AI in Finance
Big Data Analytics

AI in FinTech: Financial Services Innovation and Application

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2019-09-17
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<th>Week</th>
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<tr>
<td>10</td>
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<td>2019/11/19</td>
<td>Machine Learning in Finance Application with Scikit-Learn In Python</td>
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<td>2019/12/03</td>
<td>Case Study on AI in Finance Big Data Analytics II</td>
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<td>14</td>
<td>2019/12/10</td>
<td>Deep Learning for Financial Time Series Forecasting with TensorFlow II</td>
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<td>15</td>
<td>2019/12/17</td>
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<td>Final Project Presentation I</td>
</tr>
<tr>
<td>18</td>
<td>2020/01/07</td>
<td>Final Project Presentation II</td>
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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

Source: https://www.amazon.com/Information-Technology-Innovation-Resources-Connected/dp/1118155785
Brett King (2012),

**Bank 3.0**

Why banking is no longer somewhere you go, but something you do,

Marshall Cavendish International Asia Pte Ltd

Source: https://www.amazon.com/Bank-3-0-Banking-Somewhere-Something/dp/1118589637
Brett King (2014),

**Breaking Banks:**
The Innovators, Rogues, and Strategists Rebooting Banking

Wiley

Source: https://www.amazon.com/Breaking-Banks-Innovators-Strategists-Rebooting/dp/1118900146
Chris Skinner (2014),

**Digital Bank: Strategies to Launch or Become a Digital Bank,**
Marshall Cavendish International Asia Pte Ltd


Joseph A. Schumpeter,

The Theory of Economic Development:
An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle,
Transaction Publishers, 1982

(Schumpeter, 1912)
Evolution of Decision Support, Business Intelligence, and Analytics

The timeline in Figure 1.8 shows the terminology used to describe analytics since the 1970s. During the 1970s, the primary focus of information systems support for decision making focused on providing structured, periodic reports that a manager could use for decision making (or ignore them). Businesses began to create routine reports to inform decision makers (managers) about what had happened in the previous period (e.g., day, week, month, quarter). Although it was useful to know what had happened in the past, managers needed more than this: They needed a variety of reports at different levels of granularity to better understand and address changing needs and challenges of the business. These were usually called management information systems (MIS). In the early 1970s, Scott-Morton first articulated the major concepts of DSS. He defined DSSs as "interactive computer-based systems, which help decision makers utilize data and models to solve unstructured problems" (Gorry and Scott-Morton, 1971). The following is another classic DSS definition, provided by Keen and Scott-Morton (1978):

"Decision support systems couple the intellectual resources of individuals with the capabilities of the computer to improve the quality of decisions. It is a computer-based support system for management decision makers who deal with semistructured problems."

Note that the term decision support system, like management information system and several other terms in the field of IT, is a content-free expression (i.e., it means different things to different people). Therefore, there is no universally accepted definition of DSS.

During the early days of analytics, data was often obtained from the domain experts using manual processes (i.e., interviews and surveys) to build mathematical or knowledge-based models to solve constrained optimization problems. The idea was to do the best with limited resources. Such decision support models were typically called operations research (OR). The problems that were too complex to solve optimally (using linear or nonlinear mathematical programming techniques) were tackled using heuristic methods such as simulation models. (We will introduce these as prescriptive analytics later in this chapter and in a bit more detail in Chapter 6.)

In the late 1970s and early 1980s, in addition to the mature OR models that were being used in many industries and government systems, a new and exciting line of models had emerged: rule-based expert systems. These systems promised to capture experts' knowledge in a format that computers could process (via a collection of if–then–else rules or heuristics) so that these could be used for consultation much the same way that one...

Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017), Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson
Definition of Artificial Intelligence (A.I.)
Artificial Intelligence

“... the science and engineering of making intelligent machines”

(John McCarthy, 1955)
Artificial Intelligence

“... technology that thinks and acts like humans”
Artificial Intelligence

“... intelligence exhibited by machines or software”
<table>
<thead>
<tr>
<th>Thinking Humanly</th>
<th>Thinking Rationally</th>
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<tbody>
<tr>
<td>Acting Humanly</td>
<td>Acting Rationally</td>
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## 4 Approaches of AI

|---|----------------------------------------------------|------------------------------------------------------|

AI Acting Humanly: The Turing Test Approach (Alan Turing, 1950)

- Natural Language Processing (NLP)
- Knowledge Representation
- Automated Reasoning
- Machine Learning (ML)
- Computer Vision
- Robotics

Boston Dynamics: Atlas

#13 ON TRENDING
What's new, Atlas?

https://www.youtube.com/watch?v=fRj34o4hN4I
Humanoid Robot: Sophia

https://www.youtube.com/watch?v=S5t6K9iwc dw
Can a robot pass a university entrance exam?
Noriko Arai at TED2017

https://www.ted.com/talks/noriko_arai_can_a_robot_pass_a_university_entrance_exam
https://www.youtube.com/watch?v=XQZjkPyJ8KU
Artificial Intelligence (A.I.) Timeline

1950
TURING TEST
Computer scientist Alan Turing proposes a test for machine intelligence. If a machine can trick humans into thinking it is human, then it has intelligence.

1955
A.I. BORN
Term ‘artificial intelligence’ is coined by computer scientist, John McCarthy to describe “the science and engineering of making intelligent machines”

1961
UNIMATE
First industrial robot, Unimate, goes to work at GM replacing humans on the assembly line

1964
ELIZA
Pioneering chatbot developed by Joseph Weizenbaum at MIT holds conversations with humans

1966
SHAKEY
The ‘first electronic person’ from Stanford, Shakey is a general-purpose mobile robot that reasons about its own actions

A.I. WINTER
Many false starts and dead-ends leave A.I. out in the cold

1997
DEEP BLUE
Deep Blue, a chess-playing computer from IBM defeats world chess champion Garry Kasparov

1998
KISMET
Cynthia Breazeal at MIT introduces Kismet, an emotionally intelligent robot insofar as it detects and responds to people's feelings

1999
AIBO
Sony launches first consumer robot pet dog AIBO (AI robot) with skills and personality that develop over time

2002
ROOMBA
First mass produced autonomous robotic vacuum cleaner from iRobot learns to navigate and clean homes

2011
SIRI
Apple integrates Siri, an intelligent virtual assistant with a voice interface, into the iPhone 4S

2011
WATSON
IBM's question answering computer Watson wins first place on popular $1M prize television quiz show Jeopardy

2014
EUGENE
Eugene Goostman, a chatbot passes the Turing Test with a third of judges believing Eugene is human

2014
ALEXA
Amazon launches Alexa, an intelligent virtual assistant with a voice interface that completes shopping tasks

2016
TAY
Microsoft's chatbot Tay goes rogue on social media making inflammatory and offensive racist comments

2017
ALPHAGO
Google's A.I. AlphaGo beats world champion Ke Jie in the complex board game of Go, notable for its vast number of possible positions

Artificial Intelligence
Machine Learning & Deep Learning

Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

Artificial intelligence (AI) in optical networks

FinTech
Financial Technology
FinTech
Financial Technology
FinTech

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

Source: https://www.fintechweekly.com/fintech-definition

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

Source: https://www.jacksonvillebarter.com/
Barter
Money

Bills

Gold Bullion Coin

Source: http://www.wpclipart.com/money/coins/American_buffalo_gold_bullion_coin_front.jpg.html
Gold Bullion Coin

Source: http://www.wpclipart.com/money/coins/American_buffalo_gold_bullion_coin_back.jpg.html
Coin US Penny

Source: http://www.wpclipart.com/money/coins/coin_US_penny_2.png.html
Gold Bricks

Financial Services
Financial Services

Source: http://www.wpclipart.com/money/credit_card/credit_card.png.html
Treasure

Source: http://www.wpclipart.com/money/treasure/treasure_chest_3.png.html
Safe

Source: http://www.wpclipart.com/money/safe/steel_safe.png.html
Currency Exchange

Source: http://www.wpclipart.com/signs_symbol/BW/travel_symbols/currency_exchange.png.html
Market
Financial Services
Financial Services

Source: http://www.crackitt.com/7-reasons-why-your-fintech-startup-needs-visual-marketing/
Financial Revolution with Fintech

Source: http://www.hedgethink.com/fintech/european-fintech-top-100/
FinTech: Financial Services Innovation

Source: http://www3.weforum.org/docs/WEF_The_future__of_financial_services.pdf
FinTech: Financial Services Innovation

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

Source: http://www3.weforum.org/docs/WEF_The_future__of_financial_services.pdf
FinTech: Payment

1

Source: http://www3.weforum.org/docs/WEF_The_future_of_financial_services.pdf
FinTech: Insurance

Insurance Disaggregation
- Sharing Economy
- Autonomous Vehicles
- Digital Distribution
- Securitization and Hedge Funds

Connected Insurance
- Internet of Things
- Advanced Sensors
- Wearable Computers

Source: http://www3.weforum.org/docs/WEF_The_future_of_financial_services.pdf
FinTech: Deposits & Lending

Source: http://www3.weforum.org/docs/WEF_The_future__of_financial_services.pdf
FinTech: Capital Raising

Source: http://www3.weforum.org/docs/WEF_The_future__of_financial_services.pdf
5 FinTech: Investment Management

Source: http://www3.weforum.org/docs/WEF_The_future__of_financial_services.pdf
FinTech: Market Provisioning

Source: http://www3.weforum.org/docs/WEF_The_future__of_financial_services.pdf
The Economics of Money, Banking and Financial Markets

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?
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
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

Financial Intermediaries

Indirect Finance

Funds

Borrower-Senders
1. Business firms
2. Government
3. Households
4. Foreigners

Funds

Lender-Savers
1. Households
2. Business firms
3. Government
4. Foreigners

Funds

Financial Markets

Direct Finance

Funds

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.

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

\[ \text{Demand} \]

\[ \text{Price (p)} \]

\[ P^* \]

\[ \text{Quantity (q)} \]

\[ Q^* \]

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

Output (Income), $Y$

Interest rate, $i$

Supply and Demand

$P^*$

$Q^*$

Equilibrium

$D$

$S$

Demand

Supply

Quantity ($q$)

Price ($p$)

Quantity ($q$)

Price ($p$)

$P^*$

$Q^*$

Artificial Intelligence and Deep Learning for Fintech
From Algorithmic Trading to Personal Finance Bots: 41 Startups Bringing AI to Fintech

Source: https://www.cbinsights.com/blog/artificial-intelligence-fintech-market-map-company-list/
From Algorithmic Trading To Personal Finance Bots: 41 Startups Bringing AI To Fintech

AI in Fintech

41 Startups Bringing Artificial Intelligence To Fintech

General Purpose/ Predictive Analytics
- AYASDI
- KENSCH
- Digital Reasoning
- context relevant
- H2O
- turi
- DataRobot
- nervana systems

Quantitative Trading
- sentient technologies
- CLONE ALGO
- Alpaca
- Walnut Algo

AI Assistants/Bots
- KASIST@
- TRIM
- Penny
- INSURIFY
- SURE.

Credit Scoring
- TypeScore
- aire
- credi nudly
- zest finance
- ADF
- Applied Data Finance

Blockchain
- Skry
- EUCLID
- Cleo
- FiGenius

Personal Banking
- person onetics
- SBD A group

Market Research & Sentiment Analysis
- indico
- acuity trading
- Lucena Quantitative Analytics
- Numerai
- Dataminr

Search Engine
- alphapense

Debt Collection
- feedzai
- TrueAccord
- Biocatch
- Less Friction. Less Fraud.

Fraud Detection

Source: https://www.cbinsights.com/blog/artificial-intelligence-fintech-market-map-company-list/
Artificial Intelligence (AI) in Fintech

General Purpose/ Predictive Analytics

AYASDI  Digital Reasoning  context relevant  H2O  turi
KENSHO  cortical.io  Numenta
DataRobot  nervana systems

Market Research & Sentiment Analysis

indico  acuity trading  Lucena Quantitative Analytics  NUMERAI
Dataminr™

Search Engine

alphasense

Source: https://www.cbinsights.com/blog/artificial-intelligence-fintech-market-map-company-list/
Artificial Intelligence (AI) in Fintech

- **Quantitative Trading**
  - Sentient Technologies
  - Clone Algo
  - Alpaca
  - Walnut Algorithms

- **AI Assistants/Bots**
  - KASIST
  - TRIM
  - Penny
  - Insurify SURE.

- **Credit Scoring**
  - TypeScore
  - Aire
  - Creditvidya
  - Zest Finance
  - ADF
  - Applied Data Finance
  - Wecash
  - Cream Finance

- **Blockchain**
  - Skry
  - EUKLID

- **Debt Collection**
  - TrueAccord

- **Fraud Detection**
  - Feedzai
  - Biocatch

- **Personal Banking**
  - Personetics
  - SBDA Group

Source: https://www.cbinsights.com/blog/artificial-intelligence-fintech-market-map-company-list/
Wealthfront Robo Advisor

Source: https://www.wealthfront.com/
Financial Services
Technology
Innovation
Innovation

Source: https://www.merriam-webster.com/dictionary/innovation
Innovation: a new idea, method, or device

Source: https://www.merriam-webster.com/dictionary/innovation
Innovation: something new

Source: https://www.merriam-webster.com/dictionary/innovation
Novelty:
something new or unusual
the novelty of a self-driving car

Source: https://www.merriam-webster.com/dictionary/novelty
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

Innovation Research in Economics, Sociology and Technology Management

Innovation Research in Economics, Sociology and Technology Management

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<th>Stage of process</th>
<th>Level of study</th>
<th>Type of innovation</th>
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<td>Generation</td>
<td>Industry</td>
<td>Product and process</td>
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<tr>
<td>Idea generation</td>
<td></td>
<td>Only technical</td>
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<tr>
<td>Project definition</td>
<td></td>
<td>Only radical</td>
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<td><strong>Technologists</strong></td>
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<tr>
<td>Contextual technologists</td>
<td>Generation</td>
<td>Innovation (in the industry context)</td>
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<td>Commercialization and</td>
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<td></td>
<td>marketing</td>
<td>Product and process</td>
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<td>Generation</td>
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<td>technologists</td>
<td>Idea generation</td>
<td>Product and process</td>
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<td></td>
<td>Problem solving adoption</td>
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<td>Only technical</td>
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<td></td>
<td>Adoption</td>
<td>Radical and incremental</td>
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<td>Initiation</td>
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<tr>
<td><strong>Sociologists</strong></td>
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<tr>
<td>Variance sociologists</td>
<td>Adoption</td>
<td>Organization</td>
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<tr>
<td></td>
<td>Initiation</td>
<td>Product and process</td>
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<td></td>
<td>Implementation</td>
<td>Technical and administrative</td>
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<td></td>
<td></td>
<td>Radical and incremental</td>
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<tr>
<td>Process sociologists</td>
<td>Adoption</td>
<td>Innovation (at the organizational level)</td>
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<tr>
<td></td>
<td>Initiation</td>
<td>Product and process</td>
</tr>
<tr>
<td></td>
<td>Implementation</td>
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<td>Radical and incremental</td>
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Business, Innovation, and Knowledge Ecosystems

Business, Innovation, and Knowledge Ecosystems

## Innovation Ecosystems

### Characteristics

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

Initiation → Adoption Decision → Implementation

Innovation Adoption Process

Initiation — Adoption Decision — Implementation

Environmental Characteristics
Organizational Characteristics
Top Managers Characteristics
Innovation Characteristics
User Acceptance Attributes

RBV= Resource-Based View
DOI = Diffusion of Innovation Theory
TAM= Technology Acceptance Model

Innovation Adoption Process

# Innovation Adoption Process

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

Source: Pichlak, Magdalena. 
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Source: Pichlak, Magdalena.
FinTech Innovation

FinTech high-level classification

Lending  Payments  Robo Advisors  Analytics  Others

Profile  Advice  Re-Balance  Indexing

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)

Source: Brett King (2014), Breaking Banks: The Innovators, Rogues, and Strategists Rebooting Banking, Wiley
Fintech: Financial Technology

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

Source: https://www.cbinsights.com/blog/industry-market-map-landscape/
Fintech: Unbundling the Bank

Source: https://www.cbinsights.com/blog/disrupting-banking-fintech-startups-2016/
Fintech: Unbundling the Bank

Wealth Management: Wealthfront

Source: https://www.cbinsights.com/blog/disrupting-banking-fintech-startups-2016/
Fintech: Financial Technology

Disrupting European Banking: The FinTech Startups That Are Unbundling HSBC, Santander, and BNP

Source: https://www.cbinsights.com/blog/industry-market-map-landscape/
Unbundling of a European Bank

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 vary by agency and/or beneficiary bank fees.
Find out more

Every business has its own story
We create different business bank accounts to suit different needs

Source: https://www.cbinsights.com/blog/disrupting-european-banking-fintech-startups/
Unbundling of a European Bank
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

Source: http://www.venturescanner.com/financial-technology
• Brett King (2012), “Bank 3.0: Why banking is no longer somewhere you go, but something you do”, John Wiley & Sons