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Developing sustainable financing to encourage private investment through Block chain and crowd funding in real estate

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Introduction

- Global real estate market is over \$217 trillion in 2015 (2.7 times global GDP)
- Retail investors discouraged to invest
 1. due to high transaction costs
 2. restrictive regulatory regime
 3. ongoing operating costs
 4. lack of adequate alternative financing models.
- From alternate financing - “The average business loan amount for real estate markets is considerable higher at £662, 425 with an average loan term of 10 months.” (Zhang, Bryan et al, 2014)

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Scope

The research question - Can alternative financing models lead to sustainable financing in real estate markets - has gained significance since economic crisis

- Rationale for sustainable financing in real estate markets.
- Importance of crowd funding in bridging the credit gap.
- empirical relation between use of technology and filling the credit gaps for a sustainable financing in real estate projects.

Policy framework of UNECE identifies that credit policies directly influence real estate market dynamics due to

1. collateral on which mortgages and loans are allocated.
2. competitive and affordable mortgage rates with easier repayment installments are increasingly an essential for young couples and first-home family buyers.
3. access to private/partial ownership to solving housing problems in the long run.

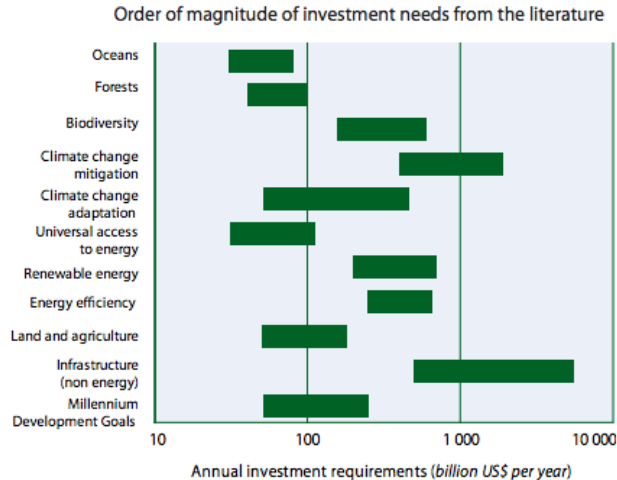
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UNECE on Sustainable Financing in Real estate

- Principle 4 identified the development of the real estate sector (and related jobs), real estate financing (mortgages), management and land administration can decisively contribute to a country's development and hence produce effective social and economic benefits.
- Principle 6 is about sustainable financing which mentions that access to credit and mortgages as well as microfinance for low income earners are essential elements of a healthy real estate markets.
- Principle 7 advocates the transparency and appropriate valuation of real estate assets used as collateral for advanced financial products can produce social and economic benefits and reduce the probability of future crisis.

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Requirement of investments



Source: United Nations System Task Team on the Post-2015 United Nations Development Agenda, background paper 1, x-axis in logarithmic scale (see sustainabledevelopment.un.org/index.php?menu=897).

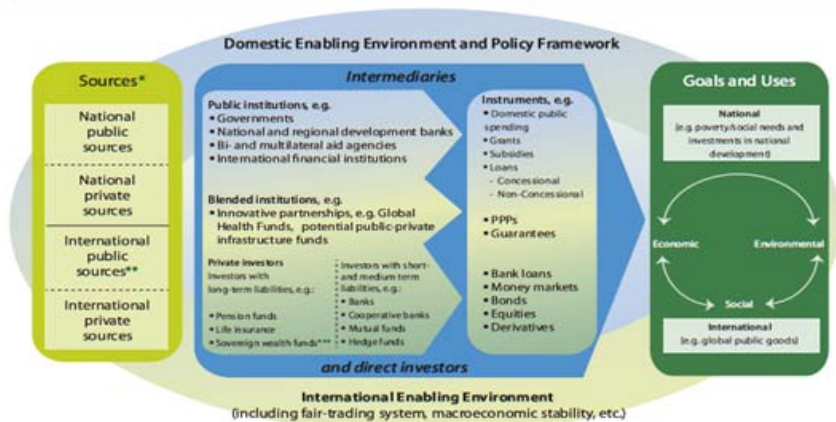
- Additional financing for infrastructure - US\$ 5 to 7 Trillion per year
- Global savings - US\$22 trillion per year sufficient to meet these needs, resources allocation inadequate.
- Achieving this will not easy: it will take a transformative change to the way financing is done, in both public and private spheres” (UN report, 2014)

Fig 1 : Requirement of investments for various agenda sectors in the future
(Source: UN report, 2014)

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Flow of Funds for Sustainable development

Flows of funds from international and national financing sources to sustainable development*

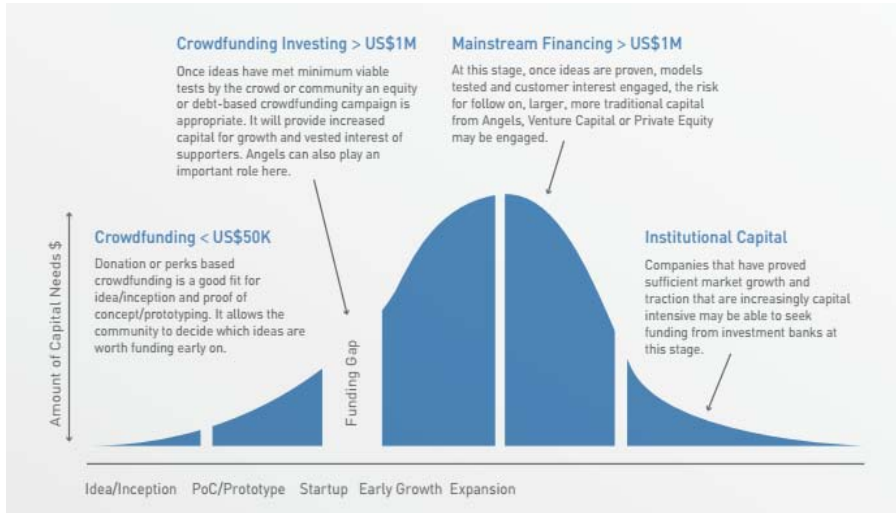


- The scope of this work focuses on the Land and agriculture, infrastructure finance needs and in perspective of real estate management.
- The use of Fintech to bridge the credit gap in addition to acting as a tool for sustainable financing in real estate can be linked to world bank estimates

Fig 2 : International and National financing sources for sustainable financing. (Source: UN report, 2014)

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Credit Gap statistics



95% of the Worlds business are SME's

- approx 50% cannot get the financing they need
- a credit Gap estimated at over \$2 trillion across over 200 million businesses.

- “The hardest sum to raise is between the S\$500,000 and S\$2 million mark, because it is too big for friends and families to chip in, but too small to get banks interested in” (Goh, 2015).

Fig 3 : “Funding Gap” Source (Capital Crowd fund advisors, 2013)

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Crowd Funding

- “Crowdfunding is an Internet-enabled way for businesses or other organizations to raise money in the form of either donations or investments from multiple individuals.”
- a new form of capital formation emerged in the wake of the 2008 financial crisis
- Crowdfunding takes advantage of crowd-based decision-making and innovation, and applies it to the funding of projects or businesses.” (Best et al, 2013)

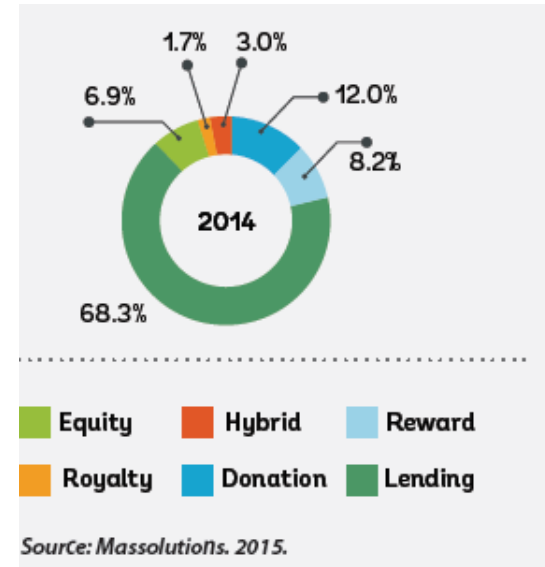


Figure 4 : Growth by crowdfunding region , Source : Massolution 2015

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Crowd Funding Trends

- In 2014 first regional Asian platform with CrowdPlus.Asia, based in Malaysia and operating in Thailand, Vietnam, Honk Kong and China.
- The platform is a partnership of Netrove Ventures Group, a regional tech VC firm, and Propellar Corporation, an equity crowdfunding operator.
- All national platforms are expected to be running by early 2016. (Zhao Liang, 2015)



Growth by crowdfunding region prediction for 2015 in millions of USD (research based estimate)

Figure 5 : Growth by crowdfunding region , Source : Massolution 2015

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Crowdfunding companies comparison

Country	Hong Kong	Singapore	Singapore	Singapore	Sweden	United States	United States	United States
Companies	Crowdfunder	CoAssets	Crowdfunder	Crowdfunder	Fundedbyme	Kickstarter	Indiegogo	Realty Mogul
Founded	Mar 2013	May 2013	May 2014	Jan 2013	Apr 2011	Apr 2009	Jan 2007	Mar 2013
Approximate age as at Sep 2014	1 year 6 months	1 year 4 months	4 months	1 year 8 months	3 years 5 months	5 years 5 months	7 years 8 months	1 year 6 months
Focus sector	Real Estate	Real Estate	Creative projects - Arts, books, films and technology	Asian small- and medium-sized enterprises seeking funding	European start-ups seeking funding	Creative projects	Idea, Start-up or Charity	Real Estate
Types of Crowdfunding	Equity	Debt and equity	Reward	Reward	Debt, Equity and reward	Reward	Reward	Equity
Funds collected via the site	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Fees as shown on the site	5% (4% set up fee + addition 1% fee per project year to cover incidentals)	3% to 5% (Derived from advertising and listing fees)	4% (Derived from funds raised)	6.5% to 9.5% (derived from funders raised and amount depends on whether the project meets funding target)	12% (6% admin fees + 6% commission from funds raised)	5% (Derived from funds raised)	4% to 9% (derived from funders raised and amount depends on whether the project meets funding target)	Data not available
Alexa ranking (as at 15 Sep 2014)	792,002	88,394	283,810	1,191,538	158,917	542	1,485	115,086
Amount pledged on an annual basis	US\$3million ¹	S\$10mil ² (Based on equity)	Data not available	S\$29.412 ³	€6,313,976 ⁴	US\$99.3ml ⁵	Data not available	US\$14.6ml ⁶ (Based on equity)
Number of members	Data not available	3,400	Data not available	Data not available	39,985	30.6million visitors	Data not available	6,000 ⁶
Number of projects listed	Data not available	46 ⁷	13 ⁷	49 ⁷	750 ⁸	27,086 ⁵ (For 2011)	Data not available	51 ⁷
Percentage of successful projects	Data not available	35%	Data not available	12% ³	Data not available	44% ⁸	34% ⁸	Data not available
Average investment per funder	Data not available	More than S\$50,000	Data not available	S\$115 ⁹	€1,500 ⁴	US\$160 ¹⁰	US\$90 ¹¹	Data not available
User conversion % (from viewer)	Data not available	2.47%	Data not available	Data not available	Data not available	2.39% ¹²	2.17% ¹²	Data not available

- Crowdfunding in United States has been around for a longer time.
- United States relaxed regulations on investment-based crowdfunding in 2012 (via the JOBS Act), rewards-based sites like Kickstarter and Indiegogo have been around since the late 2000s.

Source : Getty Goh (2014)

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Crowdfunding – is it relevant?

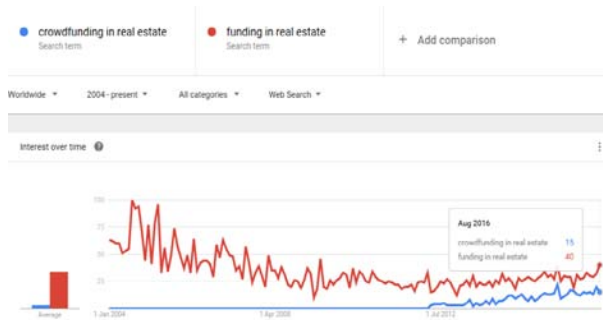


Figure 8: Crowdfunding and funding in real estate an interest comparison (google trends)

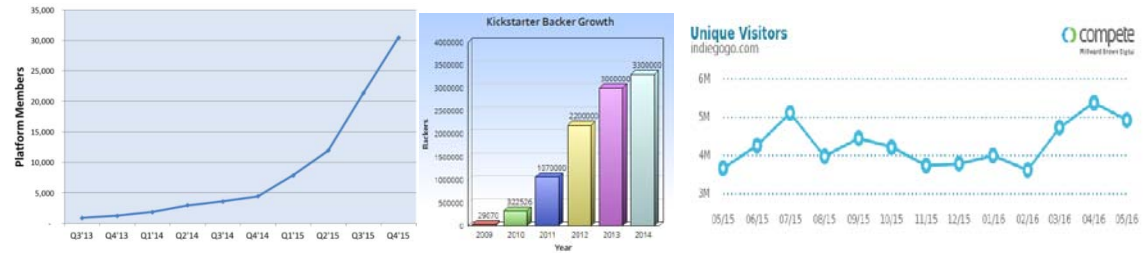


Figure 7: User growth in crowdfunding companies like coassets, indiegogo, kickstarter.

- crowdfunding did act as a supplementary source of funding to real estate even during times of economic austerity and technology suspicion expressed by many experts.

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Crowdfunding Projections

- The World Bank estimates that crowdfunding will reach \$90 billion by 2020, a level that could be seen by 2017 if annual growth continues. (Joseph, 2015)
- Despite strict regulations, the World Bank estimates that crowdfunding in China could reach \$50 billion by 2025



Figure 9: Total funding volumes since 2012
Source: (Joseph Houghe 2015).

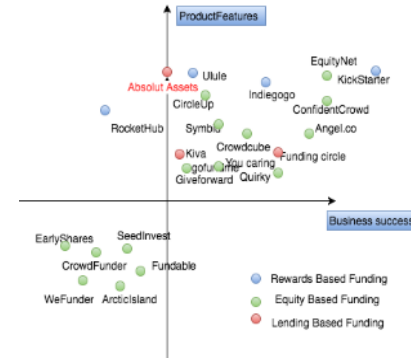


Figure 10: Growth in Real estate Crowdfunding International platforms

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Crowdfunding risks

According to a circular from the Hong Kong Securities Commission, some of

the potential risks for crowdfunding risks include

- (1) risks of default of the investment project or business
- (2) risks of illiquidity
- (3) risks of platform failure from temporary or permanent shut down
- (4) risks of fraud arising from the anonymity created by online aspect of crowdfunding
- (5) risks arising from platform that operates in different jurisdiction.

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Crowdfunding vs Traditional investments - Real estate

	Low minimum investment	Low transaction costs	Ability to easily diversify	Transparent investment	Control of investment	Direct Project Exposure	Known return on investment	Market volatility
Directly held real estate				✓	✓	✓		
REIT	✓	✓	✓	✓				✓
Real estate Crowd funding	✓	✓	✓	✓	✓	✓	✓	

- Property crowd funding is one of the fastest growing segments with projection to reach USD 90 billion in next 5 years.

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SWOT of crowdfunding

<p style="text-align: center;"><u>Strengths</u></p> <ul style="list-style-type: none"> · Capital availability · Increased investor engagement · Usually cheaper transaction costs · Possible strong investment returns · Possible to monitor investments online · Ancillary revenues 	<p style="text-align: center;"><u>Weakness</u></p> <ul style="list-style-type: none"> · Lack of secondary market · Risks are high · Possibility for bubbles in the market.
<p style="text-align: center;"><u>Opportunities</u></p> <ul style="list-style-type: none"> · New investment locations · Possibility of secondary market · Possible applications and currencies are high and additional businesses 	<p style="text-align: center;"><u>Threats</u></p> <ul style="list-style-type: none"> · Regulatory scrutiny · Incumbents like banks always can dominate the new startups. · New lending institutions may monopolize the sector

Fintech like block chain has the potential to counter the risks posed by traditional crowdfunding sites during funding to real estate ?

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Blockchain Disruption

...evolution of networked innovation, the 1970s and 1980s saw the development of the Internet, the “first horizon”

...creation of intuitive navigation and cross-connection of information, making possible the “second horizon” of the World Wide Web
Byzantine Fault Tolerance (critical to the theoretical underpinnings of blockchain also were produced in 1999.

...formation of Salesforce.com in 1999 - evolution into the “third horizon” of networked innovation.

...“fourth horizon” to the launch of mobile broadband services in 2006.

...the blockchain, with Satoshi’s October 2008 paper launching the “fifth horizon”. (David Schrier et al 2016)

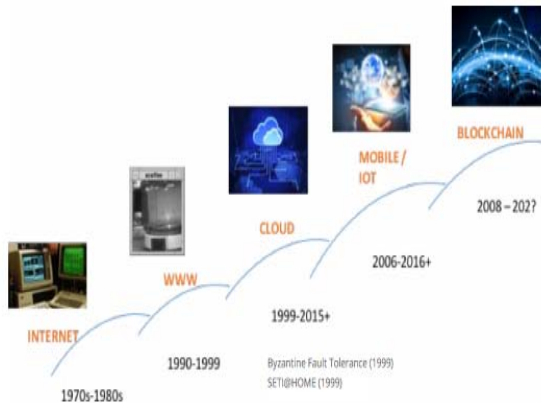


Figure 11. Fifth horizon since 2008

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Blockchain and uses

Why Blockchain?

- Lower Fee.
- Transparent and frictionless.
- Easy to scale globally
- Robust technology platform
- Stamp out fraud
- speed up transactions
- Allow crowdfunding to be even more liquid, Ex : CFX, sidechains
- Internet of things.

Blockchain is a distributed database with an open ledger. Broadly, this means data isn't stored on a single computer but rather on many different computers (known as "nodes") in a peer-to-peer network. This represents a radical paradigm shift in financial services. The reason blockchain is called a "chain" is that there is an initial block, called a genesis block, to start the chain. When you want to perform a transaction, such as to sell a bitcoin or a lite coin to another person:

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Block chain in Real estate : has it taken off?



- According to the World Economic Forum's survey on technology tipping points, 58% of respondents expect that by the year 2025, 10% of global GDP (10 % of \$98 trillion) will be stored block chain variations, up from about 0.008% in March 2016

Figure 12: Growth of registration of IBREA

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Framework of Block chain in real estate

- Oracle could track the progress of the assembly of executed documents to create a legally enforceable real estate transaction. (Travis Barrington, 2015)
- “The SIGNiX SaaS delivery model for digital signatures and identities, which is based on central management of each consumer’s private keys, meets the minimum criteria for third party issuance, validation and assurance of secure on-demand remote identity verification and authentication” (Timothy Reiniger, 2016).
- If they cannot reach agreement, they can get the third party signer involved. (Pamela Morgan, 2015).

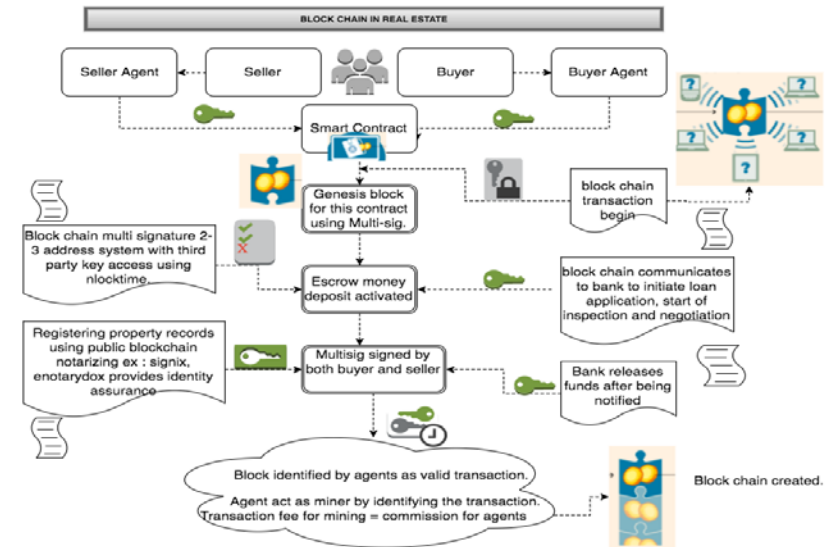


Figure 13 : Block chain in Real estate (during sale)

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Block chain in real estate - Uses

- Potential to make real estate a liquid asset
- Title insurance, escrow companies, country reader's offices, brokers, lawyers, home owner associations, support staff can be replaced with combination of digital tokens, multi-signature escrows, smart contracts, time stamped encrypted data, cryptocurrency.

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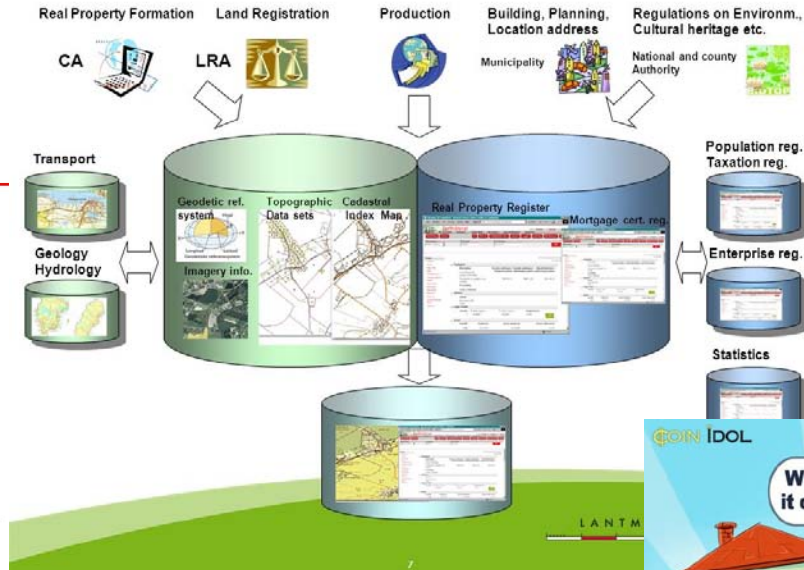
Block chain in real estate - Sweden

Important Components Sweden as an example

3.3 million Real Property Units

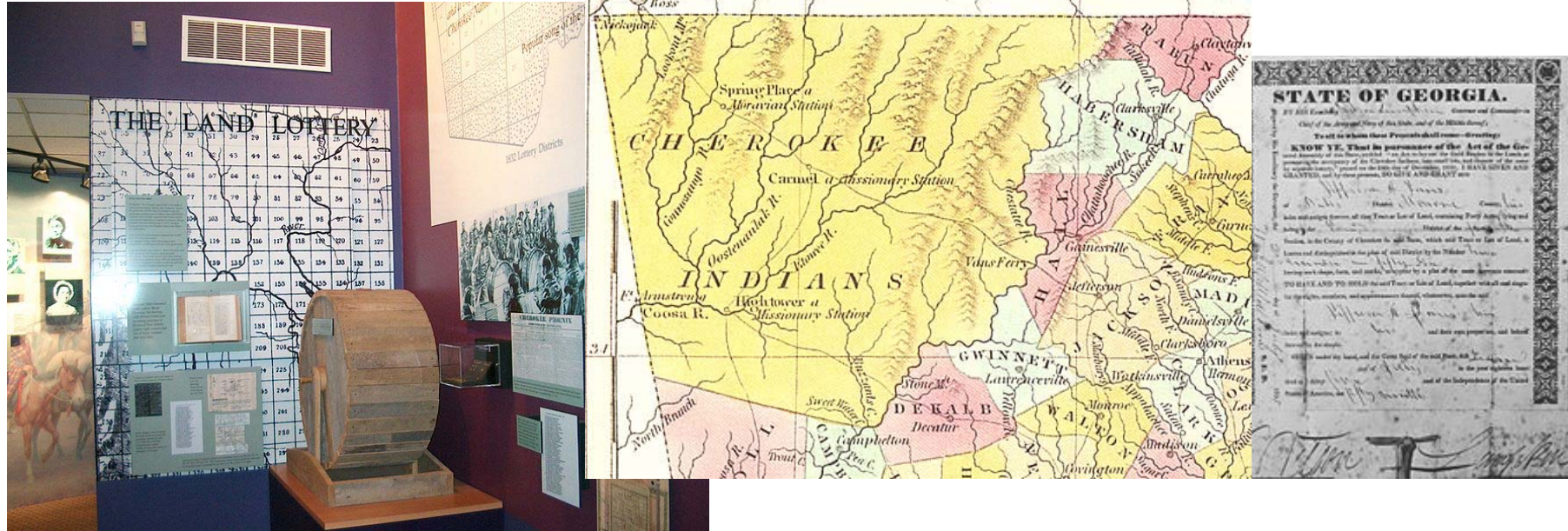
26 000 Property formation matters
300 000 Title transfers
490 000 Mortgages

- A good legislative framework
- Effective central national institution responsible for property formation, cadastre and land registration
- Integrated information system supporting the institutions and the market
- Electronic mortgages certificate system
- A well functioning real property market, low transaction costs, title and mortgage over a day



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Block chain in real estate - Georgia



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Block chain in real estate - Georgia

- Georgia - fighting corruption in the last few years, it [now ranks 48th](#), vis-a-vis 123 on Transparency International's Corruption Perception Index in 2003,
- [According to the World Bank](#), Georgia ranks third in the world for ease of registering a property for a small or medium-sized business. Honduras, in contrast, ranks 88th.
- private blockchain tailored for property rights registration that is anchored to the public Bitcoin blockchain.
- Land titles will be managed on a closed system so no one individual transaction will be identifiable and public, but that the public can have confidence that the record will not be tampered with because the data on it will collectively be stamped onto the public Bitcoin blockchain, making any fraudulent changes to the private blockchain visible to the whole world.

Online Maps

- **Mapspot.ge**
- City24.ge
- Pinpoint.ge
- Directory.ge
- Land Cadaster Map (NAPR)
- Urban.tbilisi.ge

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Crypto currency and Financial inclusion

- Send currency to anyone anywhere in the world, almost instantly, with no intermediaries or excessive fee.
- Financial inclusion of all. (even without bank accounts)
- The possibility to build on top and around the block chain to fundamentally change the way we use and interact with money.
- The enormous amount of computing power used to create a decentralized network for applications on top
Ex : [Brelion](#). a real estate crowdfunding website, is allowing investors to use bitcoin to invest in real estate, of the block chain company to offer such an investment option, according to the company.

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Can cryptocurrency lead to sustainable financing in real estate

Working paper 2016 of UNRISD - crypto coins (Scott, 2016) ::

- Bitcoin as a means to facilitate low-cost remittances for those seeking to transfer small amounts of money internationally
- Bitcoin as a means for an otherwise excluded individual to have a decentralized global bank account, accessible simply by downloading an open source wallet from the internet, rather than having to set up with a formal financial institution

vision of projects like “Faircoin, is to build large-scale networks of solidarity-based collaboration using technology. It is in potentially enabling such “collaboration at scale” that cryptocurrency technology begins to look like a force for radical economic alternatives” (Scott, 2016)

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Conclusion and Further Research

- An empirical relation between use of technology for filling the credit gaps for a sustainable financing in real estate projects is dependent on the regulations across the globe
- Over the last few years, technology has eliminated middlemen and increased efficiencies in a plethora of different industries and it has the potential to do likewise in the real estate industry.
- Real estate crowdfunding has seen exponential growth is likely to continue to grow particularly as the regulatory framework becomes more developed in many jurisdictions (Marie Hunt, 2015).
- key dynamics within cryptocurrency and technology to enable sustainable financing in real estate is still prone towards the elitist,tech-centric outlook of disruptive technology start-up culture.

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Conclusion and Further Research

Further research ::

Explore the extent to which cryptocurrency as a currency system could interact in the future with blockchain 2.0 smart-contract technology to create sustainable financial schemes

Will adding risk management mechanisms like crowdfunding insurance to safeguard the investor's interest lead to sustainable financing in real estate?

- key dynamics within cryptocurrency and technology to enable sustainable financing in real estate is still prone towards the elitist,tech-centric outlook of disruptive technology start-up culture.

“one blockchain does not fit all”

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