

DR. PHILIPPE J.S. DE BROUWER

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INNOVATION

FINTECH

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# 1 What is FinTech

## 1.1 Brief History of Banking

### Banking History

1. ca 2000 BCA in Assyria and Babylonia: grain loans to farmers and traders
2. ca 500 BCA: Ancient Greece, Roman Empire, China and India: accepted deposits and changed money
3. 1400s Florence (Italy) first modern banks (eg. Medici Bank)
4. 1695 Bank of England issues first banknotes
5. 1728 first overdraft facility by the Royal Bank of Scotland
6. 1800s international finance: Mayer Amschel Rotchild and his five sons in London, Paris, Frankfurt, Vienna, and Naples
7. end 1800s: first clearing house (London)
8. 1960s ATM
9. 1990s online banking
10. 2000s: securitization, CDOs and other ABSes
11. ... FinTech? Public Ledgers?

## 1.2 Peer-to-peer lending

### P2P Lending

#### Definition 1 .. P2P Lending ..

Peer-to-peer lending refers to lending money to individuals or businesses through online services that match lenders directly with borrowers.

Note:

- also the wording Person-to-Person lending or the acronym P2P lending is used
- while the concept of people lending to people is about 4'000 years old, this wording refers to the online lending

### P2P Lending Facts

- first: Feb 2005, Zopa in UK
- largest: Lending club (USA)
- 2016-10-07: the market cap of Lending Club is 2.28B (est. 2006 — 1000 employees) – compare:
  - Royal Bank of Scotland Group plc (est. 1727 (Coutts: 1692) — 92'300 employees): 21.53B
  - Erste Group AG: (est. 1819 as the first Austrian savings bank — 42'692 employees): 11.50B

## 1.3 Crowd-Funding

### 1.3.1 History

#### History

*Crowd-Funding is nothing new*

- “La Liberté éclairant le monde”
- designed by Frédéric Auguste Bartholdi, built by Gustave Eiffel and given to the young USA
- Lack of funding for the pedestal in 1885
- Publisher Joseph Pulitzer of the “New York World” attracted donations from more than 120'000 contributors, most of whom gave less than a dollar.



#### Definition

##### Definition 2 ∴ Crowd-Funding ∴

Crowd-Funding is sourcing funding from many contributors (without the intermediation of an investment banker)

Different styles of Crowd-Funding:

1. equity
2. product
3. sponsoring

### Modern History

- Product crowdfunding / Rewards based crowdfunding — eg. Pebble Watch, Ubuntu Phone
- Debt based crowdfunding (P2P lending) — eg. Lending Club
- Donation based crowdfunding — eg. GoFundMe
- Equity crowdfunding
- mini-IPO

## 1.4 Blockchains Distributed Ledgers

### Bitcoin

*Bitcoin and FinTech have a lot in common*

- ... is since 2008 is a distributed ledger system with no bank in between
- ... is an engine to create trust in a trust-less world
- ... is a step in democratizing money

### The next steps

- decentralized mortgages
- decentralized ownership registers
- decentralized money
- decentralized equity and product funding

## 1.5 Market-Places

### Is it strange that ...

- the world's largest Internet company produces no PC
- the world's largest market place is no place
- the world's largest transport company has no taxi's
- the world's largest bed-provider has no hotels
- ...
- the world's largest transaction engine (in its segment) is no bank

## Market Places

- New Market Platforms: Market Information Platforms, automated data collection and analysis
- smarter (and faster) machines: AI and machine learning, machine readable news, social sentiment and big data.

### 1.5.1 Transaction and Convenience

#### Paypal, a phenomenon

- founded: 1988 — In 2014, PayPal moved \$228 billion in 26 currencies across more than 190 nations.
- market cap: 13 B USD.
- business model: leave the hard work of credit checks, credit management and regulatory compliance to the banks and provide hassle free payment convenience to customers. Simply do what banks could to but refused while using the bank's and on top of that reaping transaction information.

PayPal found a way to ride the banking system as a parasite and bringing great convenience to customers.

## 1.6 Science and Progress

### 1.6.1 History

#### Science is the motor of welfare

- thermodynamics → steam engine → first industrial revolution → crash of LSE of 1850
- the internal combustion engine, electricity and magnetism → new wave of prosperity → crash of 1929
- the transistor and computer → globalization → Internet bubble, Global Meltdown
- the next wave is being build around four axis:
  - artificial intelligence and big data
  - quantum computing (maybe)
  - biotechnology and
  - nano-technology

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## 2 The real role of FinTech

### 2.1 Society Types and their importance

#### The Kardashev scale

*Where are we on our long journey?*

### 2.2 Can Fintech help to move to the next stage?

#### Can FinTech act as an enabler towards a Type I society?

- Misconception about ownership of deposits in banks
- Peer-to-peer lending and crowdfunding reflect the values of the society
- Blockchains, crowdlending and crowdfunding are a few of many signs of a Type I society

#### Risks that can stop the Rise of the Machines and FinTech

- solar storm or geomagnetic storm
  - 1859 (the Carrington Event): after 17.6 hours the CME reached earth on Sept 1–2 1859: aura so bright that one could read a newspaper at night, telegraphs failed nationwide, sparks on the lines, etc.
  - near miss July 23, 2012; Bastille Day Event on July 14, 2000 (observed by Voyager 1 and 2)
- extinction event at global scale
- fraud
- hacks and cyber-warfare
- quantum computers that are able to solve hard NP problems — unless quantum encryption saves us

## 3 Is there a future for the incumbents?

#### What can incumbents do?

### 3.1 Banking

#### Banking and P2P Lending

- credit risk: comparable rates on the good platform (also the platform can provide similar scoring system)

- guarantee: banks guarantee with their own balance sheet
- fighting fraud, AML, terrorist financing etc: banks rule

### **Banking and P2P Lending**

If there are no regulatory actions, then banks have little advantage other than convenience (other products and advice available) and a formal guarantee of the bank and eventually the nation.

Best defense: embrace P2P Lending as one offering and use size to make it really hard for new entrants — also partnering is an aid

### **Banking and Crowd-Funding**

- fighting fraud, AML, terrorist financing etc: banks have an advantage
- for the small business that gives an edge to the crowdfunding concept and small companies get big
- banks can provide research and help in valuation and talks to potential buyers (for bigger companies), banks can help writing prospectuses, etc.

### **Banking and crowdfunding**

Banks have a potential head-start, but (if Asset Management is left out of the equation), banks see part of the business go.

Best defense: embrace crowdfunding, use data and become a “finance ecosystem” to wipe out new entrants

### **Banking and Blockchains**

- Can disrupt money creation and replace printed money
- can replace ledger systems, transaction execution, clearing, etc.
- embrace: eg. HSBC and BofA use Blockchain technology to issue a letter of credit in trade finance (Aug 10, 2016)

### **Banks and Blockchains**

Blockchains will change the way banks work and with what they work, but it can also replace the deposit system — especially in low interest rate environments. Though Blockchains have their weak spots too (no guarantee, hacks, loss of private key, etc.)

Best reaction: excellence in execution of transactions and service, convenience and added security by balance sheet guarantee and recovery (or custody over private keys – transforming banks in “a secure place of identity”)

**Conclusion for Banks**

The ROE of banks went down from ca 7% (1970–1990) over 5% (1991–2010) to about 0% latest years — while C/I did not really change (since the 1970s is between 60% and 80%) and NPS remains low (around 10% while disrupters like lending club enjoy almost 80%)

- ROE will continue to be low (by design: see Basel III)
- banks have to embrace new technologies and stay on top
- a bigger institution typically has the legacy IT infrastructure but the size to invest in R&D
- the open (and open APIs) will be key.

**3.2 insurance****insurance and FinTech**

- connected insurance (IoT, Advanced Sensors, Wearables, big data): tools to reduce (insurance) risk
- insurance disaggregation (sharing economy, securitization and hedge funds, autonomous vehicles, etc.): temporal issue while interest rates are low and still lots of guaranteed life insurance contracts are outstanding.

**Tom de Swaan, DAVOS, Januar 20–23 2016**

“I have seen many innovative ways to sell insurance. You have to find alliances with disrupters, Though, I haven’t met one who wants the insurance liability on their balance sheet.” (paraphrased)

**3.3 Asset Management****Investment Management and FinTech**

- process externalization (advanced algorithms, cloud computing, capability sharing, Open Source software, etc.): tools that will reduce entry barriers but at the same time reduce margins
- empowered investors (social trading, retail algorithmic trading): probably will remain niche
- advice: robo-advisers sell old wine in new bags (few exceptions)

**Asset Managers**

Investment Managers will have to invest to keep up with new methods in asset management and create open interfaces (good for the ones with deep pockets). Though the real challenge to bring investment advice to a post WWII era is an opportunity.



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## 4 Conclusion

### Conclusion

1. Consolidation in all sectors will be necessary (just as the world can have one dominant transport company, one major bed-provider, etc.)
2. FinTech is bringing banking to the world of Internet
3. FinTech is part of a movement that cannot be stopped (unless something serious happens)
4. FinTech is part of a movement that will change our world
5. Banks have to re-invent themselves to survive in the long term, but they have a pole-position and a real role to play

## 1 Appendices

### 1.1 Copyright

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#### Bibliography

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### References

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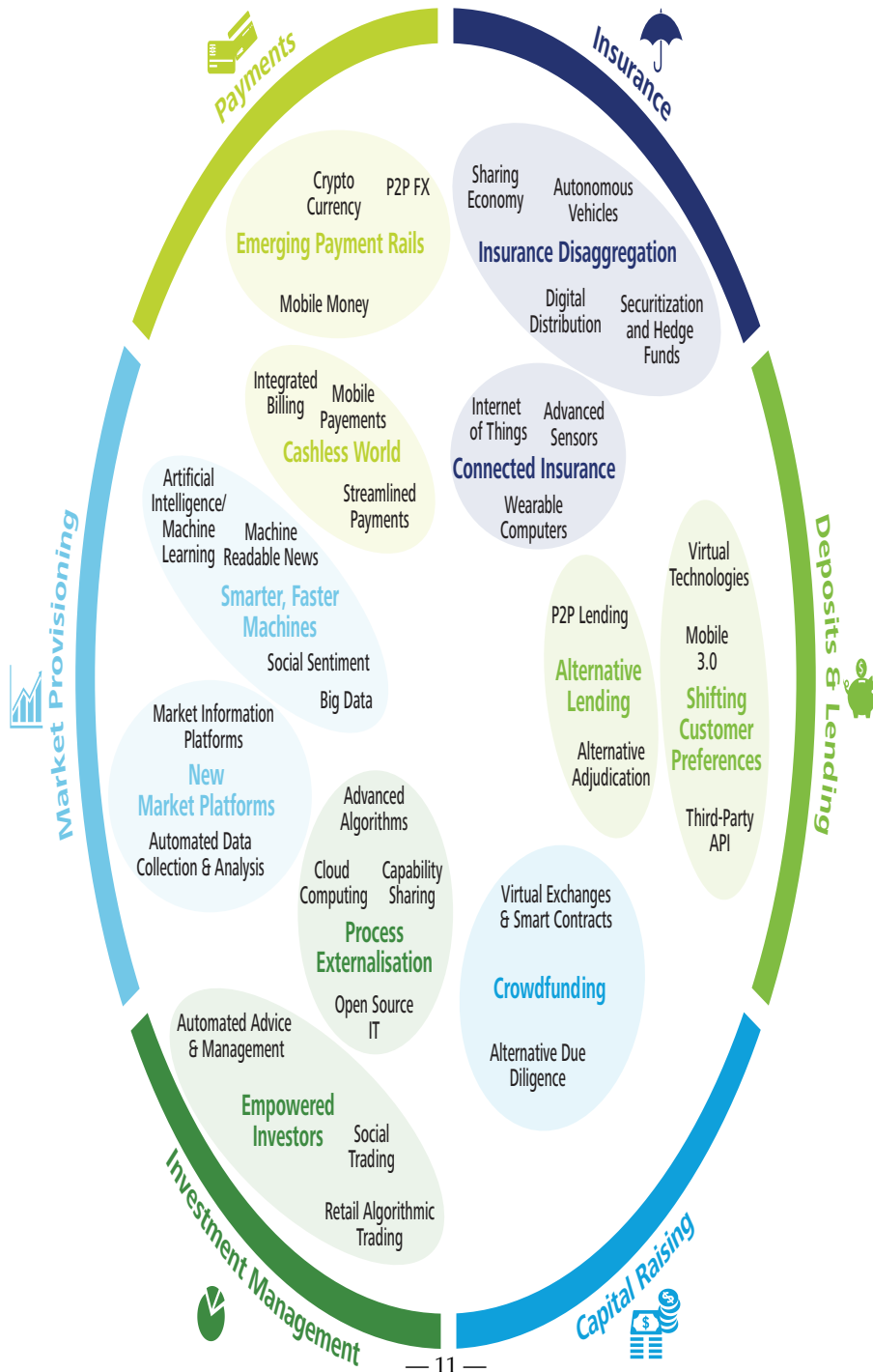
### 1.2 Nomenclature

#### Nomenclature

## **Nomenclature**

AI	Artificial Intelligence, page 5
AML	Anti Money Laundering, page 7
API	application programming interface, page 8
BofA	Bank of America, page 7
C/I	cost over income, page 8
HSBC	Hong-Kong Shanghai Bank Corporation, page 7
IoT	Internet of Things, page 8
IPO	Initial Public Offering, page 4
IT	information technology, page 8
LSE	London Stock Exchange, page 5
NPS	Net Promoter Score, page 8
P2P	peer to peer, page 4
P2P Lending	Peer-to-peer or person-to-person lending, page 2
R&D	research and development, page 8

# 11 Clusters of Innovation



Source: *The Future of Financial Services*, the World Economic Forum

Figure 1:

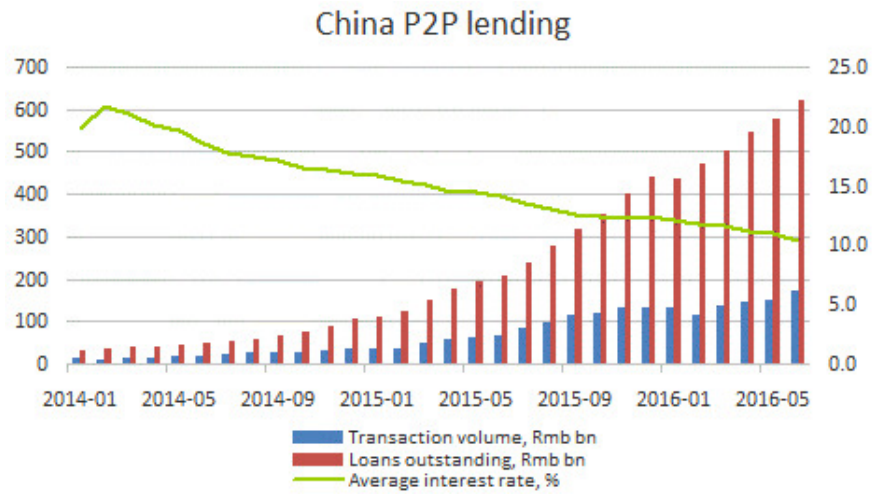


Figure 2: source: lendingtimes.com (July 27, 2016) – total household lending 125’203B RMB (Statistical Communiqué of the People’s Republic of China on the 2015 National Economic and Social Development )

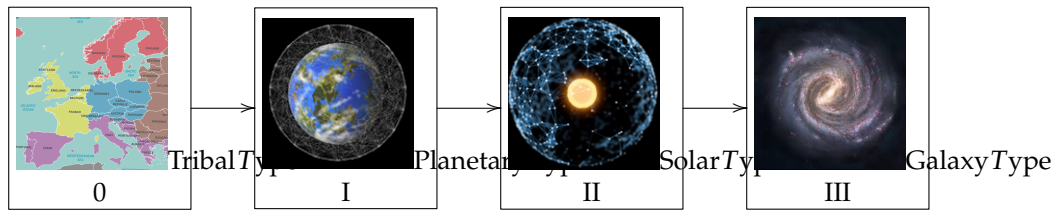


Figure 3: A theory about development of intelligent societies — see eg. ?.

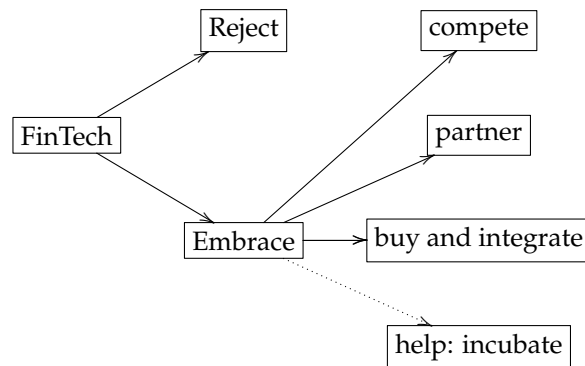


Figure 4: What to do about FinTech?