

# 人工智慧投資分析



Tamkang  
Universit  
淡江大學

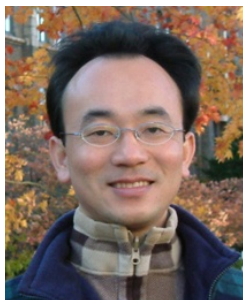
## AI for Investment Analysis

# AI 金融科技：金融服務創新應用 (AI in FinTech: Financial Services Innovation and Application)

1082AIIA02

MBA, IMTKU (M2399) (8409) (Spring 2020)

Wed 3, 4 (10:10-12:00) (B206)



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2020-03-11



# 課程大綱 (Syllabus)

週次 (Week)	日期 (Date)	內容 (Subject/Topics)
1	2020/03/04	人工智慧投資分析課程介紹 (Course Orientation on AI for Investment Analysis)
2	2020/03/11	AI 金融科技: 金融服務創新應用 (AI in FinTech: Financial Services Innovation and Application)
3	2020/03/18	機器人理財顧問與AI交談機器人 (Robo-Advisors and AI Chatbots)
4	2020/03/25	投資心理學與行為財務學 (Investing Psychology and Behavioral Finance)
5	2020/04/01	財務金融事件研究法 (Event Studies in Finance)
6	2020/04/08	人工智慧投資分析個案研究 I (Case Study on AI for Investment Analysis I)

# 課程大綱 (Syllabus)

週次 (Week)	日期 (Date)	內容 (Subject/Topics)
7	2020/04/15	Python AI投資分析基礎 (Foundations of AI Investment Analysis in Python)
8	2020/04/22	Python Pandas 量化投資分析 (Quantitative Investing with Pandas in Python)
9	2020/04/29	期中報告 (Midterm Project Report)
10	2020/05/06	Python Scikit-Learn 機器學習投資分析 (Machine Learning for Investment Analysis with Scikit-Learn In Python)
11	2020/05/13	TensorFlow 深度學習投資分析 I (Deep Learning for Investment Analysis with TensorFlow I)
12	2020/05/20	TensorFlow 深度學習投資分析 II (Deep Learning for Investment Analysis with TensorFlow II)

# 課程大綱 (Syllabus)

週次 (Week)	日期 (Date)	內容 (Subject/Topics)
13	2020/05/27	人工智慧投資分析個案研究 II (Case Study on Artificial Intelligence for Investment Analysis II)
14	2020/06/03	TensorFlow 深度學習投資分析 III (Deep Learning for Investment Analysis with TensorFlow III)
15	2020/06/10	投資組合最佳化與程式交易 (Portfolio Optimization and Algorithmic Trading)
16	2020/06/17	期末報告 I (Final Project Presentation I)
17	2020/06/24	期末報告 II (Final Project Presentation II)
18	2020/07/01	教師彈性補充教學

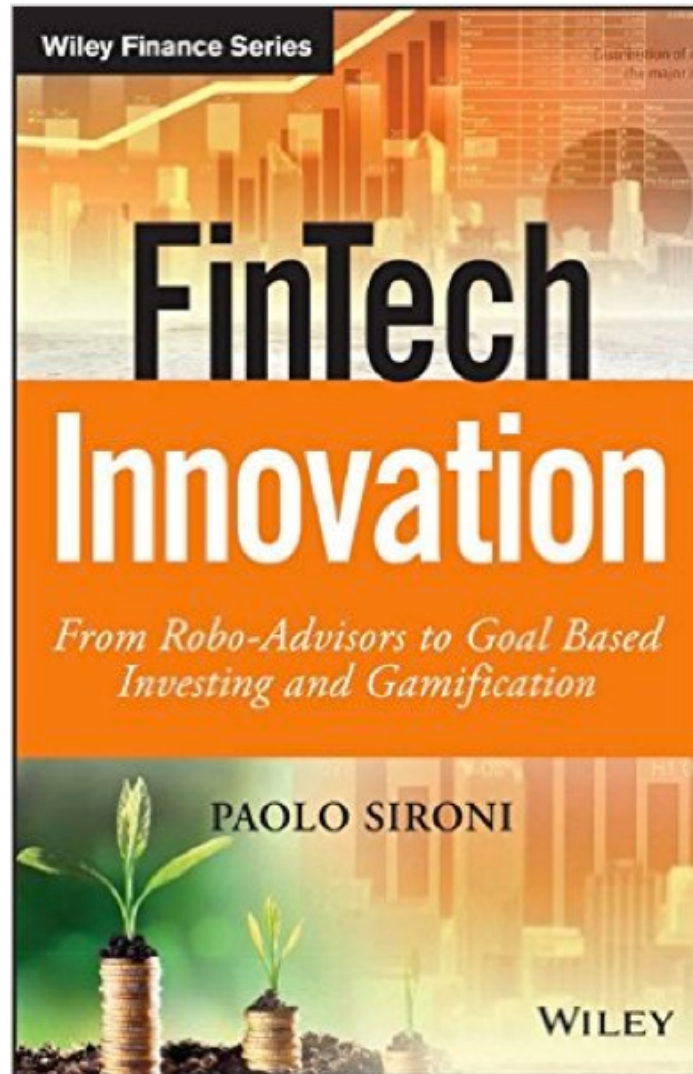


# **AI in FinTech: Financial Services Innovation and Application**

Paolo Sironi (2016)

# FinTech Innovation:

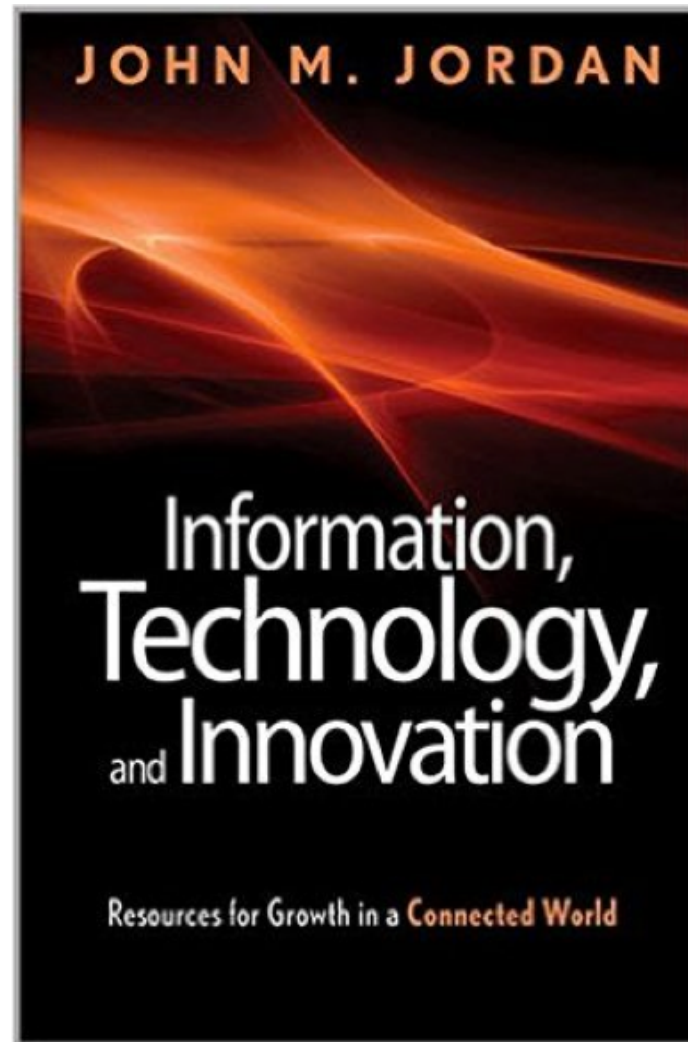
From Robo-Advisors to Goal Based Investing and Gamification,  
Wiley



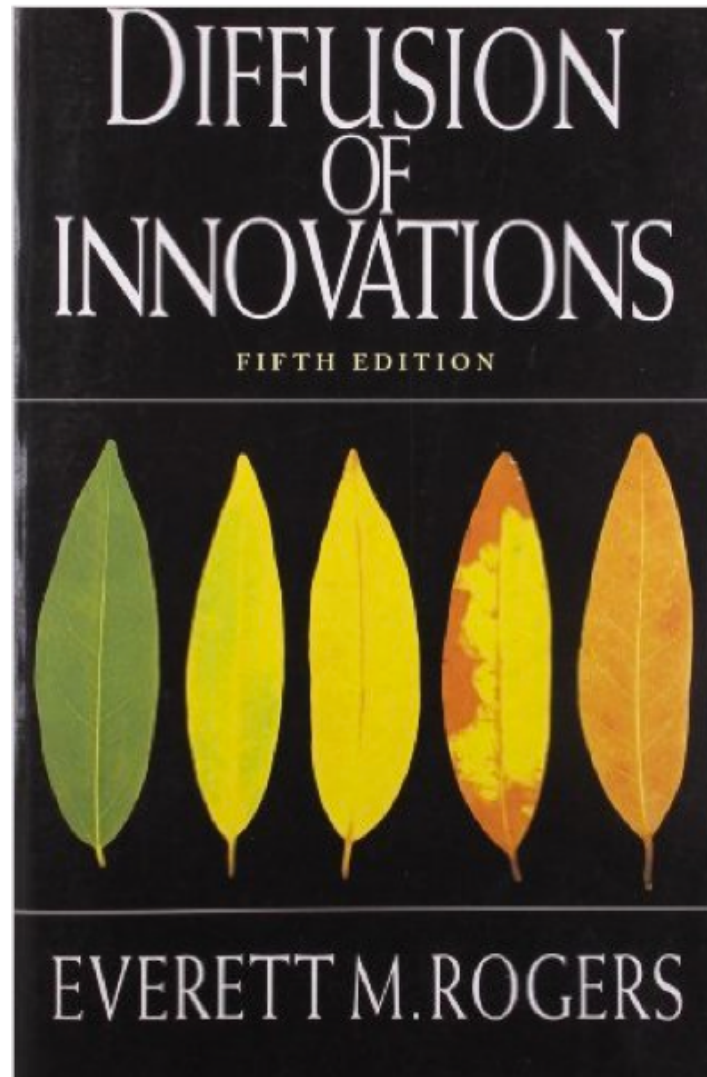
John M. Jordan (2012),

# Information, Technology, and Innovation:

Resources for Growth in a Connected World,  
Wiley



Everett M. Rogers (2003),  
**Diffusion of Innovations,**  
5th Edition, Free Press

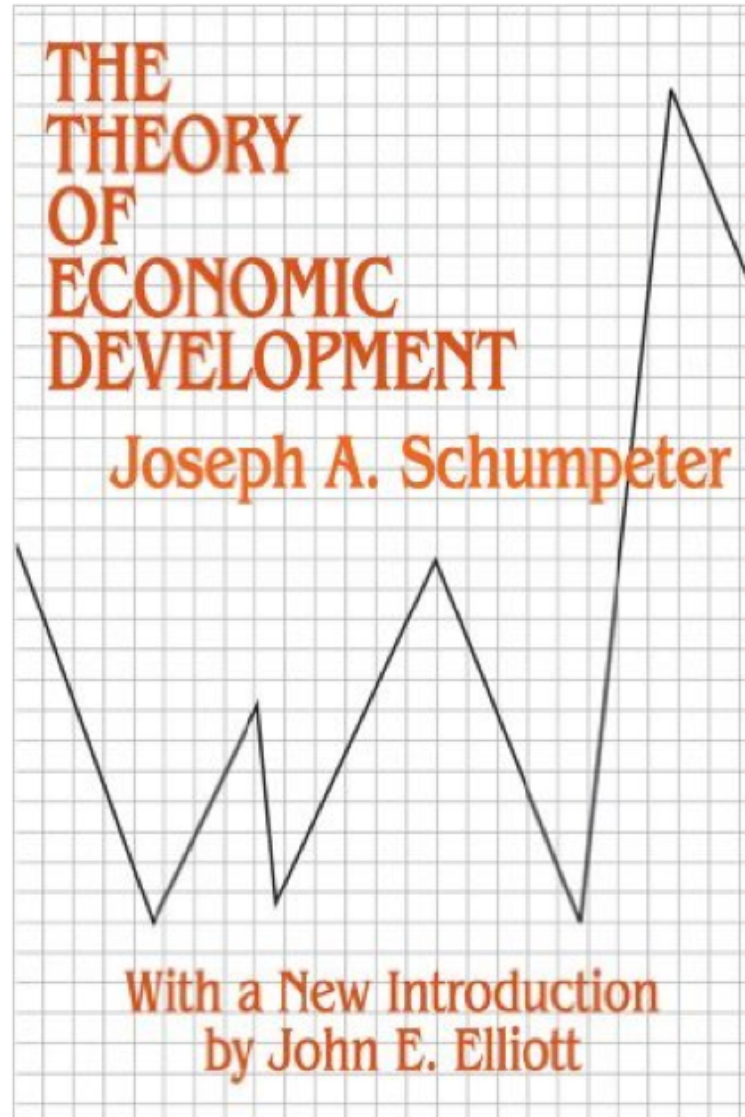


(Rogers,  
1962;  
1971;  
1983;  
1995;  
2003)

Joseph A. Schumpeter,

## The Theory of Economic Development:

An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle,  
Transaction Publishers, 1982



(Schumpeter, 1912)

# FinTech

# Financial Technology

# FinTech



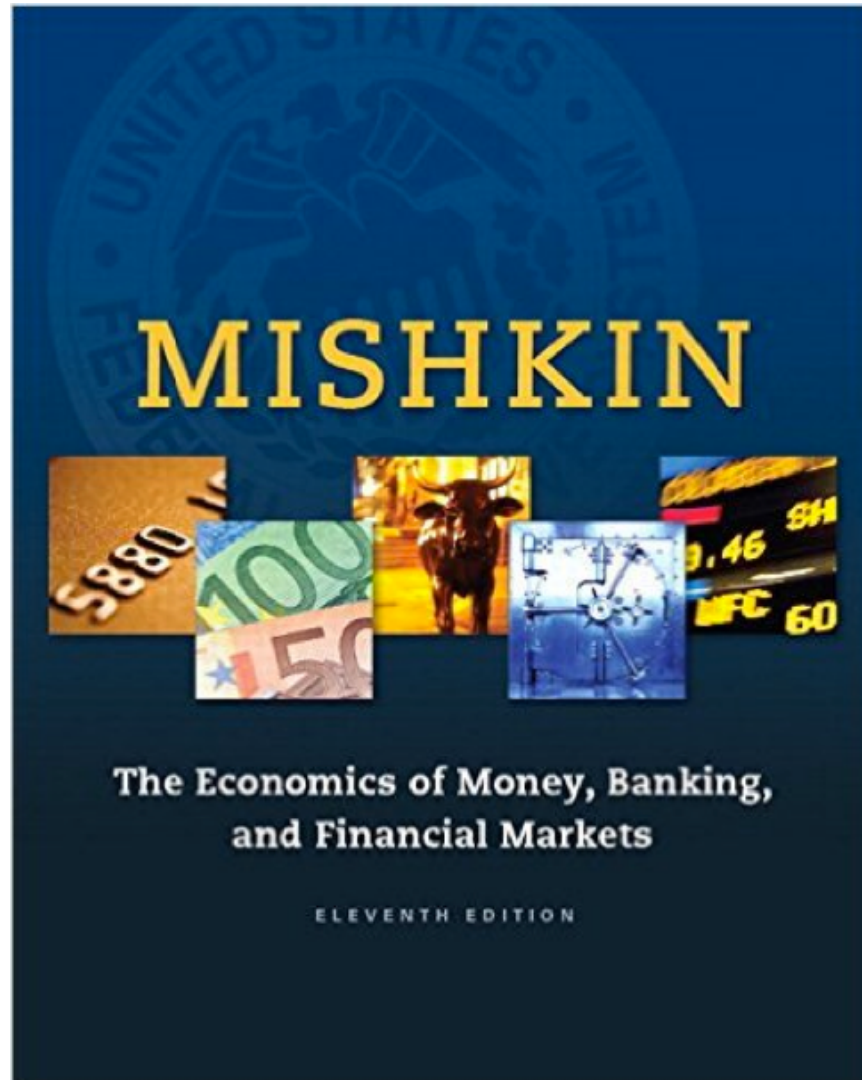


# Financial Technology

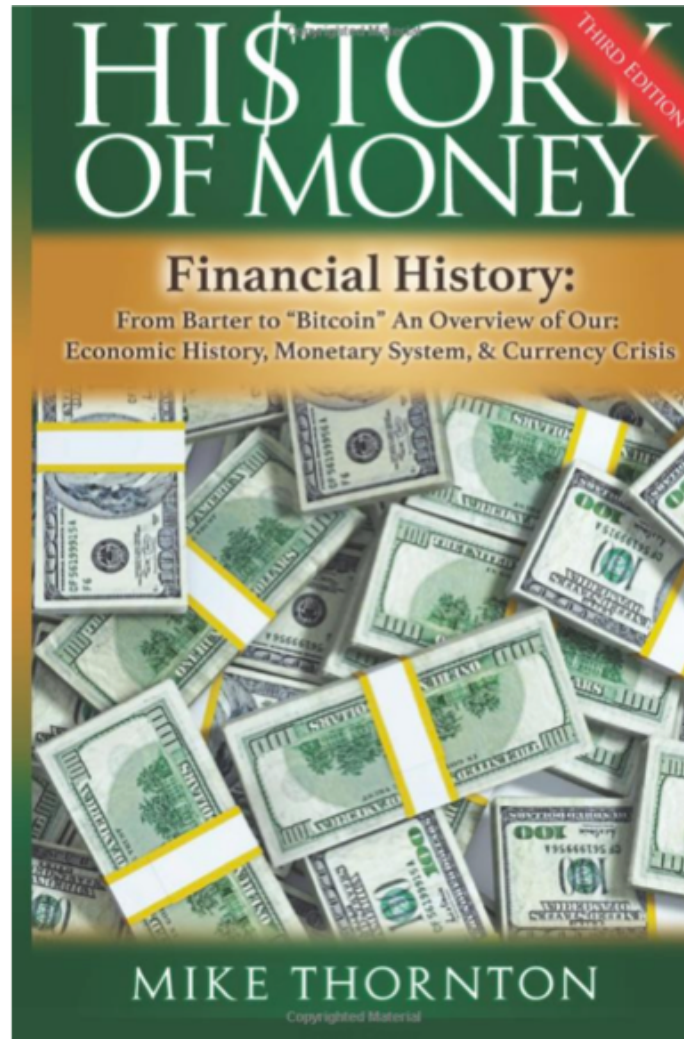
## FinTech

“providing  
financial services  
by making use of  
software and  
modern technology”

**Frederic S. Mishkin (2015),  
The Economics of Money, Banking and Financial Markets,  
11th Edition, Pearson**



**Mike Thornton (2016),  
History of Money: Financial History:  
From Barter to Bitcoin - An Overview of Our Economic History, Monetary System &  
Currency Crisis, CreateSpace Independent Publishing Platform**



# Money and Financial History

- Why is a printed piece of paper worth anything?
- How can a coin be worth more or even less than the number stamped on it?
- Why is digital money real money?
- How can money be worth more or less than it was yesterday?

# Money

# Exchange

# Barter

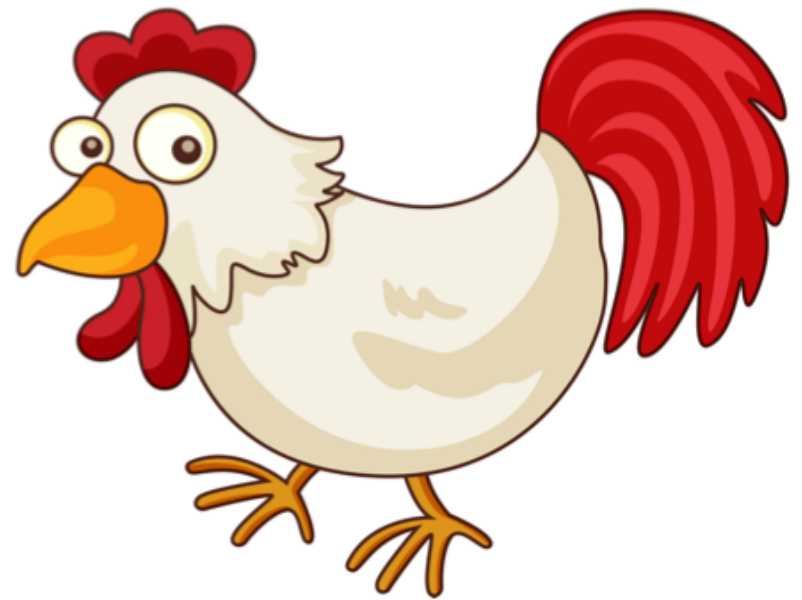


# Barter

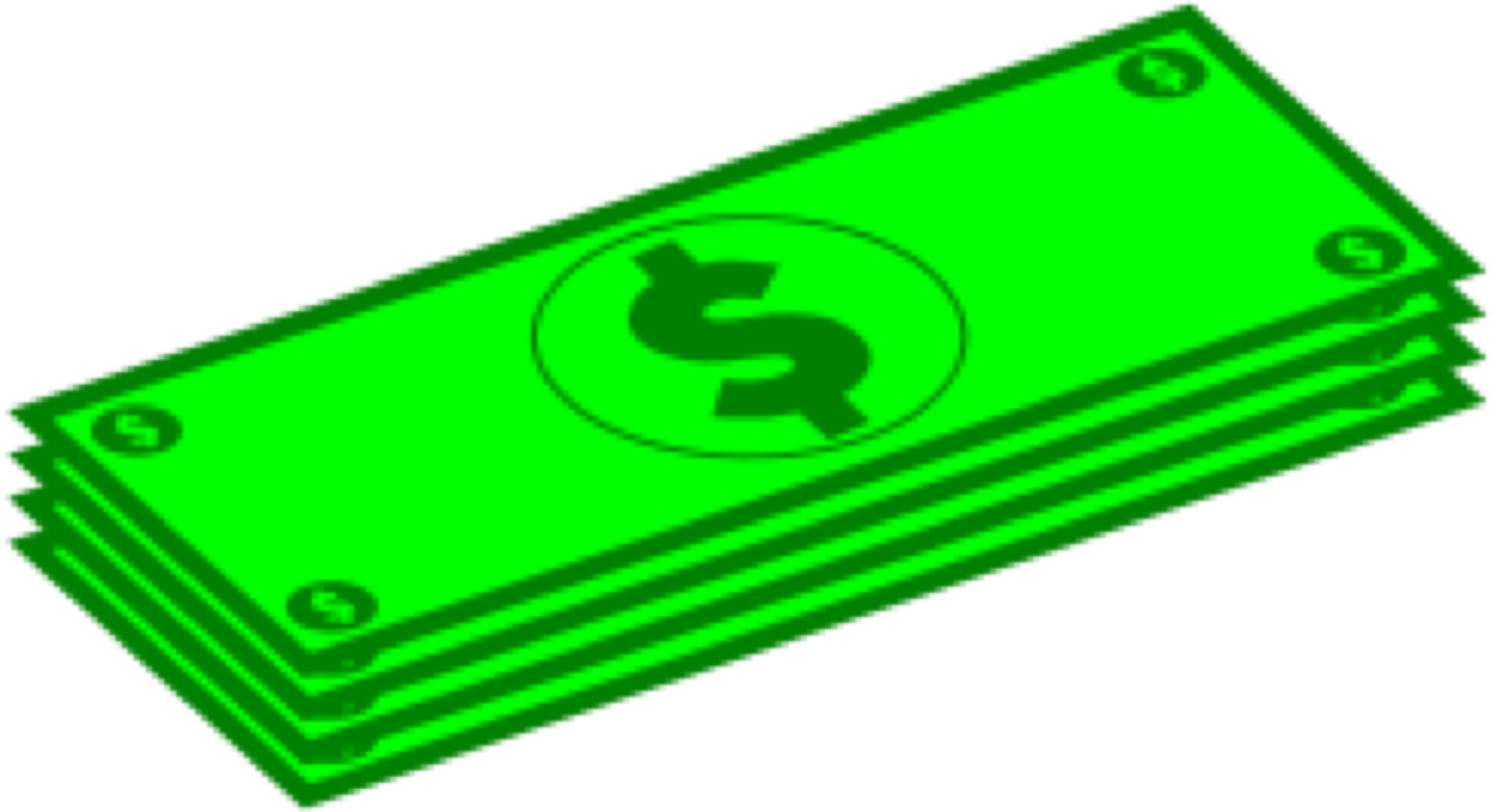




# Barter



# Money



# Bills





# Gold Bullion Coin



# Gold Bullion Coin



# Coin US Penny





# Gold Bricks



# Financial Services



# Financial Services



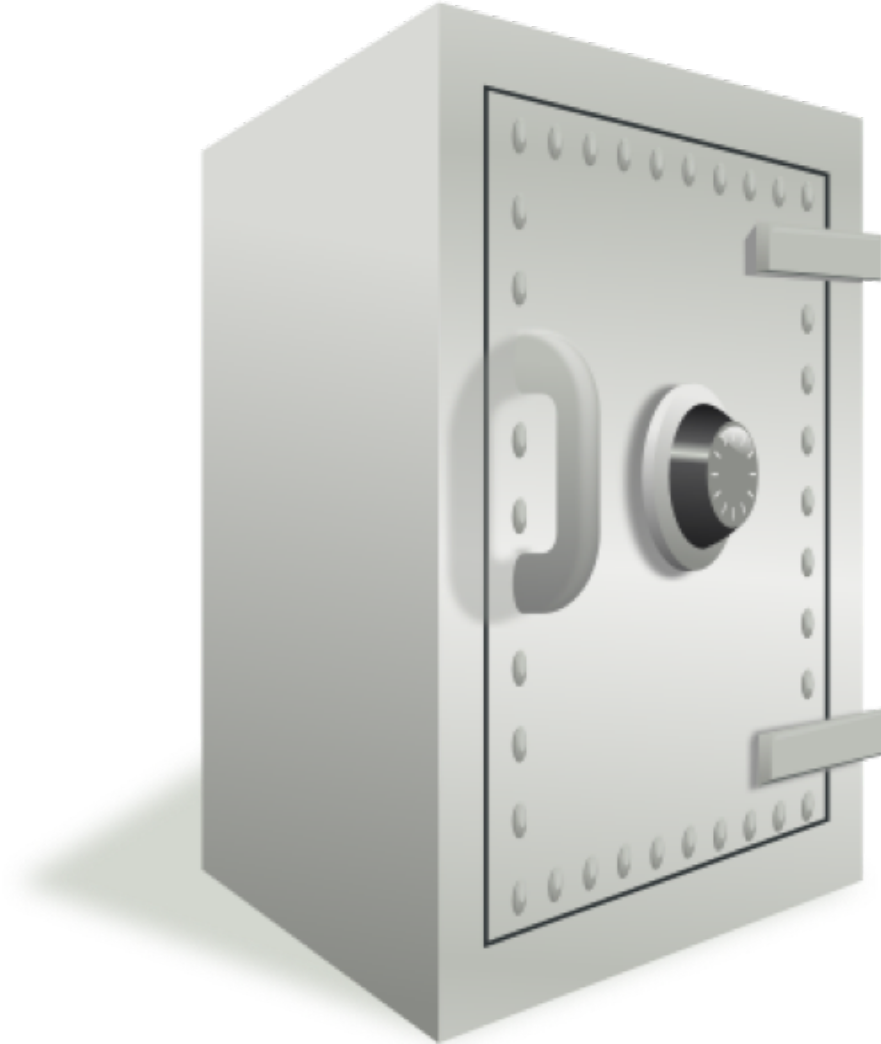
# Financial Services



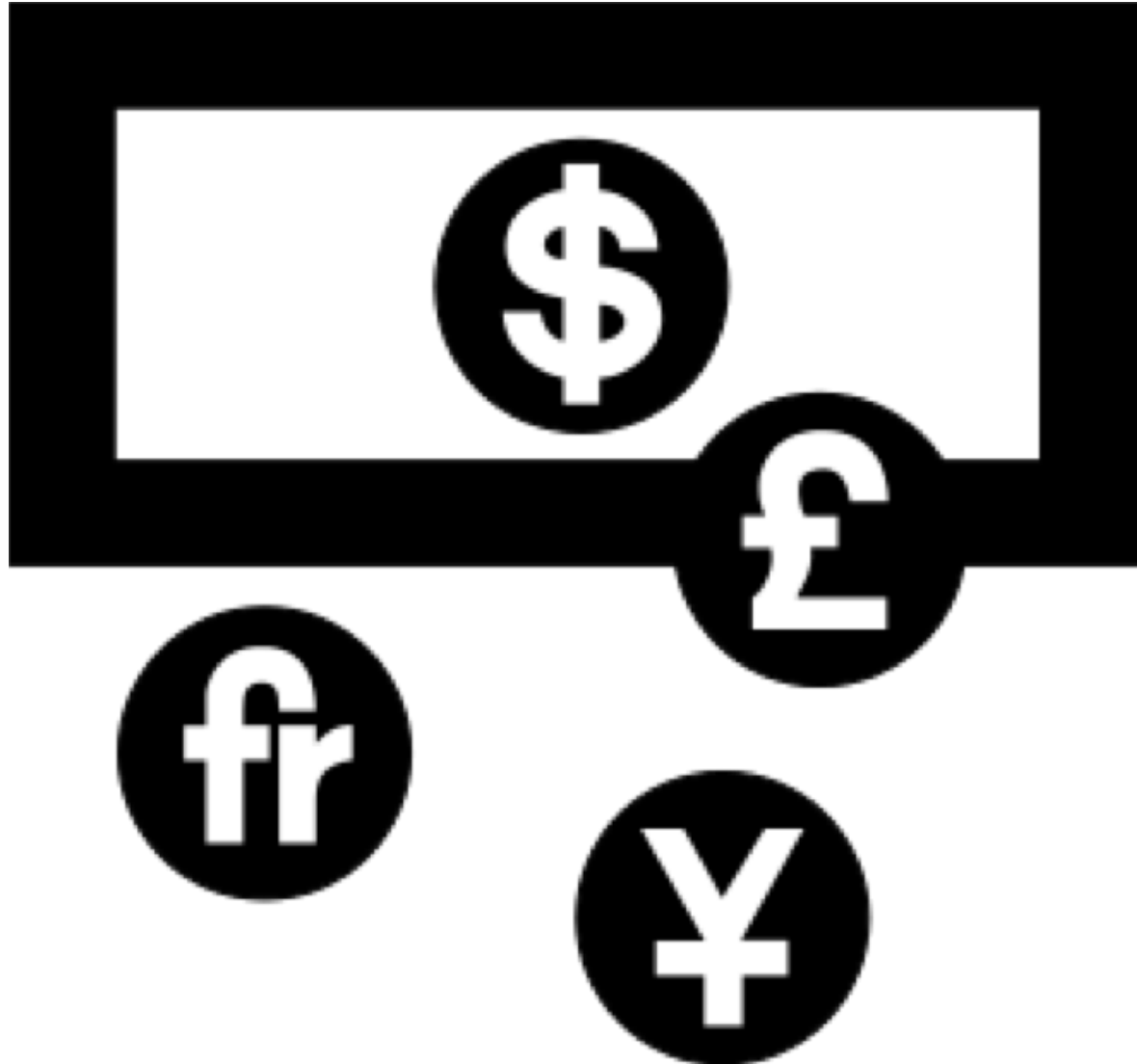
# Treasure



# Safe



# Currency Exchange



# Market

# Financial Services

# Financial Services





# Financial Revolution with Fintech

## A financial services revolution

### Consumer Trends



1. Simplification



2. Transparency



3. Analytics



4. Reduced Friction

# FinTech: Financial Services Innovation

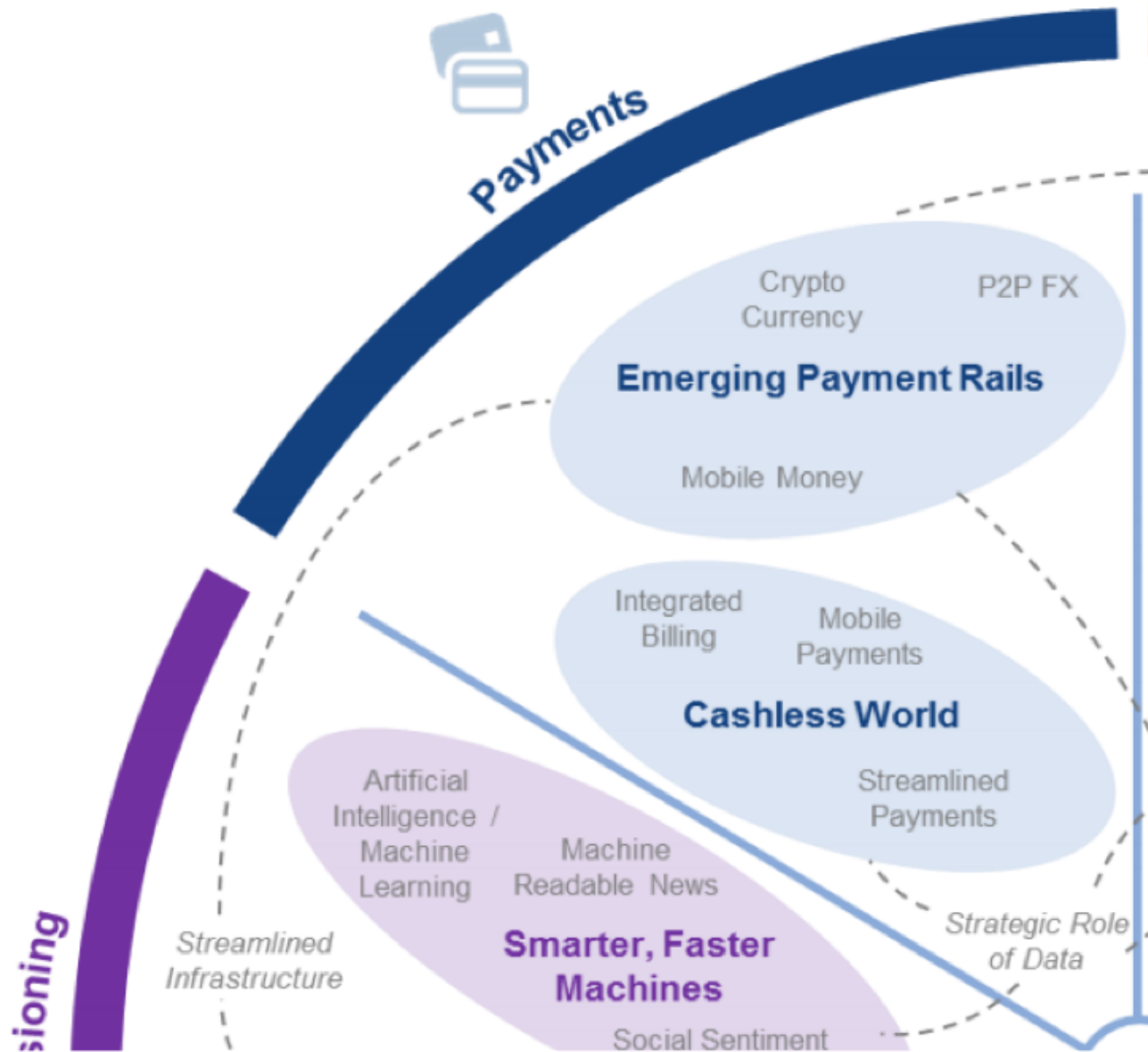


# **FinTech:**

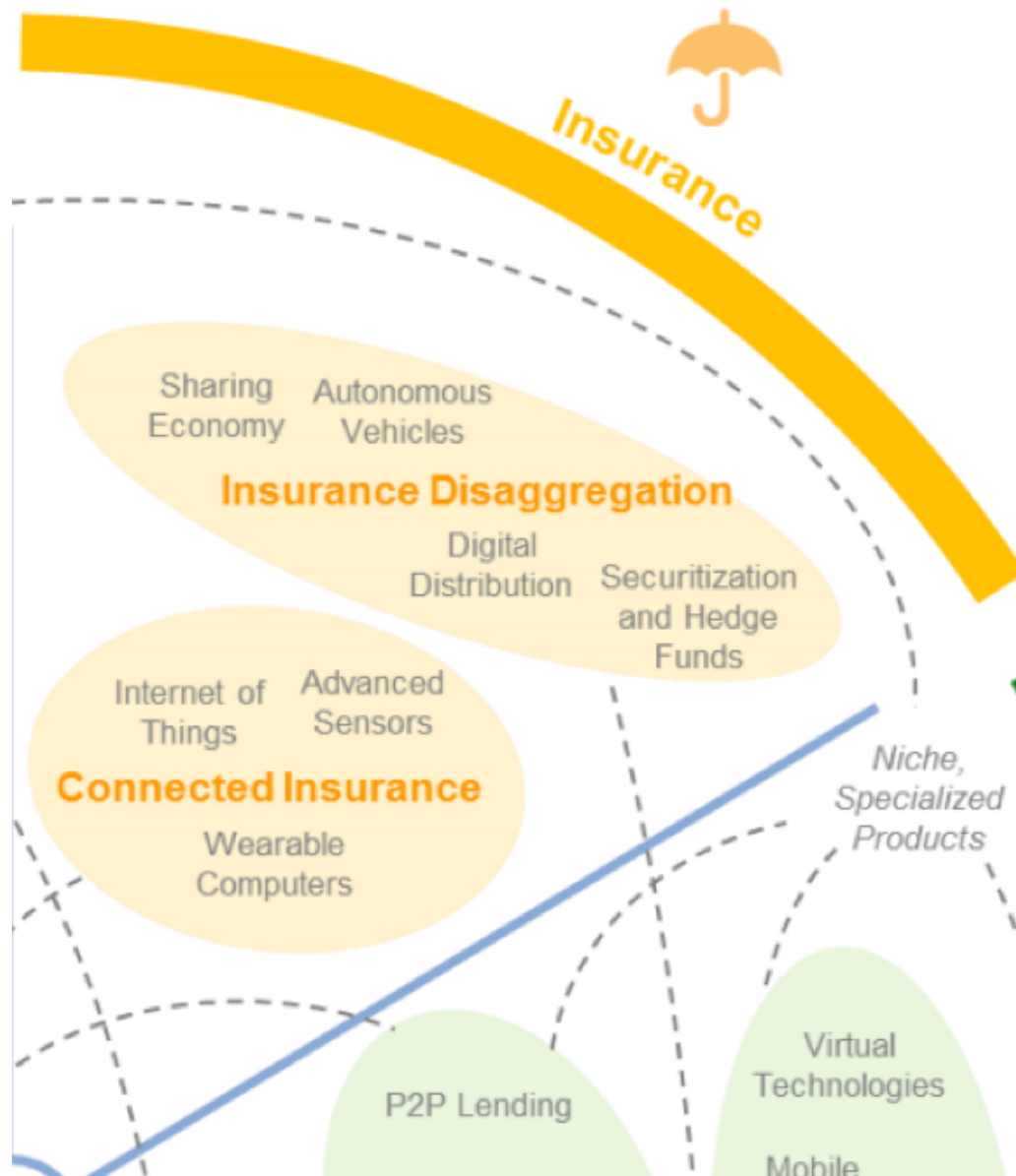
## **Financial Services Innovation**

- 1. Payments**
- 2. Insurance**
- 3. Deposits & Lending**
- 4. Capital Raising**
- 5. Investment Management**
- 6. Market Provisioning**

# FinTech: Payment

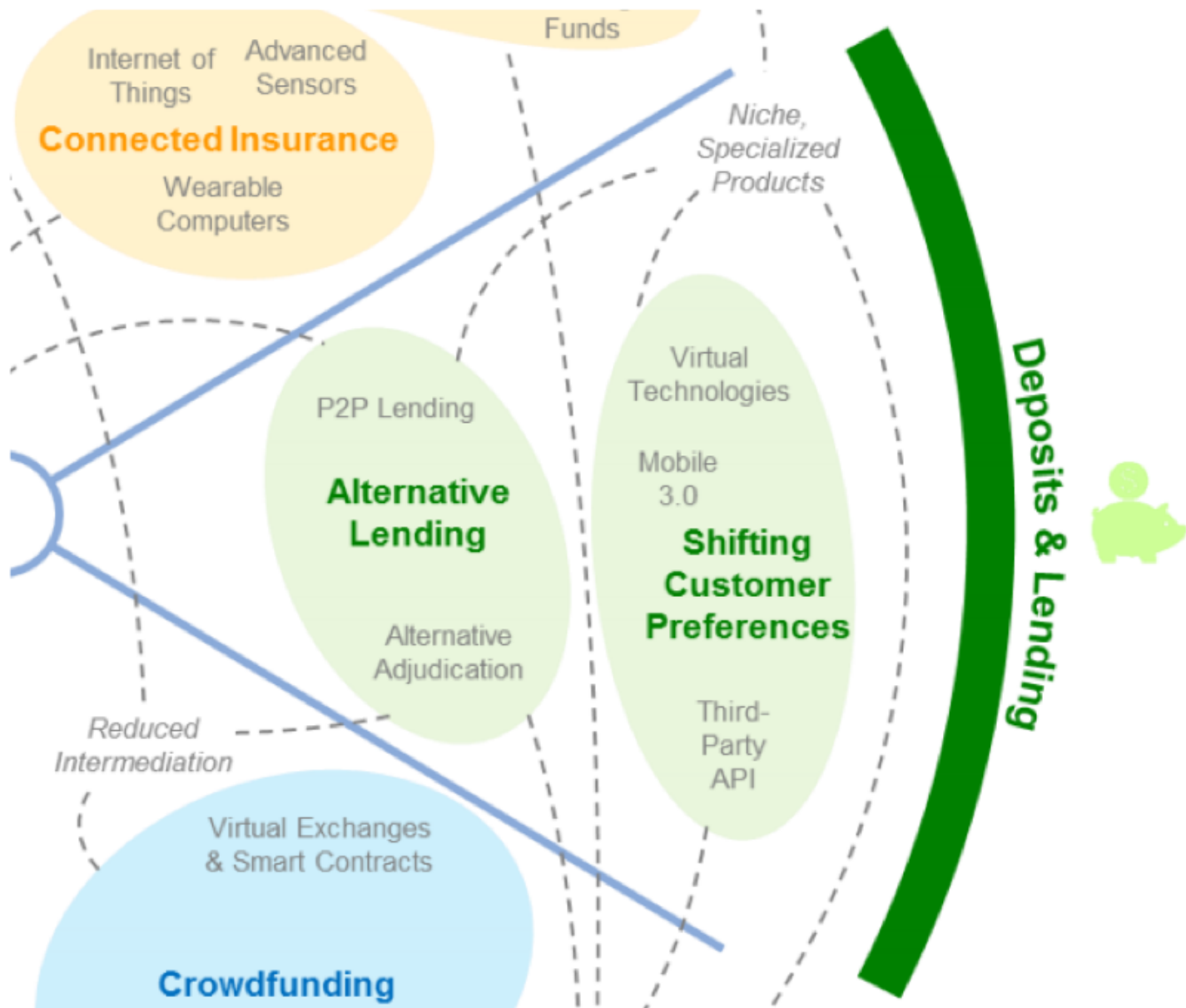


# FinTech: Insurance



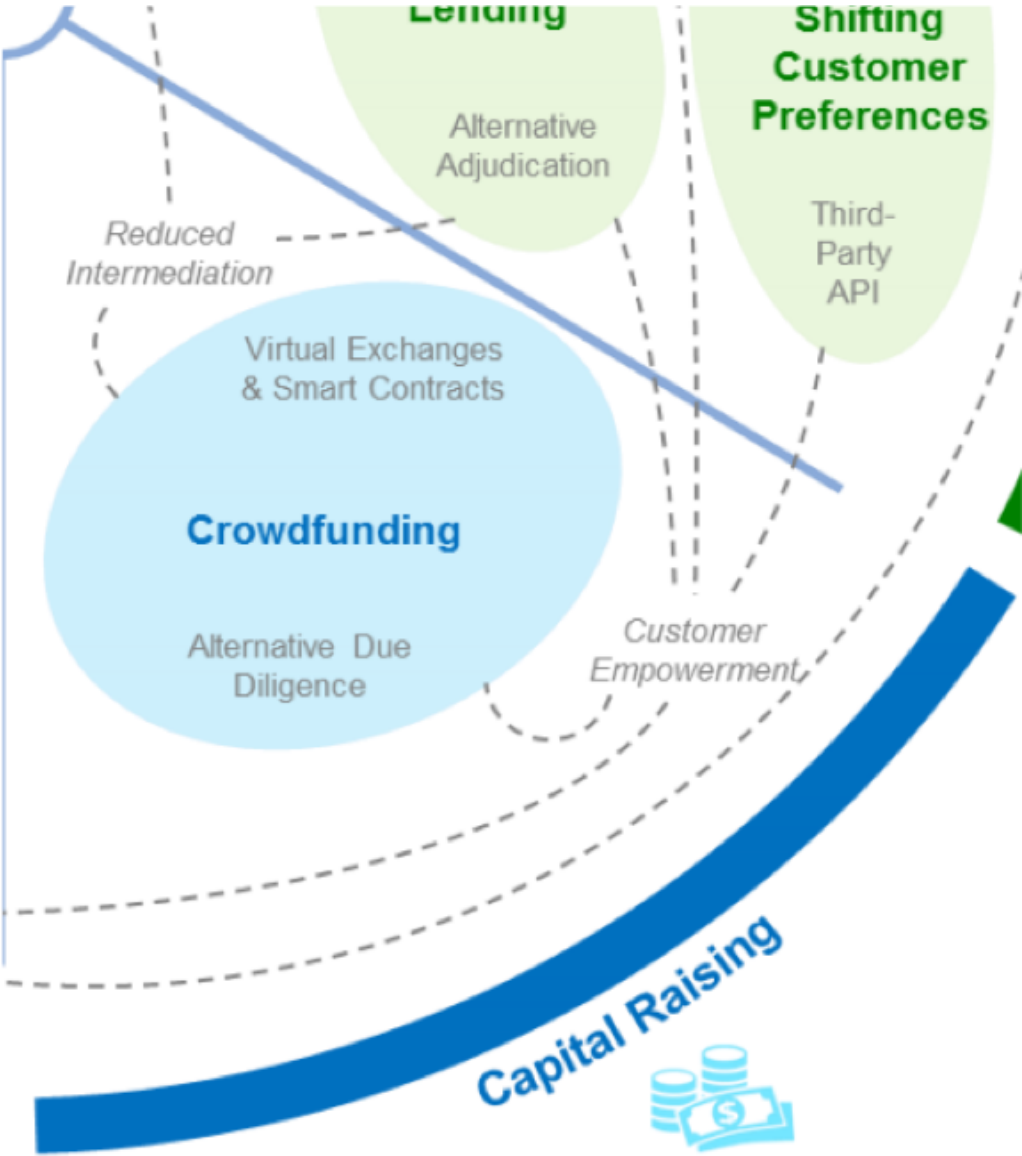
# 3

## FinTech: Deposits & Lending



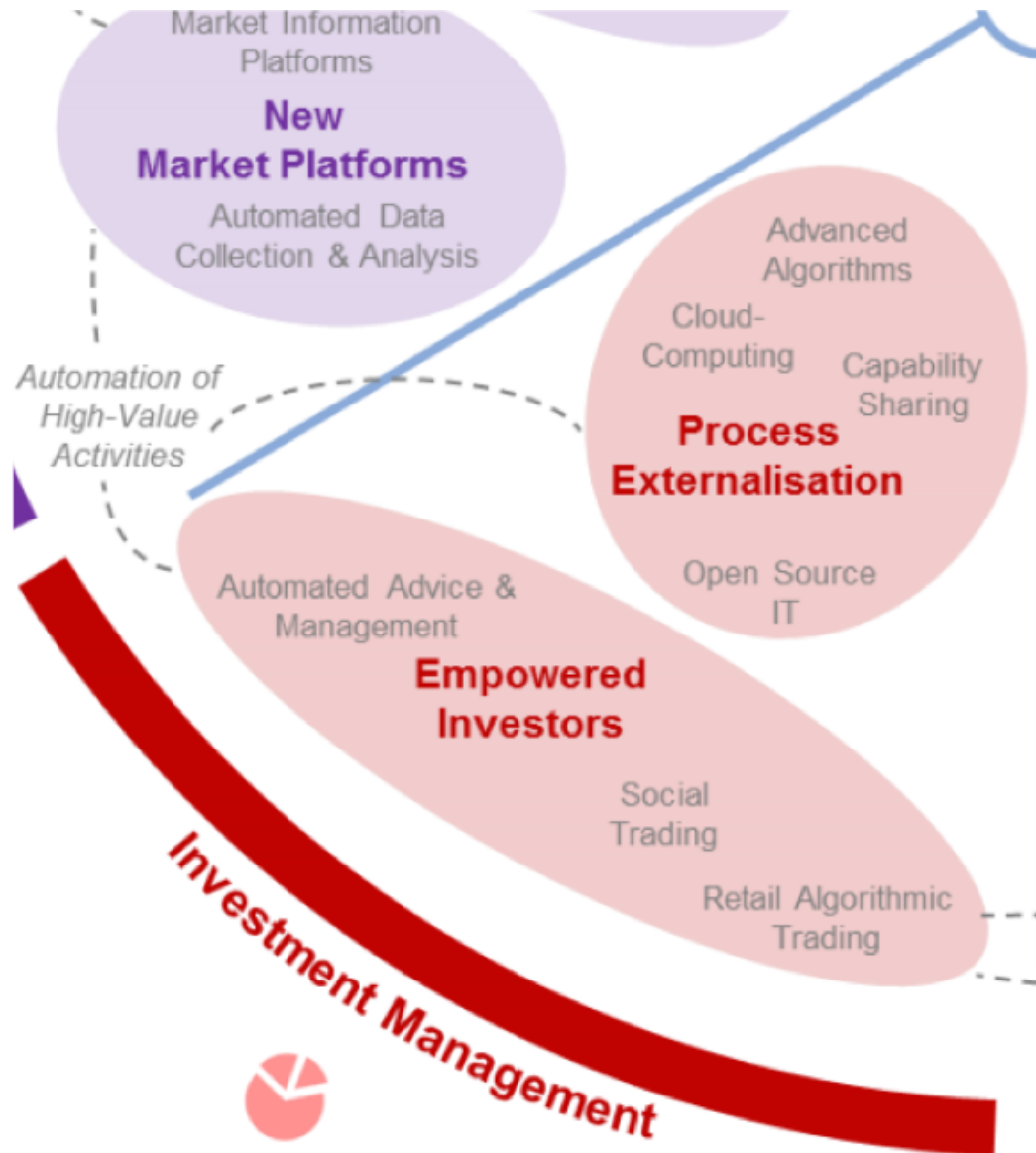
# 4

# FinTech: Capital Raising



# 5

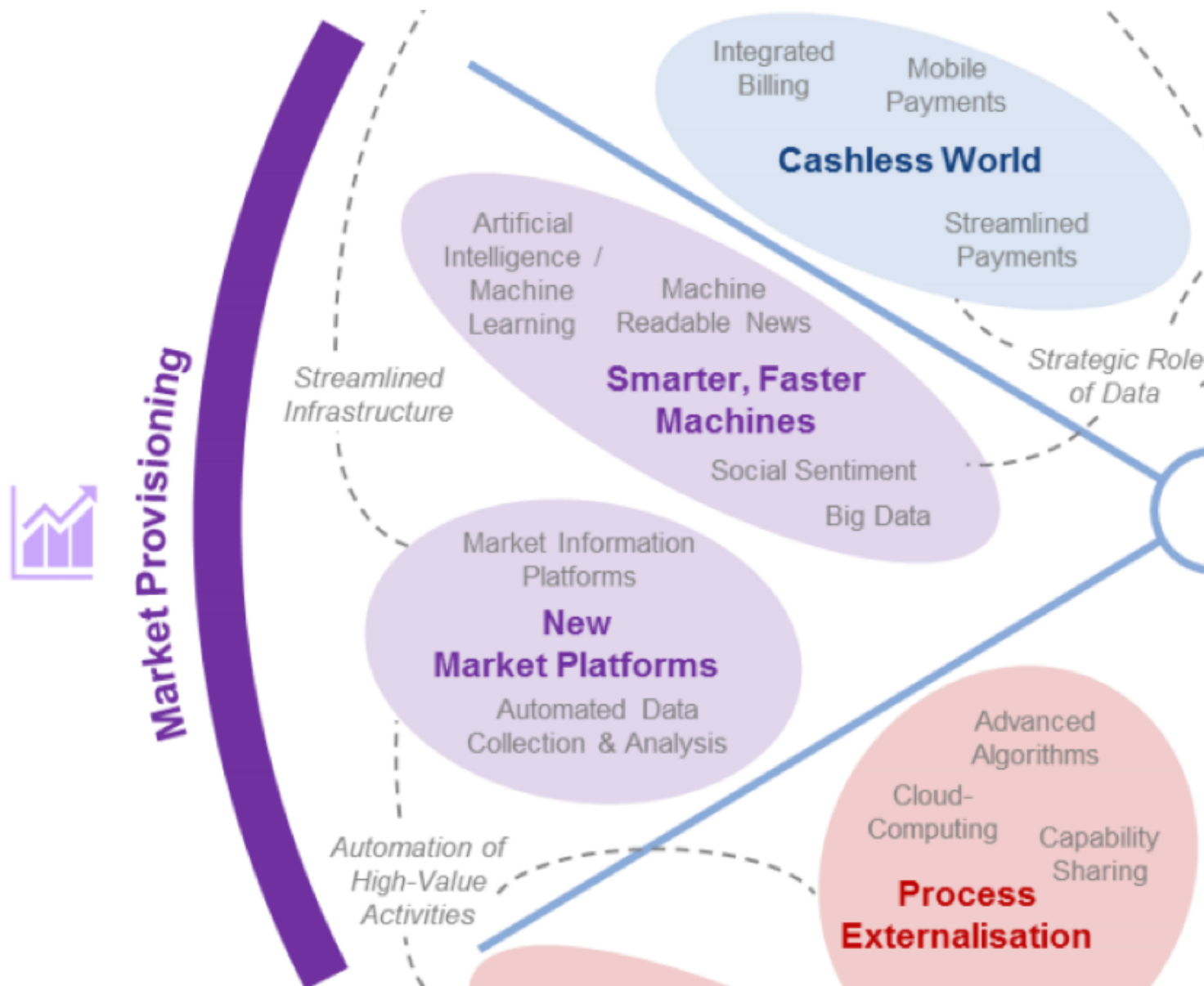
# FinTech: Investment Management





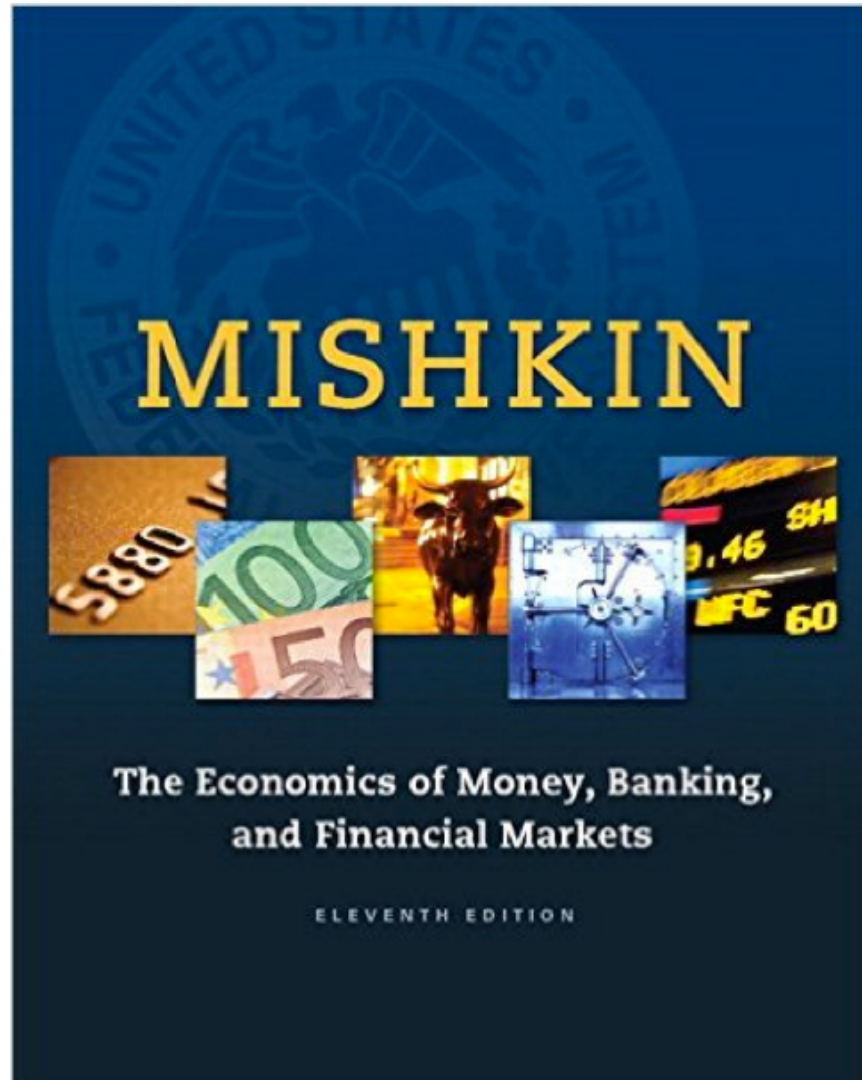
# 6

# FinTech: Market Provisioning



# **The Economics of Money, Banking and Financial Markets**

**Frederic S. Mishkin (2015),  
The Economics of Money, Banking and Financial Markets,  
11th Edition, Pearson**



# Economics of Money, Banking and Financial Markets

1. **Money**, Banking, and Financial System
2. Financial Markets
3. Financial Institutions
4. Central Banking and the Conduct of Monetary Policy
5. International Finance and Monetary Policy
6. Monetary Theory
7. **Financial Services** Industry

# INTRODUCTION

1. Why Study Money, Banking, and Financial Markets?
2. An Overview of the Financial System
3. What Is Money?

# FINANCIAL MARKETS

- 4. Understanding Interest Rates
- 5. The Behavior of Interest Rates
- 6. The Risk and Term Structure of Interest Rates
- 7. The Stock Market, the Theory of Rational Expectations, and the Efficient Market Hypothesis

# FINANCIAL INSTITUTIONS

- 8. An Economic Analysis of Financial Structure
- 9. Banking and the Management of Financial Institutions
- 10. Economic Analysis of Financial Regulation
- 11. Banking Industry: Structure and Competition
- 12. Financial Crises



# CENTRAL BANKING AND THE CONDUCT OF MONETARY POLICY

13. Central Banks and the Federal Reserve System

14. The Money Supply Process

15. The Tools of Monetary Policy

16. The Conduct of Monetary Policy: Strategy and Tactics

# MONETARY THEORY

19. Quantity Theory, Inflation, and the Demand for Money

20. The IS Curve

21. The Monetary Policy and Aggregate Demand Curves

22. Aggregate Demand and Supply Analysis

23. Monetary Policy Theory

24. The Role of Expectations in Monetary Policy

25. Transmission Mechanisms of Monetary Policy

# Financial Services Industry

- 26. Financial Crises in Emerging Market Economies
- 27. The ISLM Model
- 28. Nonbank Finance
- 29. Financial Derivatives
- 30. Conflicts of Interest in the Financial Services Industry

# Why Study Money, Banking, and Financial Markets?

# Why Study Money, Banking, and Financial Markets?

- To examine how **financial markets** such as **bond**, **stock** and **foreign exchange** markets work
- To examine how **financial institutions** such as **banks** and **insurance companies** work
- To examine the **role of money** in the **economy**

# Financial Markets

- Markets in which funds are transferred from people who have an excess of available funds to people who have a shortage of funds
  - Bond market
  - Stock market
  - Foreign exchange market

# Financial Institutions

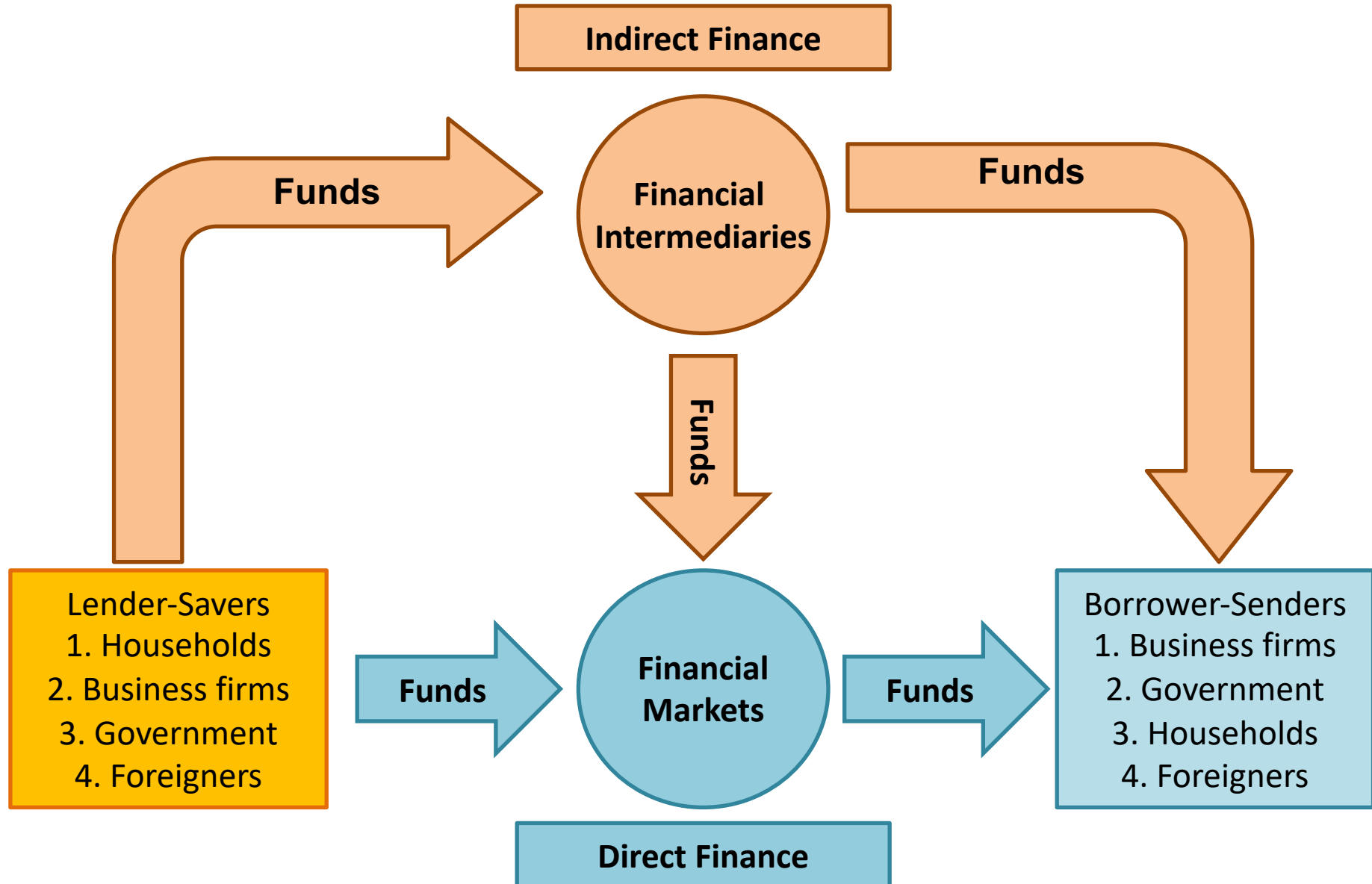
- Financial Intermediaries: institutions that borrow funds from people who have saved and make loans to other people:
  - **Banks**: accept deposits and make loans
  - Other Financial Institutions: **insurance companies, finance companies, pension funds, mutual funds and investment banks**
- **Financial Innovation**: the advent of the information age and e-finance



# Money and Business Cycles

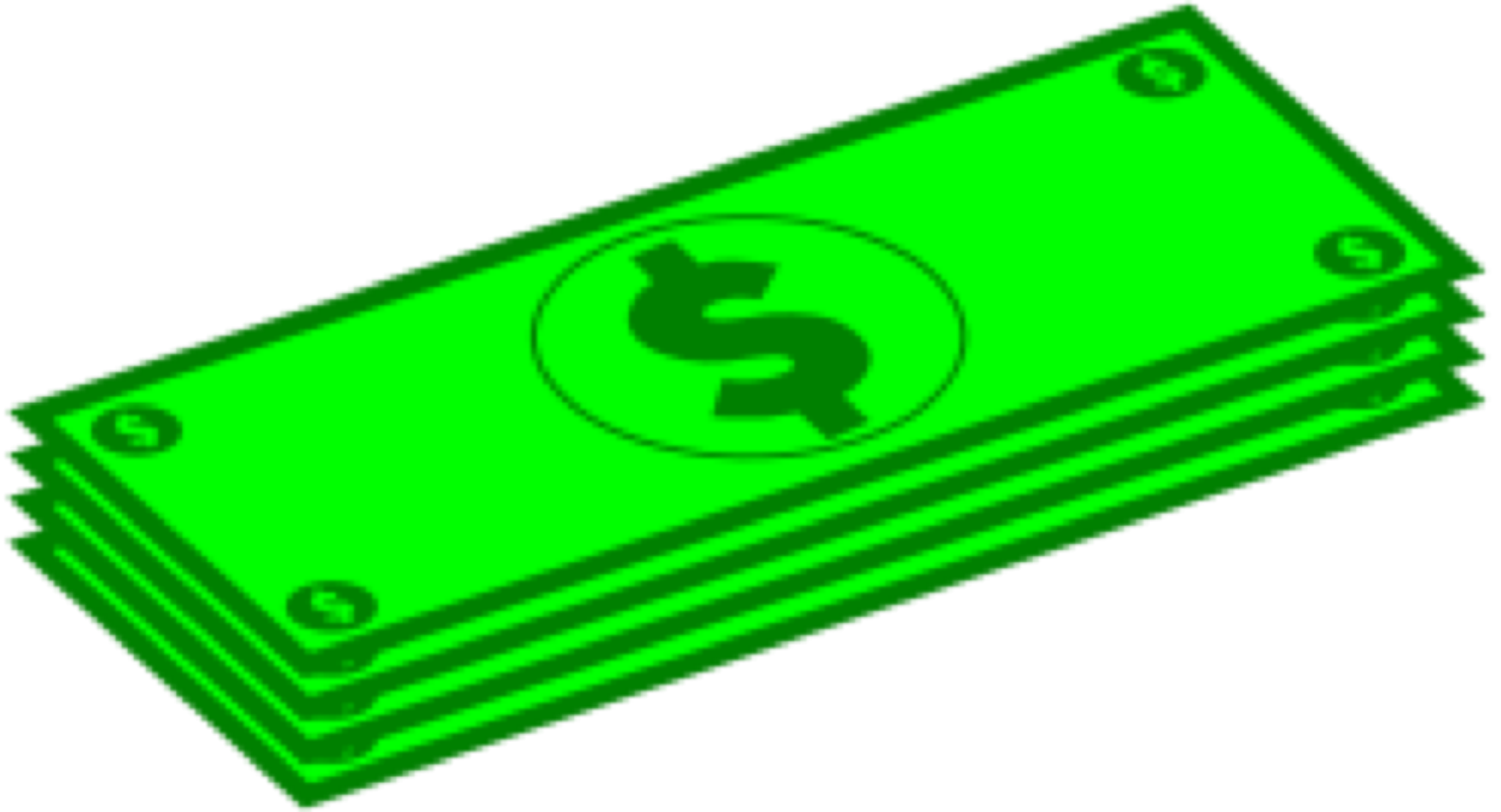
- Money plays an important role in generating business cycles
- Recessions (unemployment) and expansions affect all of us
- Monetary Theory ties changes in the money supply to changes in aggregate economic activity and the price level

# Overview of the Financial System



# What is Money?

# Money



# Bills



# Meaning of Money

- **Money (=money supply)** any vehicle used as a means of **exchange** to pay for goods, services or debts.
- In today's society, any **asset** that can quickly be transferred into cash is considered money.
- The more **liquid** an asset is, the closer it is to money.
- In economics, **money** does not mean **wealth** nor does it mean **income**.

# Functions of Money

- Medium of Exchange
- Unit of Account
- Store of Value



# Medium of Exchange

- By eliminating barter, this function of money increases efficiency in a society.
- As human societies started to engage in exchange money had to be invented.
- Any technological change that reduces transaction costs increases the wealth of the society.
- Any technological change that allows people to specialize also increases wealth.

# Unit of Account

- We use money to measure the value of goods and services.
- Suppose we had 4 goods and no money. How do we measure the price of each good?
  - A in terms of B
  - B in terms of C
  - C in terms of D
  - A in terms of C
  - A in terms of D
  - B in terms of D
- Money allows to quote prices in terms of currency only.

$$N!/2(N-2)!$$

# Store of Value

- All **assets** are stored value.
- Money, although without any return, is still desirable to hold because it allows purchases immediately.
- Other assets take time (transaction costs) to use as a payment for purchases.
- The more liquid an asset is, the less transaction cost it carries.
- Inflation erodes the value of money.

# Evolution of the Payments System

- **Commodity Money:**
  - valuable, easily standardized and divisible commodities  
(e.g. precious metals, cigarettes).
- **Fiat Money:**
  - paper money decreed by governments as legal tender.

# Electronic Money

- Debit Cards
  - Instant transfer from your checking account to merchant's checking account.
- Stored Value Card
  - Gift cards.
- Electronic Cash
  - Account set up on a person's PC from her bank whereby she can buy products over the Internet.
- Electronic Checks
  - Checks written on PC and sent through the Internet.

# Benefits of Paper Checks

- Cheaper than telecommunications network.
- Provide receipts.
- Allow float.
- May be more secure; avoid hacker problems.
- Do not leave a wealth of information trail.

# Measuring Money

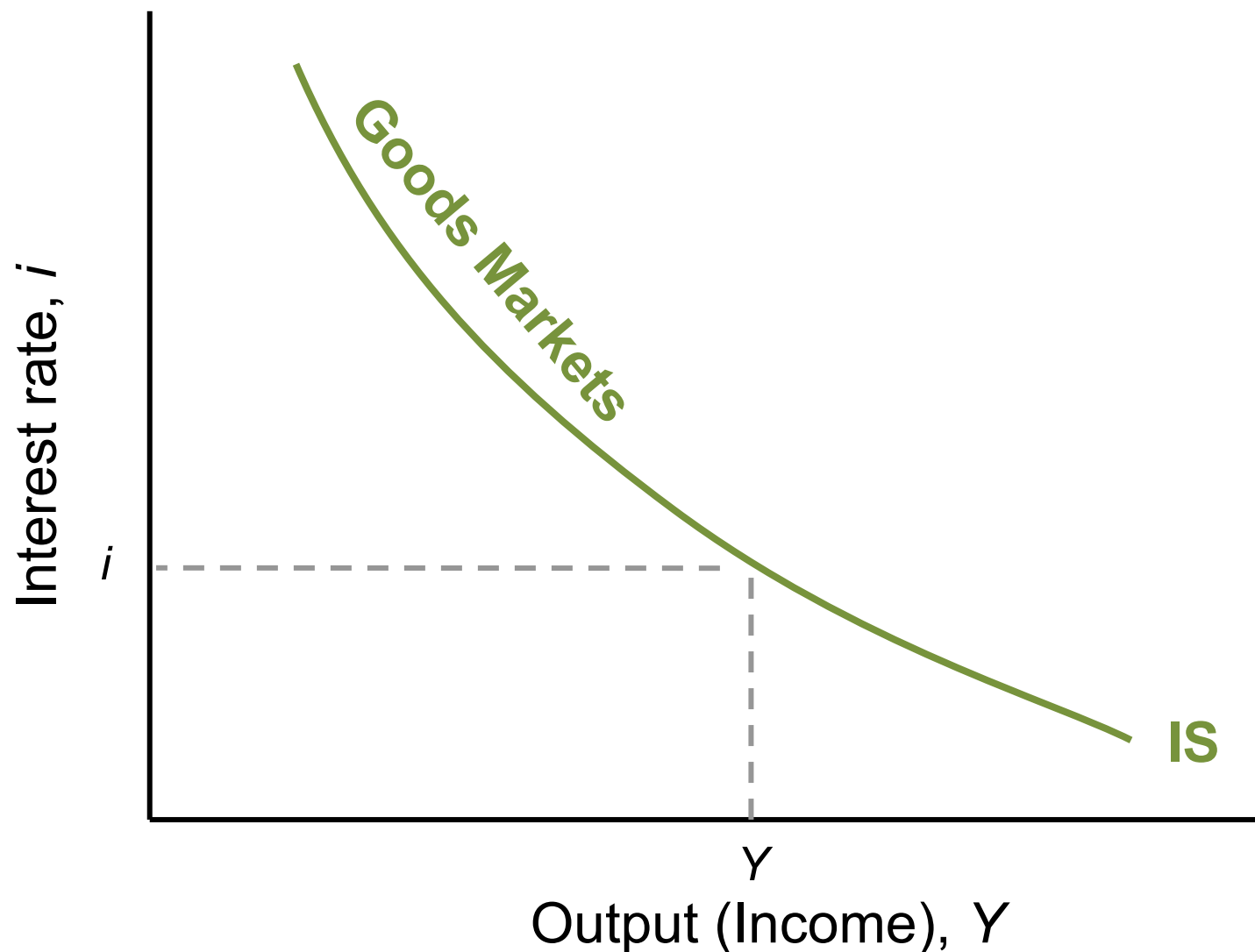
- M1:
  - Currency, demand deposits, travelers checks.
- M2:
  - M1, saving deposits, small time deposits, retail MMMF.
- M3:
  - M2, large time deposits, repos, Eurodollar deposits, institutional MMMF.
- MZM:
  - M2, institutional MMMF minus small time deposits.
- Growth rates of these aggregates do not always go hand in hand, making monetary policy difficult since signals are conflicting.

# The IS Curve

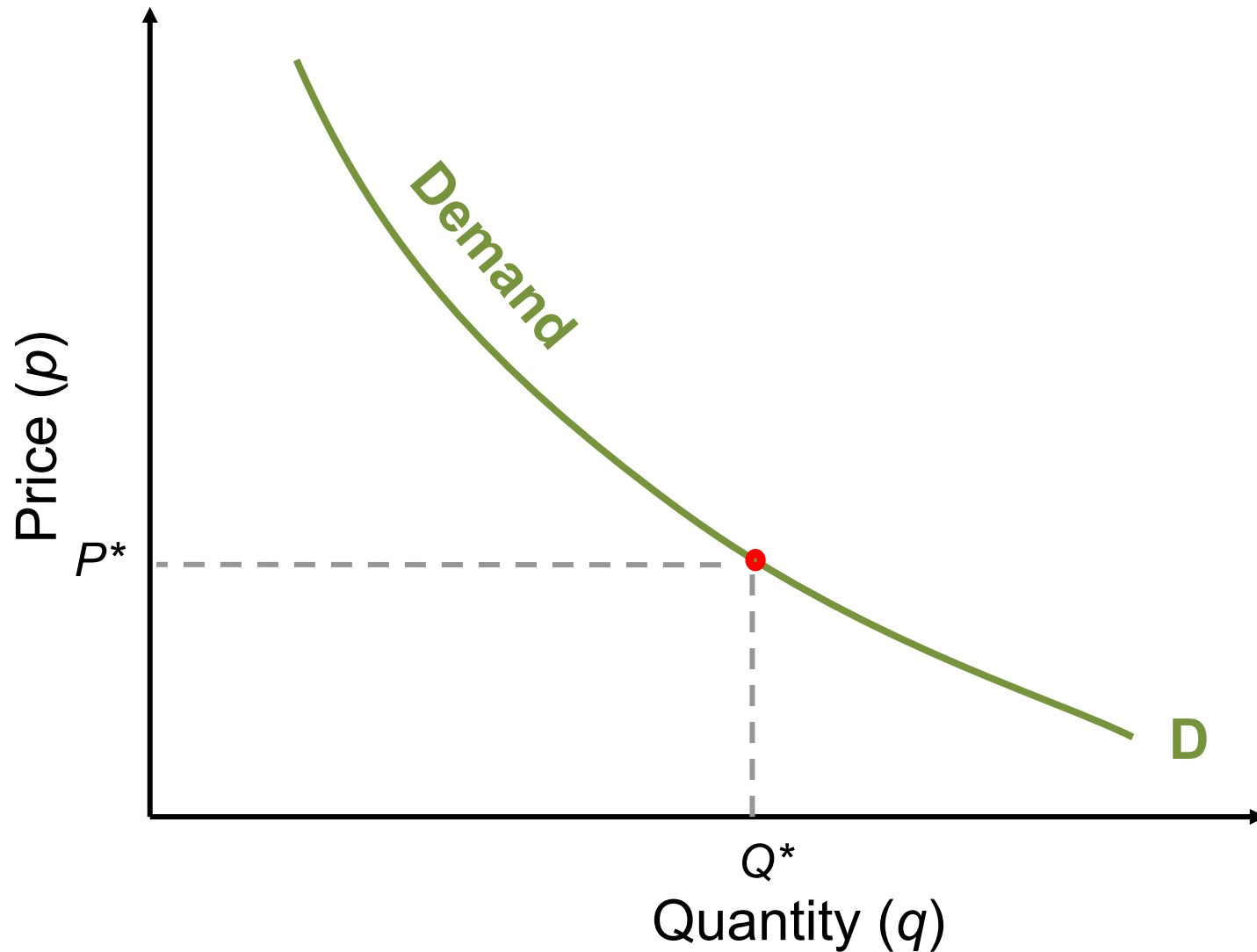


# The IS (Investment/Saving) Curve

# The IS (Investment/Saving) Curve



# Demand



# The ISLM Model

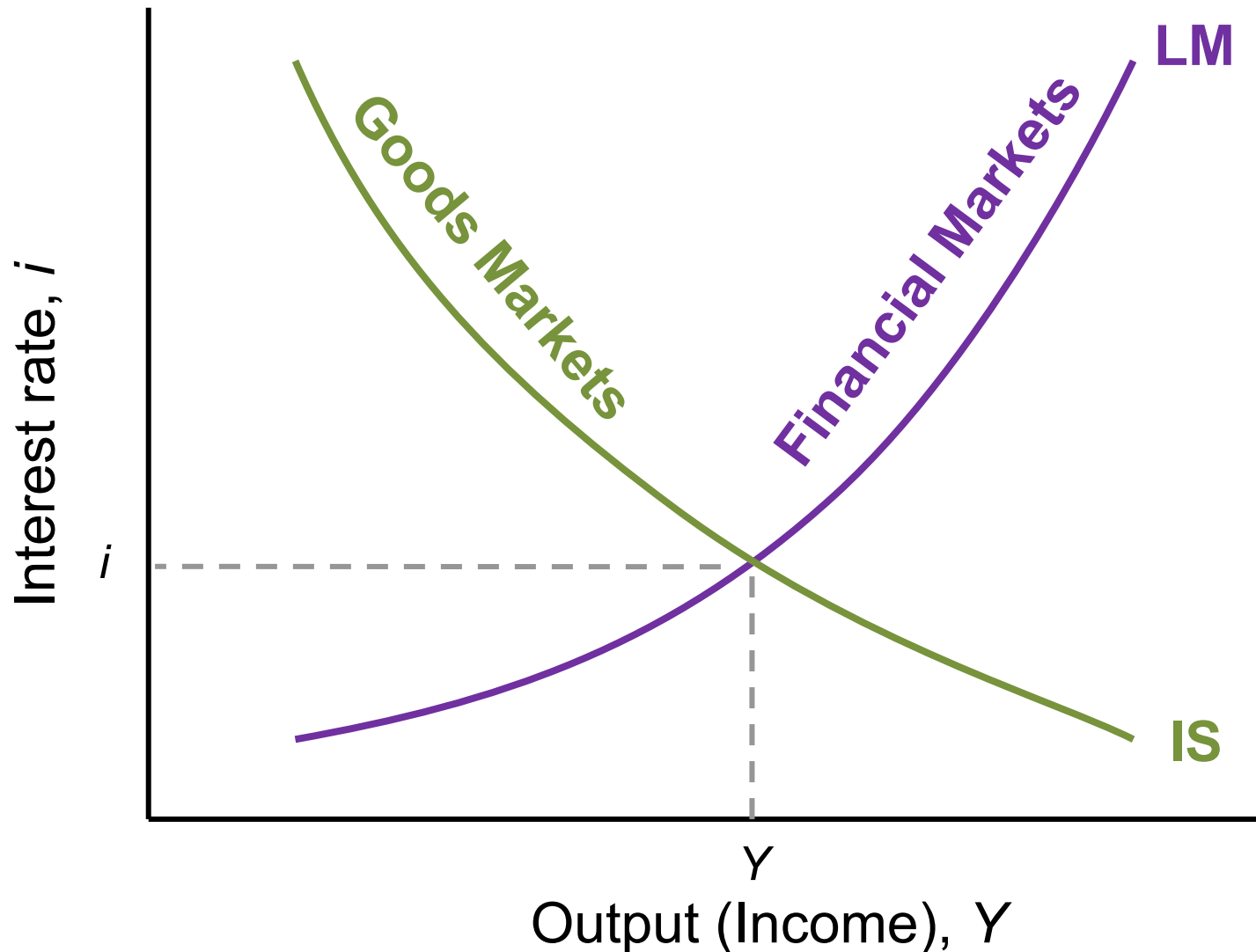
Goods and Financial Markets:

# The ISLM Model

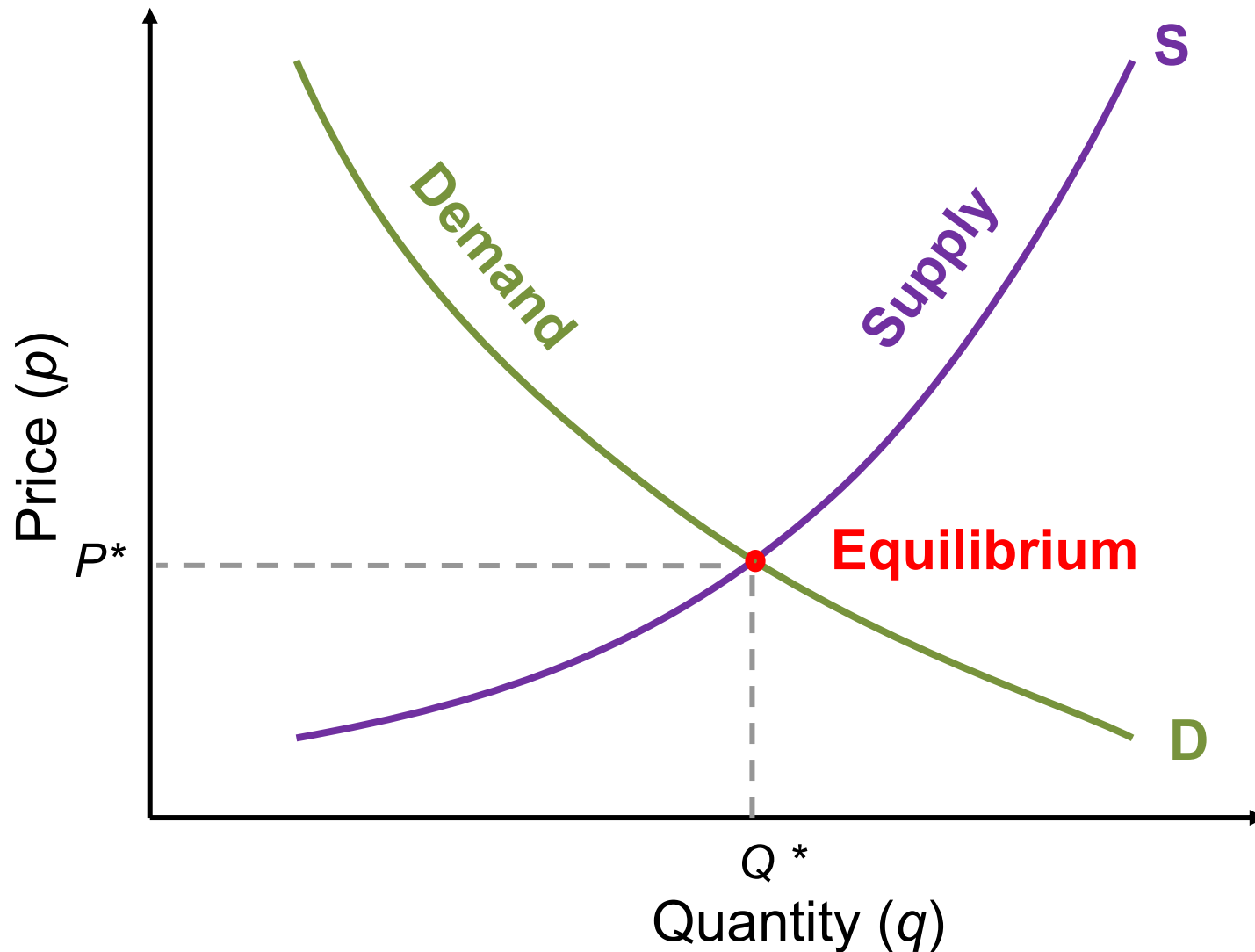
(Investment Saving –  
Liquidity Preference Money  
Supply)  
model

# The ISLM Model

(Investment Saving –  
Liquidity Preference Money Supply) model



# Supply and Demand



# **Artificial Intelligence and Deep Learning for Fintech**



# From Algorithmic Trading to Personal Finance Bots: 41 Startups Bringing AI to Fintech

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## AI in Fintech

41 Startups Bringing Artificial Intelligence To Fintech

### General Purpose/ Predictive Analytics



### Market Research & Sentiment Analysis



### Search Engine



### Quantitative Trading



### Blockchain



### Debt Collection



### AI Assistants/Bots



### Fraud Detection



### Credit Scoring



### Personal Banking



# Artificial Intelligence (AI) in Fintech

## General Purpose/ Predictive Analytics



## Market Research & Sentiment Analysis



## Search Engine



# Artificial Intelligence (AI) in Fintech

## Quantitative Trading



## AI Assistants/Bots



## Credit Scoring



## Blockchain



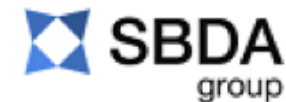
## Debt Collection



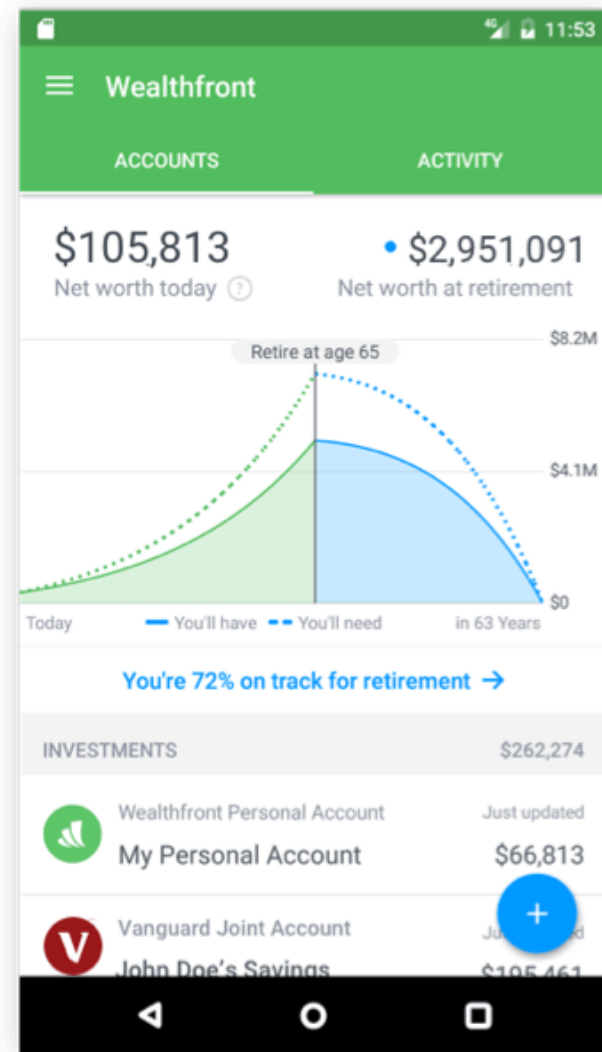
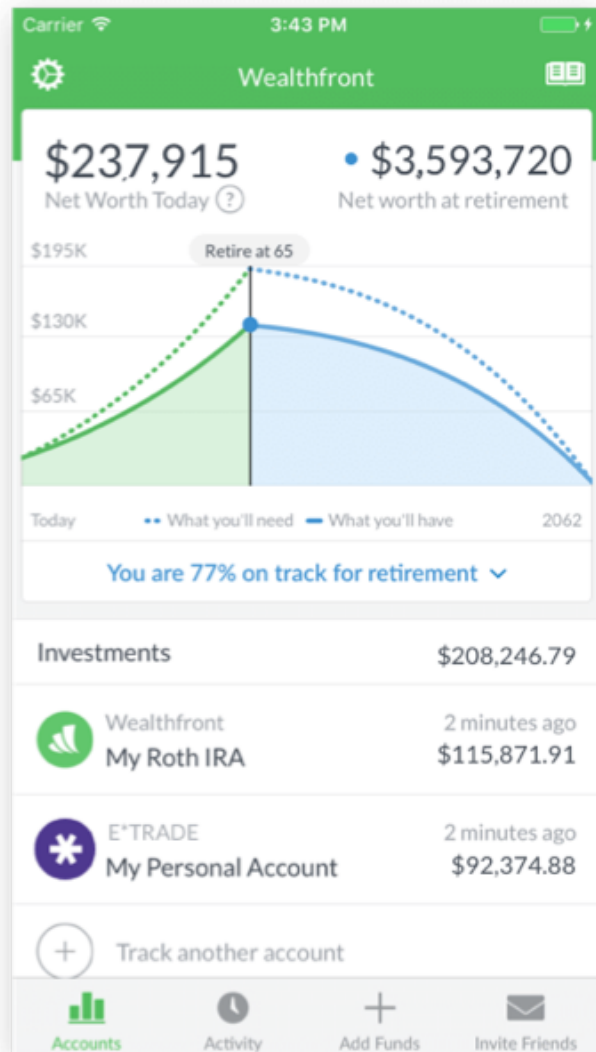
## Fraud Detection



## Personal Banking



# Wealthfront Robo Advisor



# Financial Services

# Technology Innovation

# Innovation



# Innovation:

a new idea,  
method, or  
device

**Innovation:**  
something  
new

# **Novelty :**

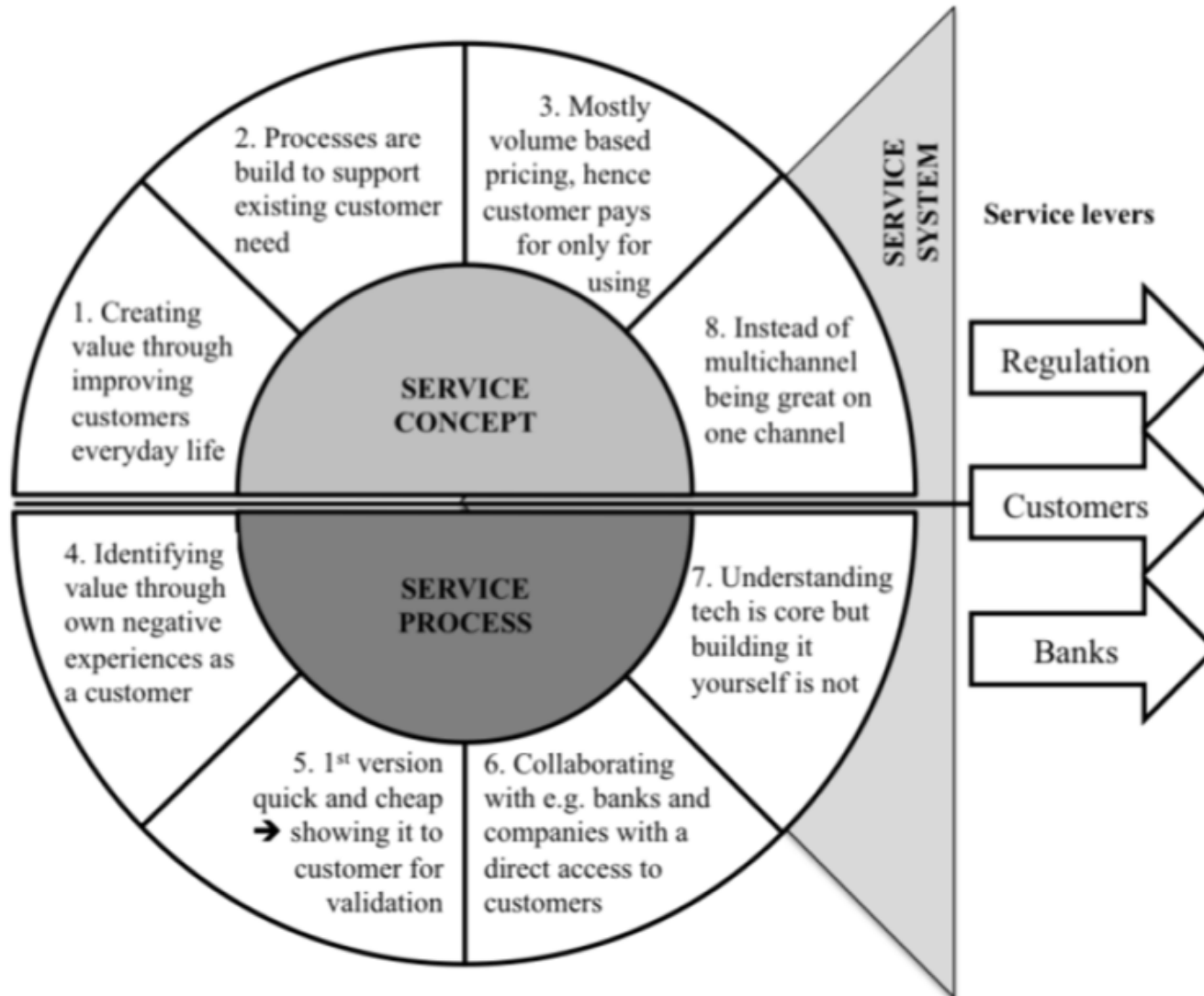
**something new or unusual**

**the novelty of a self-driving car**

**Creativity is not a  
new Idea.**

**Creativity is  
an old belief  
you leave behind**

# FinTechs as Service Innovators: Analysing Components of Innovation



# Innovation

“a process of  
searching and recombining  
existing knowledge  
elements”

# Search and recombination process to innovate:

## A review of the empirical evidence and a research agenda



Source: Savino, Tommaso, Antonio Messeni Petruzzelli, and Vito Albino. "Search and recombination process to innovate: A review of the empirical evidence and a research agenda." *International Journal of Management Reviews* (2017).

# **Innovation Research** **in** **Economics,** **Sociology and** **Technology Management**

Source: Gopalakrishnan, Shanti, and Fariborz Damanpour.

"A review of innovation research in economics, sociology and technology management." *Omega* 25, no. 1 (1997): 15-28.



# Innovation Research in Economics, Sociology and Technology Management

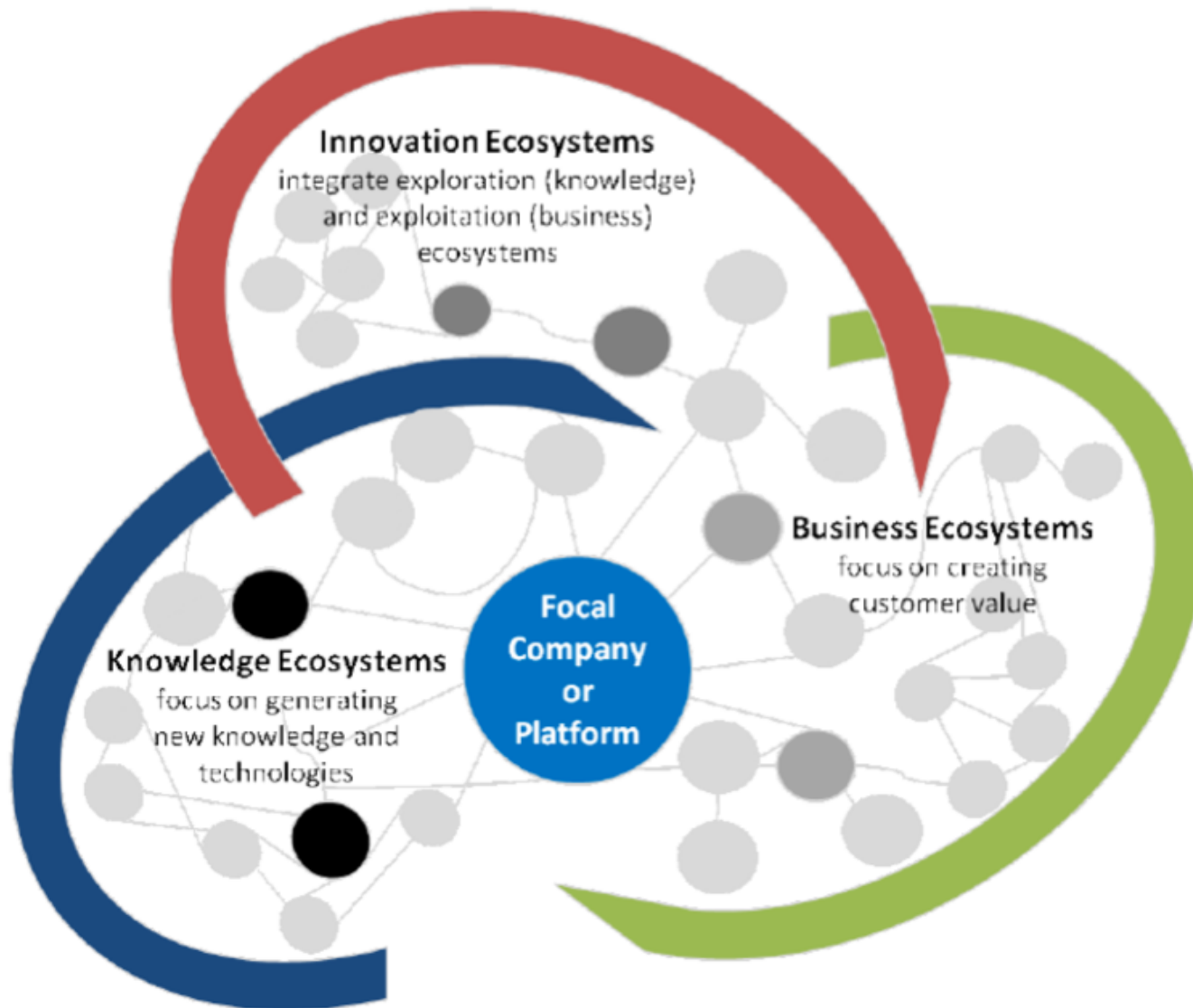
	Stage of process	Level of study	Type of innovation
<i>Economists</i>	Generation Idea generation Project definition	Industry	Product and process Only technical Only radical
<i>Technologists</i>			
Contextual technologists	Generation Commercialization and marketing Diffusion	Innovation (in the industry context)	Product and process Only technical Radical and incremental
Organizational technologists	Generation Idea generation Problem solving adoption Adoption Initiation	Organizational Sub-system	Product and process Only technical Radical and incremental
<i>Sociologists</i>			
Variance sociologists	Adoption Initiation Implementation	Organization	Product and process Technical and administrative Radical and incremental
Process sociologists	Adoption Initiation Implementation	Innovation (at the organizational level)	Product and process Technical and administrative Radical and incremental

Source: Gopalakrishnan, Shanti, and Fariborz Damanpour.

"A review of innovation research in economics, sociology and technology management." *Omega* 25, no. 1 (1997): 15-28.

# Business, Innovation, and Knowledge Ecosystems

# Business, Innovation, and Knowledge Ecosystems



Source: Valkokari, Katri. "Business, innovation, and knowledge ecosystems: how they differ and how to survive and thrive within them." *Technology Innovation Management Review* 5, no. 8 (2015).

# Innovation Ecosystems

## Characteristics

	Business Ecosystems	Innovation Ecosystems	Knowledge Ecosystems
<b>Baseline of Ecosystem</b>	Resource exploitation for customer value	<b>Co-creation of innovation</b>	Knowledge exploration
<b>Relationships and Connectivity</b>	Global business relationships both competitive and co-operative	Geographically clustered actors, different levels of collaboration and openness	Decentralized and disturbed knowledge nodes, synergies through knowledge exchange
<b>Actors and Roles</b>	Suppliers, customers, and focal companies as a core, other actors more loosely involved	<b>Innovation policymakers, local intermediators, innovation brokers, and funding organizations</b>	Research institutes, innovators, and technology entrepreneurs serve as knowledge nodes
<b>Logic of Action</b>	A main actor that operates as a platform sharing resources, assets, and benefits or aggregates other actors together in the networked business operations	Geographically proximate actors interacting around hubs facilitated by intermediating actors	A large number of actors that are grouped around knowledge exchange or a central non-proprietary resource for the benefit of all actors

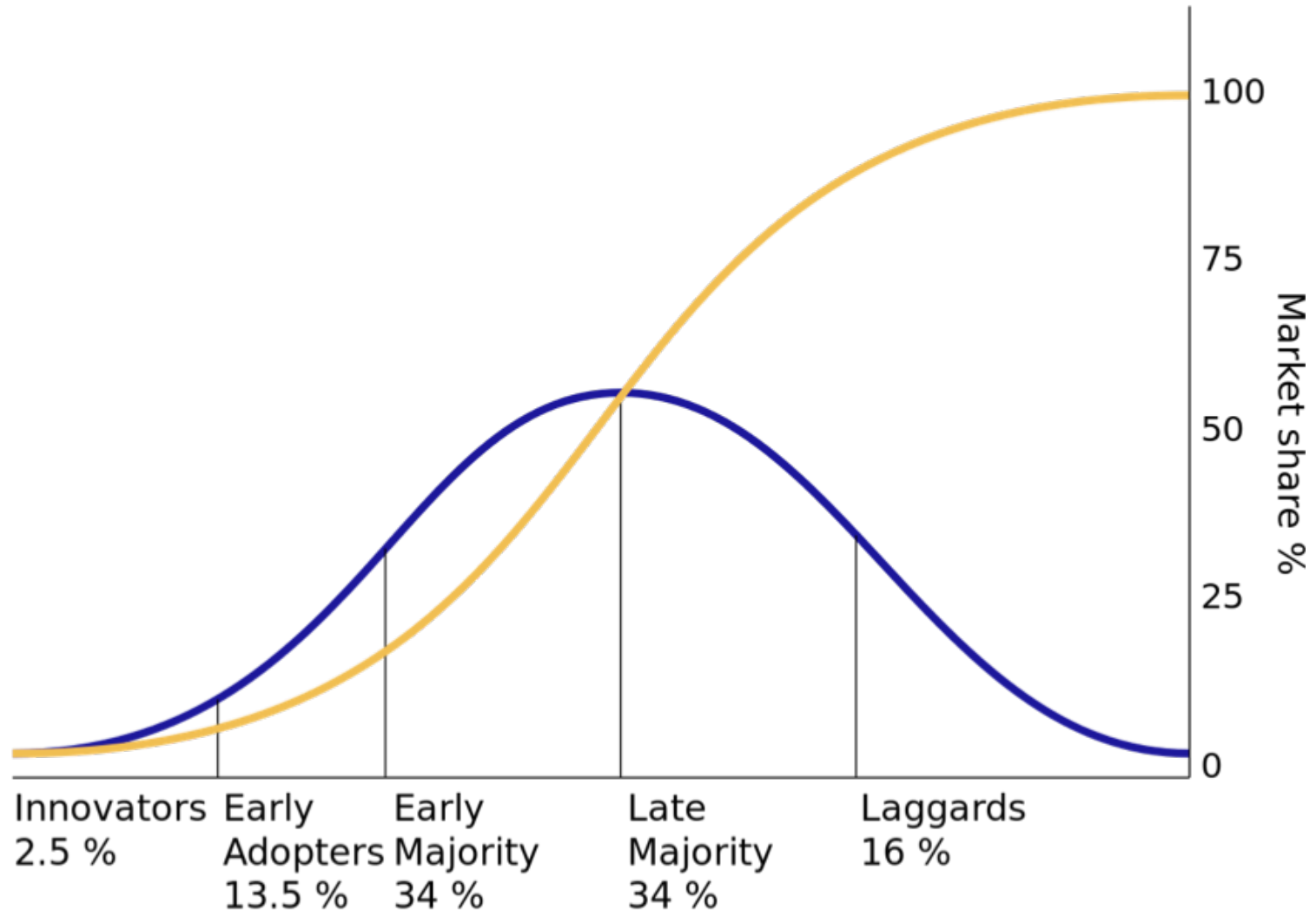
# Diffusion of Innovation Theory (DOI)

# Innovation

## (Diffusion of Innovation)

1. Relative advantage
2. Compatibility
3. Complexity
4. Trialability
5. Observability

# Diffusion of Innovation



# **Innovation** Adoption Process

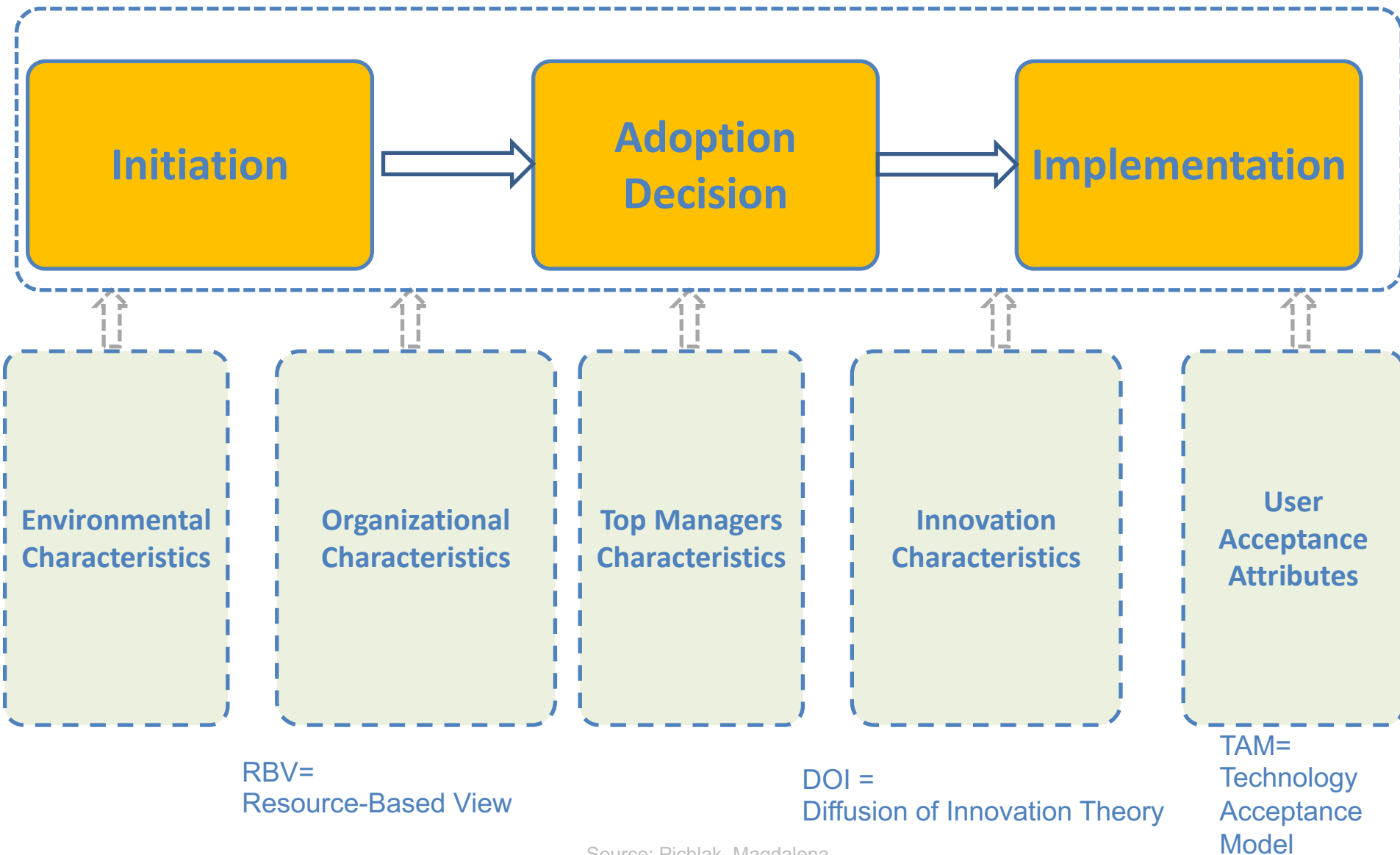


Source: Pichlak, Magdalena.

"The innovation adoption process: A multidimensional approach." Journal of Management and Organization 22, no. 4 (2016): 476.



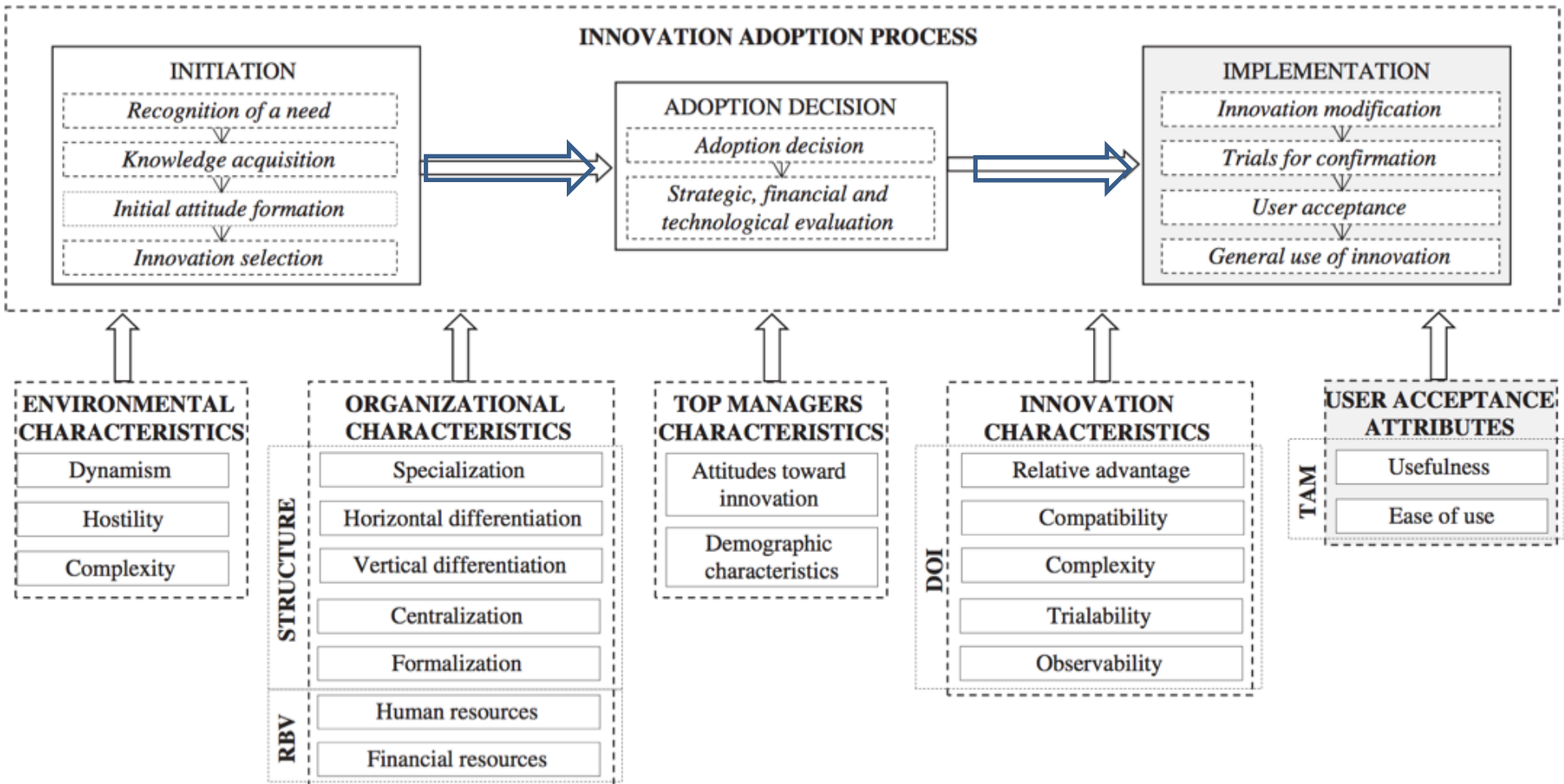
# Innovation Adoption Process



Source: Pichlak, Magdalena.

"The innovation adoption process: A multidimensional approach." Journal of Management and Organization 22, no. 4 (2016): 476.

# Innovation Adoption Process



RBV=  
Resource-Based View

DOI =  
Diffusion of Innovation Theory

TAM=  
Technology  
Acceptance  
Model

Source: Pichlak, Magdalena.

"The innovation adoption process: A multidimensional approach." Journal of Management and Organization 22, no. 4 (2016): 476.

# Innovation Adoption Process

Factors		Initiation					Adoption decision					Implementation				
		Mean	Me	Q3	Q1	QD	Mean	Me	Q3	Q1	QD	Mean	Me	Q3	Q1	QD
Environmental characteristics	Dynamism	3.4	3	4	2.75	0.625	3.6	4	4	3	0.5	4	4	5	4	0.5
	Hostility	3.3	3	4.25	3	0.625	3.9	4	4.25	3.75	0.25	3.7	4	4.5	3.5	0.5
	Complexity	4.5	5	5	4	0.5	3.2	3	4	2.75	0.625	3.3	3	4.25	3	0.625
Organizational characteristics	Specialization	3.8	4	4.25	3.75	0.25	2.9	3	4	2	1	2	2	3.25	2	0.625
	Horizontal differentiation	2.8	3	3.75	2.75	0.5	2.7	3	3.5	2	0.75	2	2	3.5	2	0.75
	Vertical differentiation	2.1	2	3.25	2	0.625	3.3	3	4	2.5	0.75	3.1	3	4	2.75	0.625
	Centralization	2	2	3.25	2	0.625	3.8	4	4.25	3.75	0.25	3.9	4	4.25	3.75	0.25
	Formalization	2.1	2	3	1.75	0.625	3	3	4.25	3	0.625	3.3	3	4	3	0.5
	Human resources	4.9	5	5	4.5	0.25	4	4	5	4	0.5	4.1	4	5	4	0.5
	Financial resources	3.2	3	4	2.5	0.75	4.1	4	4.25	3.75	0.25	4.8	5	5	4	0.5
	Top managers attitude towards innovation	4.1	4	4.5	4	0.25	3.9	4	4.25	3.75	0.25	4	4	4.5	3.5	0.5
Top managers characteristics	Top managers demographic characteristics	2.3	2	3.25	1.75	0.75	2	2.5	3	1	1	2.2	2	3	1.5	0.75
	Relative advantage	3	3	4	2.75	0.625	4.4	4.5	5	4	0.5	3.1	3	4	2.75	0.625
Innovation characteristics	Compatibility	2.8	3	3.5	2	0.75	3.9	4	4.25	3.75	0.25	3.9	4	4.25	3.75	0.25
	Complexity	3.6	4	4.25	3.75	0.25	3.8	4	4	3.75	0.125	3.9	4	4.25	3.75	0.25
	Trialability	3.2	3	4	2.75	0.625	3.1	3	4	2.5	0.75	4.1	4	5	4	0.5
	Observability	3.4	3.5	4.25	3	0.625	3.1	3.5	4	2	1	3.3	3	4.25	3	0.625
User acceptance attributes	Usefulness											3.2	3	4	2	1
	Ease of use											4	4	5	4	0.5

Note.  
Me = median; Q = quartile; QD = quartile deviation.

# Innovation Adoption Process

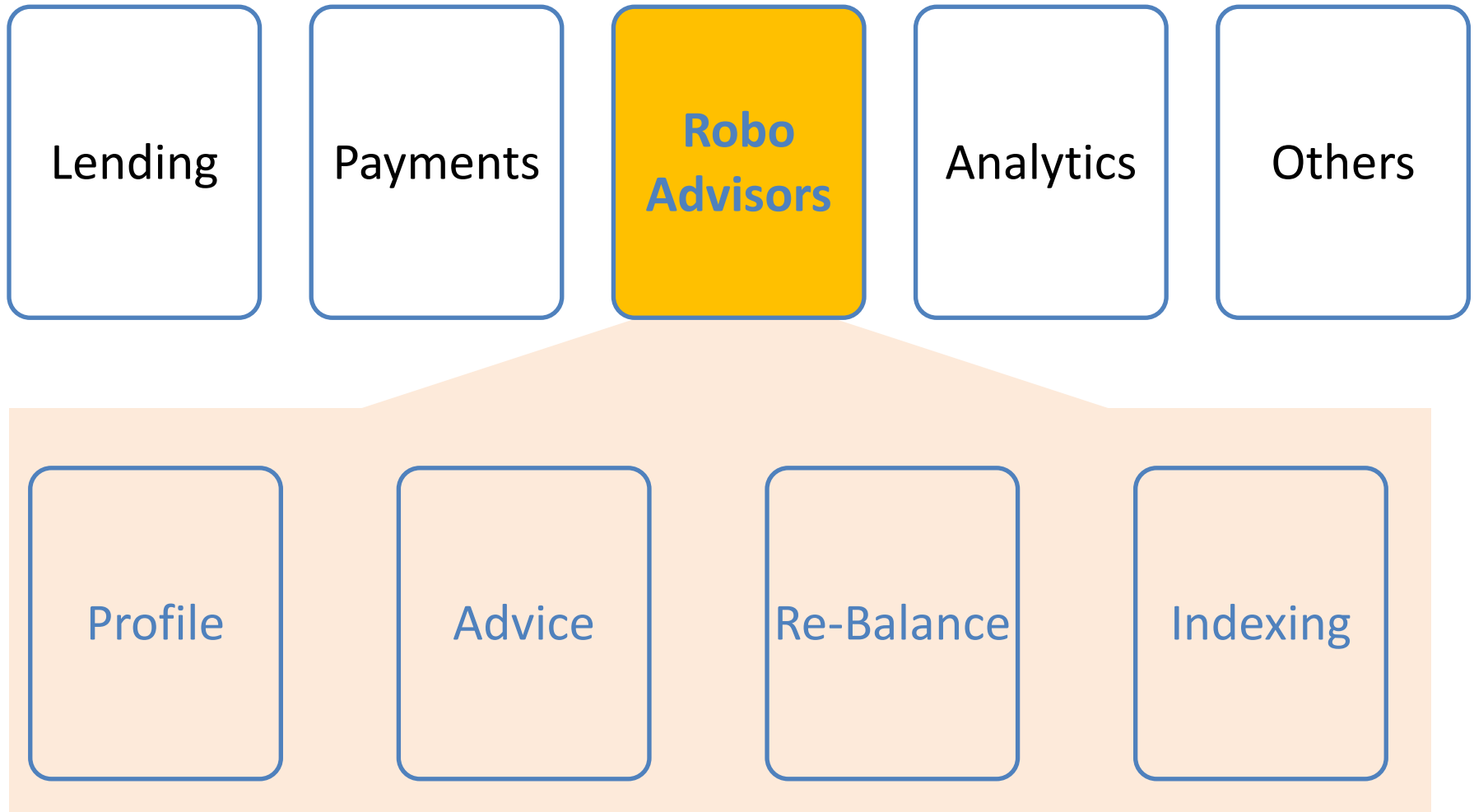
Initiation			Adoption decision			Implementation		
Factors	Round 1	Round 2	Factors	Round 1	Round 2	Factors	Round 1	Round 2
Complexity in the environment	4.5	4.2	Dynamism in the environment	3.6	3.4	Dynamism in the environment	4.0	3.8
Specialization	3.8	3.4	Hostility in the environment	3.9	4.0	Hostility in the environment	3.7	3.4
Horizontal differentiation	2.8	3.1	Centralization	3.8	3.8	Centralization	3.9	3.8
Human resources	4.9	5.0	Human resources	4.0	4.2	Formalization	3.3	3.2
Top managers attitude towards innovation	4.1	4.3	Financial resources	4.1	4.4	Human resources	4.1	4.4
Innovation complexity	3.6	3.3	Top managers attitude towards innovation	3.9	4.0	Financial resources	4.8	5.0
			Relative advantage	4.4	4.1	Top managers attitude towards innovation	4.0	4.4
			Innovation compatibility	3.9	3.6	Innovation compatibility	3.9	3.8
			Innovation complexity	3.8	3.8	Innovation complexity	3.9	3.9
						Innovation trialability	4.1	3.9
						Ease of use	4.0	4.2

Source: Pichlak, Magdalena.

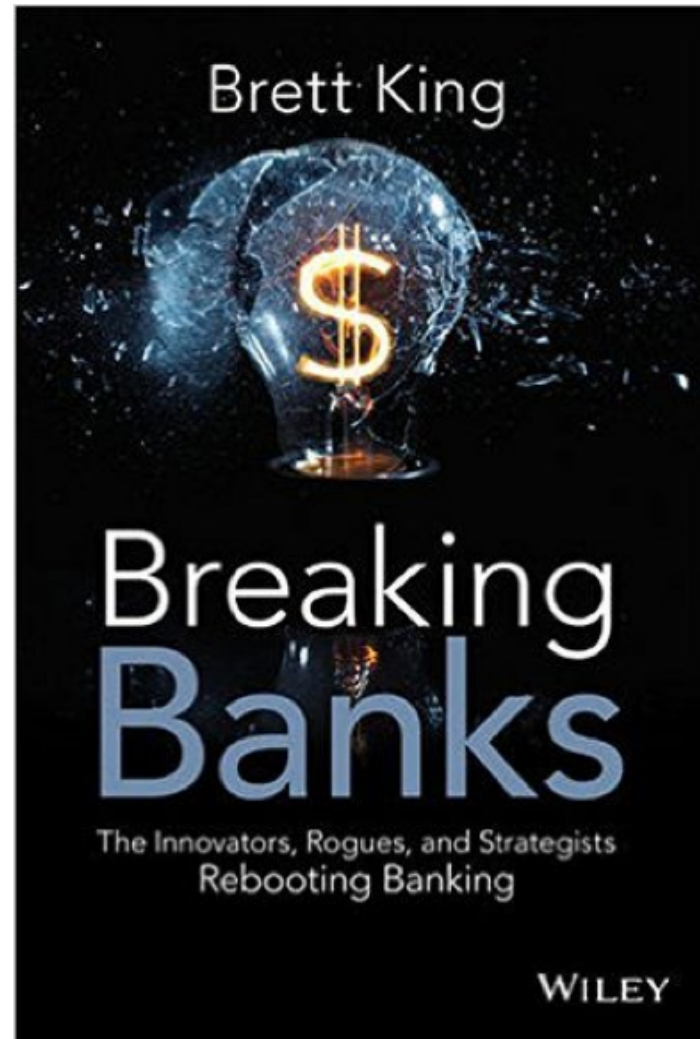
"The innovation adoption process: A multidimensional approach." Journal of Management and Organization 22, no. 4 (2016): 476.

# FinTech Innovation

## FinTech high-level classification



Brett King (2014),  
**Breaking Banks:**  
The Innovators, Rogues, and Strategists Rebooting Banking  
Wiley



**“In the next 10 years,  
we'll see more  
disruption and changes  
to the banking and  
financial industry  
than we've seen in the  
preceding 100 years.”**

**(Brett King, 2014)**

# Fintech: Financial Technology

## Disrupting Banking: The Fintech Startups That Are Unbundling Wells Fargo, Citi and Bank of America



# Fintech: Unbundling the Bank

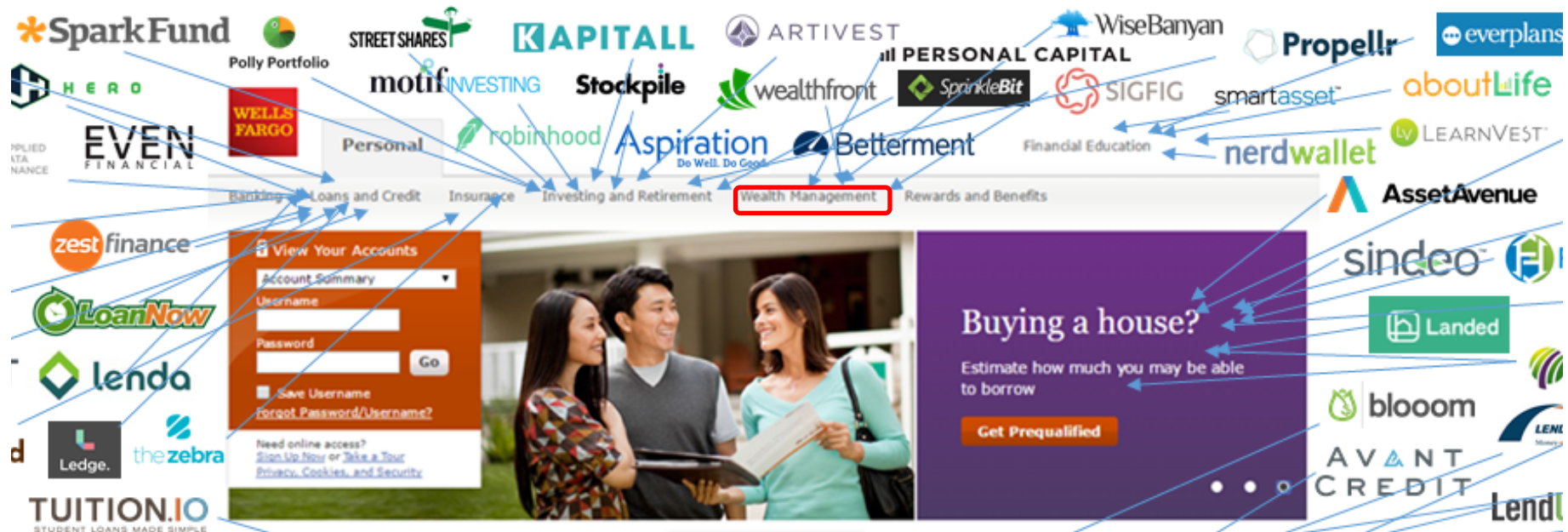
## Unbundling of a Bank



# Fintech: Unbundling the Bank

## Wealth Management: Wealthfront

### Unbundling of a Bank



**Fintech: Financial Technology**

**Disrupting**

**European Banking:**

**The FinTech Startups**

**That Are Unbundling**

**HSBC, Santander, and**

**BNP**

# Unbundling of a European Bank

The image illustrates the unbundling of a European bank, specifically HSBC, into various fintech services. The central focus is the HSBC website, which is surrounded by numerous other financial services. Arrows point from various logos to specific sections of the HSBC website, showing how different services are being unbundled.

**Logos and Services:**

- Top Row:** SavingGlobal, borro, Bondora, Zopa, Lending Works, prêt d'union, Lendico, fruitful, LANDBAY, Property Partner, wonga, Spotcap, Funding Circle, FINEXKAP, fleximize, iwoca, capiota, HOLVI, Trade River, Ebury, Lydia, jusp, ensygnio, payleven.
- Second Row:** ffrees, osper, CENTRALWAY, SQUIRREL, nutmeg, wikifolio, eToro, tink, CAPITAL, Money Dashboard, moni, transferGo, worldremit, azimo, CurrencyFair, Klarna, adyen, sum up, iZettle, BILLPAY, GOCARDLESS, PAYMILL.

**HSBC Website Sections:**

- Personal / Business:** Search, Internet Banking, Log on, Register.
- Everyday banking:** Accounts & services.
- Borrowing:** Loans & mortgages.
- Investing:** Products & analysis.
- Insurance:** Property & family.
- Planning:** for now & the future.

**Key Features and Services:**

- Send money overseas in a few clicks:** It's secure, quick and easy. See just how much we could save you. Fees may apply. Payments may also incur agency and/or beneficiary bank fees. [Find out more](#)
- Find a mortgage:** Our lowest ever loan rate.
- Save Together offer:** International money transfer.
- Business Banking:** Business Home > Business Banking. Business Banking Turnover up to £2m. Commercial Banking Turnover £2m to £30m. Corporate Banking Turnover in excess of £30m. International Business. Online Services.
- Discover products and services for your banking needs:**
  - Community account
  - Other accounts
  - Finance & borrowing
  - Credit cards & debit cards
  - Payment services
  - Business insurance policies
  - Business savings & investments
  - Ways to Bank
  - International business
  - Pensions
- Get in touch:** Have a query? There are lots of ways we can help you feel you're making the right choice. Call us on 0800 731 8904. Find a branch and book an appointment. Retrieve application. Retrieve an online application you have already started.



# Unbundling of a European Bank

The image illustrates the concept of 'unbundling' a traditional European bank into specialized fintech services. It features a central screenshot of the HSBC website, with various fintech logos surrounding it, each connected to a specific service on the website by yellow arrows.

**Logos on the left side (connected to the top navigation bar):**

- SavingGlobal
- borro
- Bondora
- zopa
- LENDING WORKS
- prêt d'union
- Lendico
- fruitful
- LANDBAY
- Property Partner
- wonga

**Logos at the top (connected to the top navigation bar):**

- ffrees
- osper
- CENTRALWAY
- SQUIRREL
- nutmeg
- wikifolio
- etoro
- tink

**Logos on the right side (connected to the top navigation bar):**

- CAPITAL
- Money Dashboard
- môni
- transferGo
- worldremit
- azimo
- CurrencyFair
- Klarna
- adyen

**Central Screenshot (HSBC Website):**

- Navigation Bar:** Personal | Business | Search | Internet Banking | Log on | Register
- Main Menu:** HSBC | Everyday banking (Accounts & services) | Borrowing (Loans & mortgages) | Investing (Products & analysis) | Insurance (Property & family) | Planning (for now & the future)
- Hero Section:** "Send money overseas in a few clicks. It's secure, quick and easy. See just how much we could save you. Find out more."
- Footer:** Personal | Business | Business Banking (Turnover up to £2m) | Commercial Banking (Turnover £2m to £30m) | Corporate Banking (Turnover in excess of £30m) | International Business | Online Services

**Logos at the bottom (connected to the footer):**

- LendInvest
- auxmoney
- lendstar
- TransferWise
- the currency cloud
- CBINSIGHTS

# Financial Technology (Fintech) Categories

1. Banking Infrastructure
2. Business Lending
3. Consumer and Commercial Banking
4. Consumer Lending
5. Consumer Payments
6. Crowdfunding
7. Equity Financing
8. Financial Research and Data
9. Financial Transaction Security
10. Institutional Investing
11. International Money Transfer
12. Payments Backend and Infrastructure
13. Personal Finance
14. Point of Sale Payments
15. Retail Investing
16. Small and Medium Business Tools

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