

Master of Financial Technology

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FIN 615
Finance Concepts

Orientation Lecture





FinTech

- The word '**FinTech**' is simply a combination of the words '**financial**' and '**technology**'.
- It describes the use of technology to deliver financial services and products to consumers. This could be in the *areas of banking, insurance, investing* – anything that relates to finance.
- Increasingly, FinTech is coming to represent technologies that are disrupting traditional financial services, including mobile payments, money transfers, loans, fundraising and asset management.



Fintech Evolution



When fintech emerged in the 21st century, the term was initially applied to the technology employed at the backend systems of established financial institutions, such as banks.

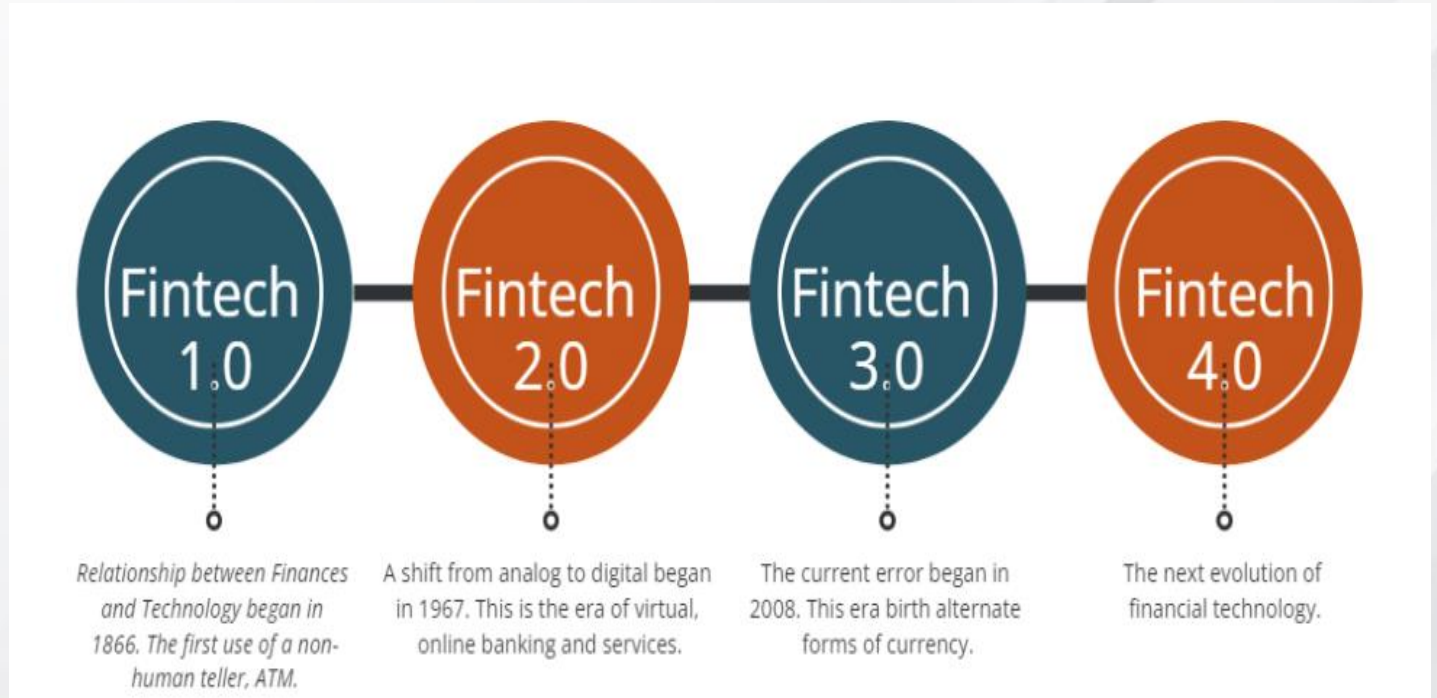


From 2018 or so to 2022, there was a shift to consumer-oriented services. Fintech now includes different sectors and industries such as education, retail banking, fundraising and nonprofit, and investment management, to name a few.



Fintech also includes the development and use of cryptocurrencies, such as Bitcoin.

Fintech Evolution



FinTech Drivers

- A number of factors have conflated to turn FinTech into the poster child that continues to grab the headlines.
 1. The **rapid rate of technology development, high level of smart phone penetration** which have enabled service improvements, especially faster payments.
 2. In today's digital age, **people are seeking easy access, convenience, efficiency and speed.** Given the **level of service expectations from customers**, there is no excuse for businesses not to embrace the latest technologies – and those who refuse will certainly be losing business.
 3. Moreover, the widespread adoption of mobile and internet technology is being driven by a change in **demographics in emerging** markets with a more technology savvy and connected generation of middle-income investors. As the **income of this younger generation increases over time**, it is expected that it will further drive the market size for FinTech.

FinTech Drivers

- FinTech firms have attracted substantial investment in recent years, while public interest has grown significantly.
- Most firms have remained small reflecting their knowledge-based business model, but investment in them has risen substantially.
- Moreover, **COVID-19** has significantly accelerated digital trends. The rapid demand for and use of digital platforms, digital banking, no-touch payments and other FinTech-related services in every region of the world has driven many financial services companies to increase their FinTech investments.
- Further, the pandemic has encouraged digitally retail customers to consider new payment methods, with 38 per cent of consumers reporting having discovered a new payment provider during the lockdown.

FinTech Key Players, Products and Trends

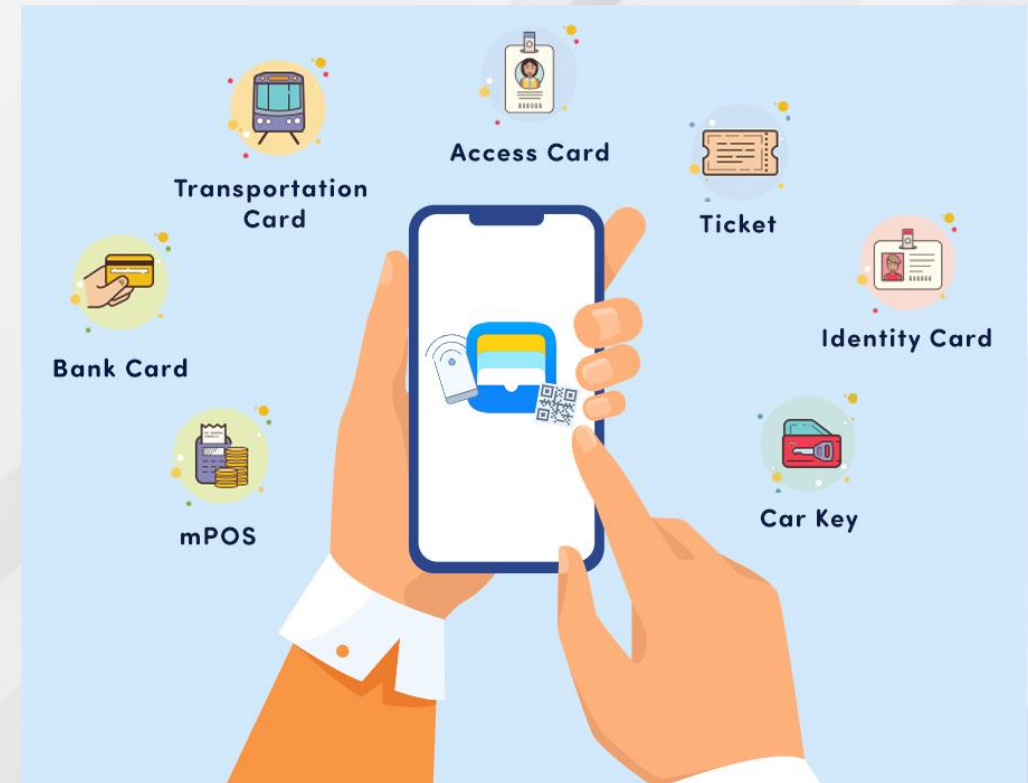
- When people think of FinTech, they often focus on start-ups that are breaking into areas that banks and other legacy financial institutions have dominated
- **However, the ecosystem of FinTech companies is considerably broader and covers:**
 - **Incumbent**, well-established financial institutions such as HSBC, Barclays, Bank of America and Allstate, which are acquiring or working with FinTech start-ups and building their own innovative solutions;
 - **Big technology companies** that are active in the financial services space but not exclusively so, such as Apple, Google, Facebook, and Twitter;
 - **Companies that provide infrastructure or technology** that facilitates financial services transactions, such as MasterCard, Fiserv, First Data, various financial market utilities, and exchanges such as NASDAQ; and
 - **Disruptors** – the fast-moving companies, often start-ups, focused on a particular innovative technology or process, such as mobile payments, and automated investing.

FinTech Key Players, Products and Trends

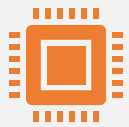
- As an umbrella term, FinTech covers many technological disruptions related to finance.
- They can be classified in several categories: payments, insurance, investment advice, securities clearance and settlement, and alternative funding platforms, all of which are enabled by cross-cutting technologies such as data analytics, blockchain and cybersecurity.

1. Mobile payments and e-wallets

- Mobile payments and e-wallets have made a huge impact on how people transact.
- Most mobile payment systems are based on a prepaid balance that is transferred by SMS, near-field communication, or using codes, but post-paid or real-time payments are also possible. A natural extension of mobile payments, **mobile wallets** let users store money and credit cards on their mobile devices and transact through their phones without ever opening their actual wallet.
- Google's Android pay and Apple's Apple Pay are two of the most well-known mobile wallets.
- Paypal has been considered as one of the pioneers of the digital payments industry.



2. Electronic Banking



Mobile access and the internet have been transformational, *allowing the gains from technological progress to be shared directly with billions of individual consumers whose mobile devices are now portals for accessing a full range of financial services.*



This **massive decentralization** is opening the door to **crowdfunding platforms** that disintermediate banks and directly connect those looking for financing with potential investors.



Crowdfunding now means that one can raise money quickly and cheaply from people all over the world that one has never met. It has democratised the process of finding start-up capital and shortened the timeline from perhaps months of meetings to as little as a few weeks

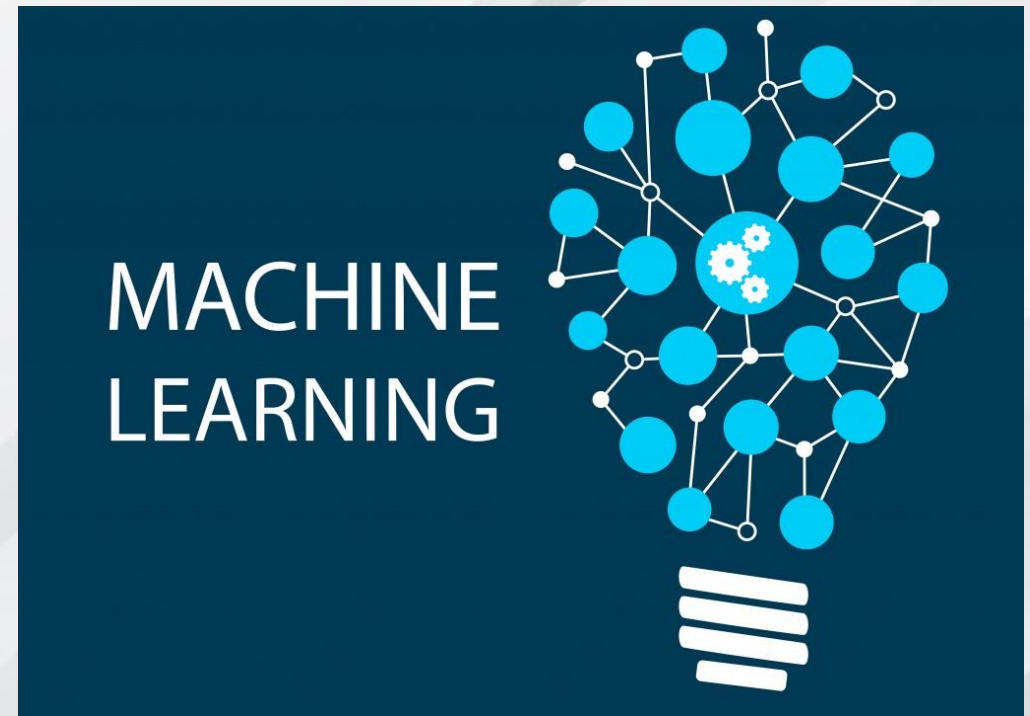
3. Artificial intelligence (AI) and big data

- Artificial intelligence (AI) and big data can dissect and **analyse large databases** through advanced algorithms to **derive patterns used to predict behaviour and prices**, and ultimately even mimic human judgement in automated decisions.
- Related applications can automate credit approvals or advice, facilitate regulatory compliance and fraud detection, and automate the trading of financial assets.



4. Machine learning

- A sub-category of AI, machine learning is a method of teaching computers to analyse data, learn from it and then make a determination or prediction regarding new data.
- Rather than hand-coding a specific set of instructions to accomplish a particular task, machine learning essentially uses algorithms to allow a system to learn from data.
- Machine learning algorithms could be more accurate than humans in some respects, but their outputs come with limited reasoning attached.
- Institutions and relevant service providers have already started using machine learning for a **variety of purposes, such as credit scoring, for which machine learning could improve services and pricing customisation**, given its ability to process significantly larger amounts of data input than classic statistics analysis.



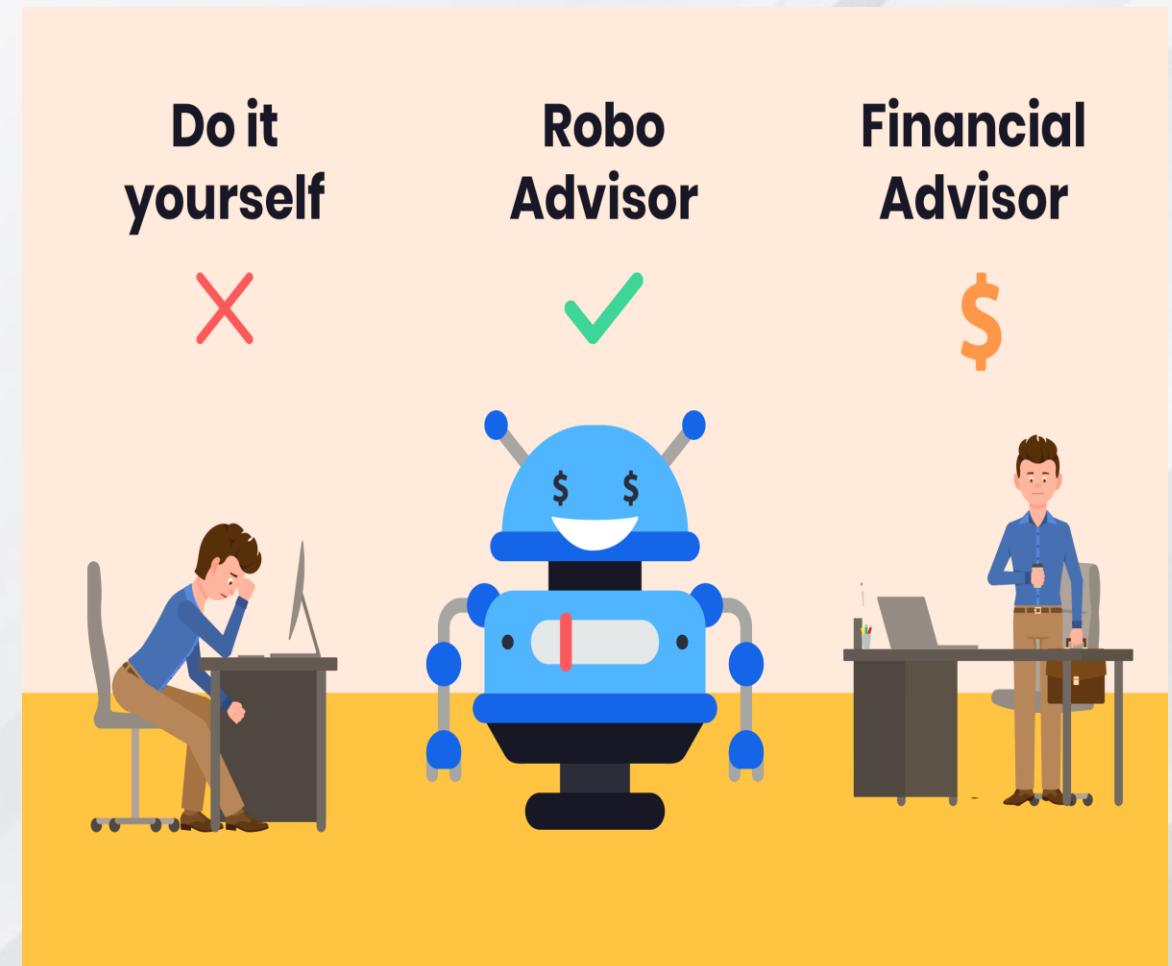
5. Biometrics

- Biometrics identifies individuals through unique physical characteristics, such as facial recognition, fingerprint and iris verification, as well as behavioural patterns, such as voice identification.
- Biometric authentication gives financial institutions independence from passwords, PINs, and tokens, which are susceptible to attack, and can offer significant opportunities, ranging from security to mobile payment solutions.
- Notably, however, biometrics is not fool-proof and consequences of any security breach involving biometric information are likely to be much more serious than a security breach involving a password or a PIN.



6. Robo-advice

- Robo-advice is an online service that uses algorithms to automatically perform many investment tasks done by a human financial adviser.
- Initially offered by start-ups, robo-advice is now part of the suite of services offered by major financial institutions such as Vanguard, Schwab and Fidelity.
- Since they are less expensive than a human adviser, they democratize access to financial advice – they can take on customers with few savings since adding one more person will not cost much more.
- While an automated advice model could help mitigate some of the risks associated with human advisers and managing a large salesforce, ultimately the design of the robo-advice model is crucial and a poorly designed model could lead to systemic mis-selling.



7. Blockchain

- Blockchain is a unique type of computerized ledger, which relies on cryptographic techniques and new methods for consensus to capture and secure the data.
- It is designed to be read by a computer, rather than by the human eye.
- **The following traits characterize blockchain:**
 - the ledger is shared among and worked on by multiple participants, none of which has a single point of control over it;
 - an ever-growing chain of ledger entries ('blocks') links the entire history in such a way as to prevent tampering with or rewriting past records; and
 - digitally signed transactions or instructions indicate intent to record or modify data, or to transfer digital assets.



Master of Financial Technology

The Master of Financial Technology focuses on developing FinTech services. The program emphasizes the systematic understanding of new digital models in financial services, how technology and innovation are changing financial practices, quantitative finance skills, and applying technologies to financial services.

Program Learning Outcomes

- Implement different financial technologies using advanced algorithms with a clear understanding of software and hardware architectures.
- Use statistical and quantitative analysis and predictive and exploratory models to make financial decisions.
- Conceptualize, analyze, design, and implement digital services for building FinTech applications.
- Analysis, design, and implement artificial intelligence systems, including biometrics, prediction systems, and object recognition.

Course Basic Information

Course Instructor	Dr Yara Magdy
Course Title	Finance Concepts
Course Code	FIN 615
Credit Hours	3
Program	Master of Financial Technology
Faculty	Faculty of Humanities
Language of Instruction	English
Teaching References	Madura, J. (2013). Financial Markets and Institutions. Cenage Learning Arthur J. Keown, John D. Martin, and J. Willian Petty (2017). Foundations of Finance. Pearson.

Course Description

The course emphasizes particularly banks and credit markets, and their role in generating economic growth as well as financial crises. Basic economic theories and models developed to understand these phenomena are covered, and the theoretical analysis is complemented with a historical perspective.

Course Aim

- **Upon completion of this course, students should be able to:**
 1. Discuss and critically assess different approaches to valuation, including the present value rule and discounting.
 2. Summarize the evidence on historical returns of different assets.
 3. List and explain the types of securities that firms can issue to finance themselves.
 4. Outline and describe the historical development of financial markets and institutions.
 5. Discuss and critically assess the historical evolution of forms of banking and of banking regulation.
 6. Understand the types and nature of financial system.
 7. Analyze financial statements.
 8. Evaluate projects using capital budgeting techniques.

Course Syllabus

Week	Topic
Week 1	Orientation Session
Week 2	Introduction to Financial System
Week 3	Financial Markets
Week 4	Foundations of Financial Management
Week 5	Financial Statements & Analysis - Part 1
Week 6	Financial Statements & Analysis - Part 2
Week 7	Financial Statements & Analysis - Part 3
Week 8	Time Value of Money – Part 1
Week 9	Time Value of Money – Part 2
Week 10	Capital Budgeting – Part 1
Week 11	Capital Budgeting – Part 2
Week 12	Discussion
Week 13	Final Exams

Teaching and Learning Methods

- ✓ Lectures
- ✓ Discussion
- ✓ Problem Solving
- ✓ Quizzes
- ✓ Final exams



Thank You