

ISO/TC 307 can access the documents of the committees below :

Reference	Title	ISO/IEC		
ISO/IEC JTC 1	Information technology	ISO/IEC		
ISO/IEC JTC 1/SC 27	IT Security techniques	ISO/IEC		
ISO/IEC JTC 1/SC 32	Data management and Interchange	ISO/IEC		
ISO/IEC JTC 1/SC 38	Cloud Computing and Distributed Platforms	ISO/IEC		
ISO/IEC JTC 1/SC 40	IT Service Management and IT Governance	ISO/IEC		
ISO/IEC JTC 1/SC 41	Internet of Things and related technologies	ISO/IEC		
ISO/PC 295	Audit data collection	ISO		
ISO/PC 308	Chain of custody	ISO		
ISO/TC 46	Information and documentation	Liaison Committees to ISO/TC 307		
ISO/TC 68	Financial services		The committees below can access the documents of ISO/TC 307 :	
ISO/TC 262	Risk management	Reference	Title	ISO/IEC
ISO/TC 292	Security and resilience	ISO/IEC JTC 1	Information technology	ISO/IEC
ISO/TC 309	Governance of organizations	ISO/IEC JTC 1/SC 38	Cloud Computing and Distributed Platforms	ISO/IEC
		ISO/TC 154	Processes, data elements and documents in commerce, industry and administration	ISO
		ISO/TC 184/SC 4	Industrial data	ISO
		ISO/TC 262	Risk management	ISO
		ISO/TC 292	Security and resilience	ISO

### Organizations in liaison

Acronym	Title	
EC - European Commission	European Commission	A
SWIFT	Society for Worldwide Interbank Financial Telecommunication	A





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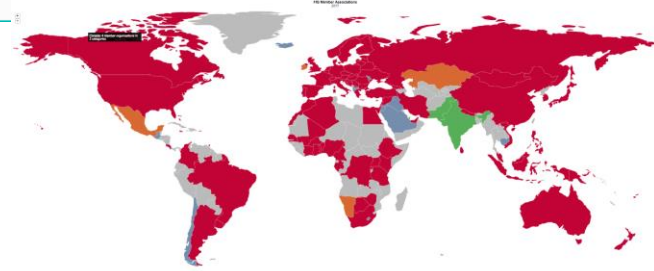
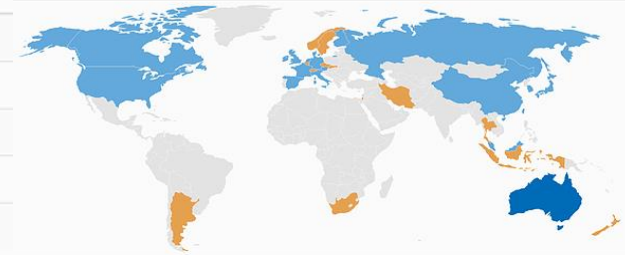


## Standards Australia : ISO - FIG

ISO/TC 307

Blockchain and electronic distributed ledger technologies

Reference	Title	Type
ISO/TC 307/SG 1	Reference architecture, taxonomy and ontology	Working group *
ISO/TC 307/SG 2	Use cases	Working group *
ISO/TC 307/SG 3	Security and privacy	Working group *
ISO/TC 307/SG 4	Identity	Working group *
ISO/TC 307/SG 5	Smart contracts	Working group *



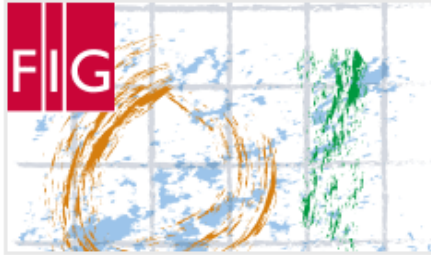
Legend:  
 \* Active members: ISO/TC 307/SG 1, ISO/TC 307/SG 2, ISO/TC 307/SG 3, ISO/TC 307/SG 4, ISO/TC 307/SG 5  
 \* Observer: ISO/TC 307/SG 1, ISO/TC 307/SG 2, ISO/TC 307/SG 3, ISO/TC 307/SG 4, ISO/TC 307/SG 5  
 \* Other: ISO/TC 307/SG 1, ISO/TC 307/SG 2, ISO/TC 307/SG 3, ISO/TC 307/SG 4, ISO/TC 307/SG 5  
 \* Not active: ISO/TC 307/SG 1, ISO/TC 307/SG 2, ISO/TC 307/SG 3, ISO/TC 307/SG 4, ISO/TC 307/SG 5



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## Risk management @ Access to credit

- Alternative financing portals should be encouraged to purchase professional liability insurance in addition to the bond
- Elliptic is a London-based bitcoin company that offers a “vault” service, and Xapo also offers enterprise-level insured bitcoin storage that can be used by exchanges. In fact, Coinsetter offers insurance on 50% of all bitcoin deposits thanks to a partnership with Xapo
- Investors should liaise for including insurance coverage available to cover : cyber liability, commercial crime, professional services; directors and officers, and commercial general liability for all those activities involving cryptocurrencies and/or distributed ledger technology.
- An insurance policy that can cover Crime policies that include bitcoin and other cryptocurrencies could back the risk of losing money due to hacks.

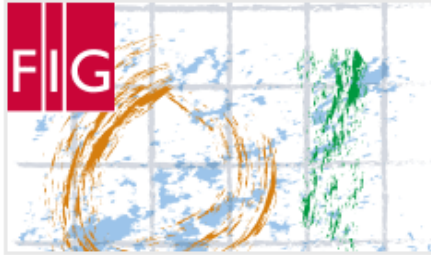


## Conclusion and further research

- The scorecards from CIPE allow us to know the strength or weakness of contribution of access of credit to property markets, the exact correlation numbers are difficult to compute as the parameters of comparison is not normalised.
- Block chain's consensus algorithms require more computing power and introduce delays. The distributed ledger system that protect blockchain and lead to transparency could also lower performance and limit scale due to wrong implementations.
- Developing adequate tools, including insurance policies, to deal with the risks is mandatory if involved in the secondary markets using crypto currencies although some time property markets use of block chain can just focus only on primary markets using blockchain

**“one blockchain may not fit all so does the policyholder's existing program”**





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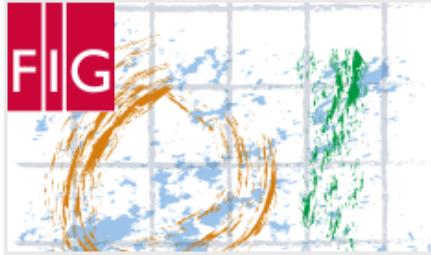
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