



# ADVANCES IN FINANCIAL TECHNOLOGY

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TIMO PENTTILÄ

# Write introduction to University Course in Financial Technology

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OpenAI ChatGPT



# First Lecture

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## Short Intro

- FinTech
- Course Content
- Future opportunities in FinTech

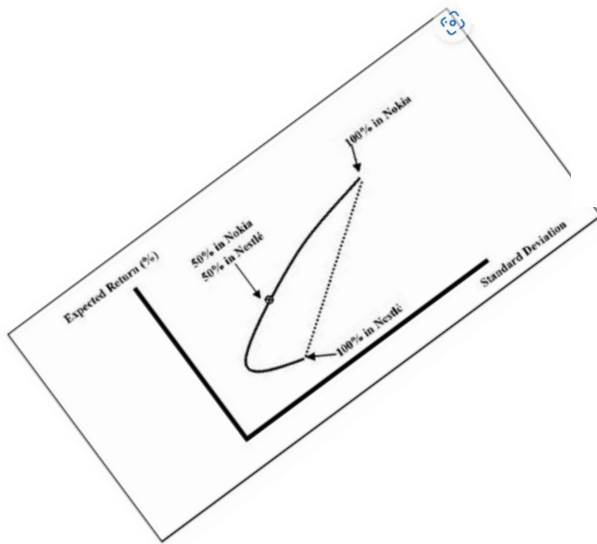
## Case – Embedded Finance

- Introduction by Heikki Rautila, Head of OP Lab
- Expectations from Case Work

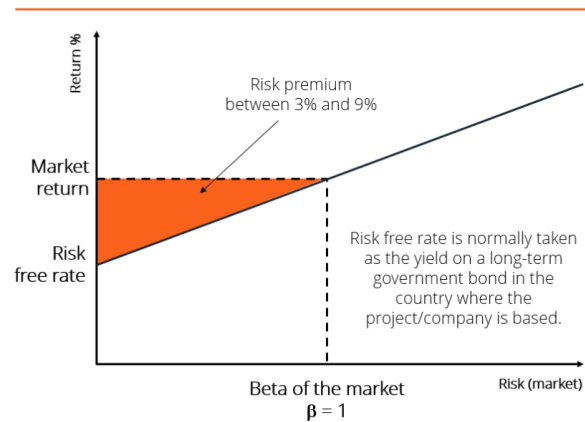
## Syllabus and course work

- Case
- Book Summary
- Quest Lecture Summaries

# Finance - Teaching



$$\begin{aligned}
 F_1 &= S_0 \times [1 + (R_E - R_{US})] \\
 &= £0.50 \times (1 + (.05 - .10)) \\
 &= £.475
 \end{aligned}$$



Donde  $d_1$  y  $d_2$  son tal que:

$$C = S \cdot N(d_1) - X \cdot e^{-r \cdot T} \cdot N(d_2)$$

$$d_1 = \frac{\ln \frac{S}{X} + \left[ r + \frac{\sigma^2}{2} \right] \cdot T}{\sigma \cdot \sqrt{T}}$$

$$d_2 = \frac{\ln \frac{S}{X} + \left[ r - \frac{\sigma^2}{2} \right] \cdot T}{\sigma \cdot \sqrt{T}} = d_1 - \sigma \cdot \sqrt{T}$$

[Get Smart Shoe Phone - YouTube](#)

[https://www.youtube.com/watch?v=BWhljf7tY\\_c](https://www.youtube.com/watch?v=BWhljf7tY_c)





GET  
SMART



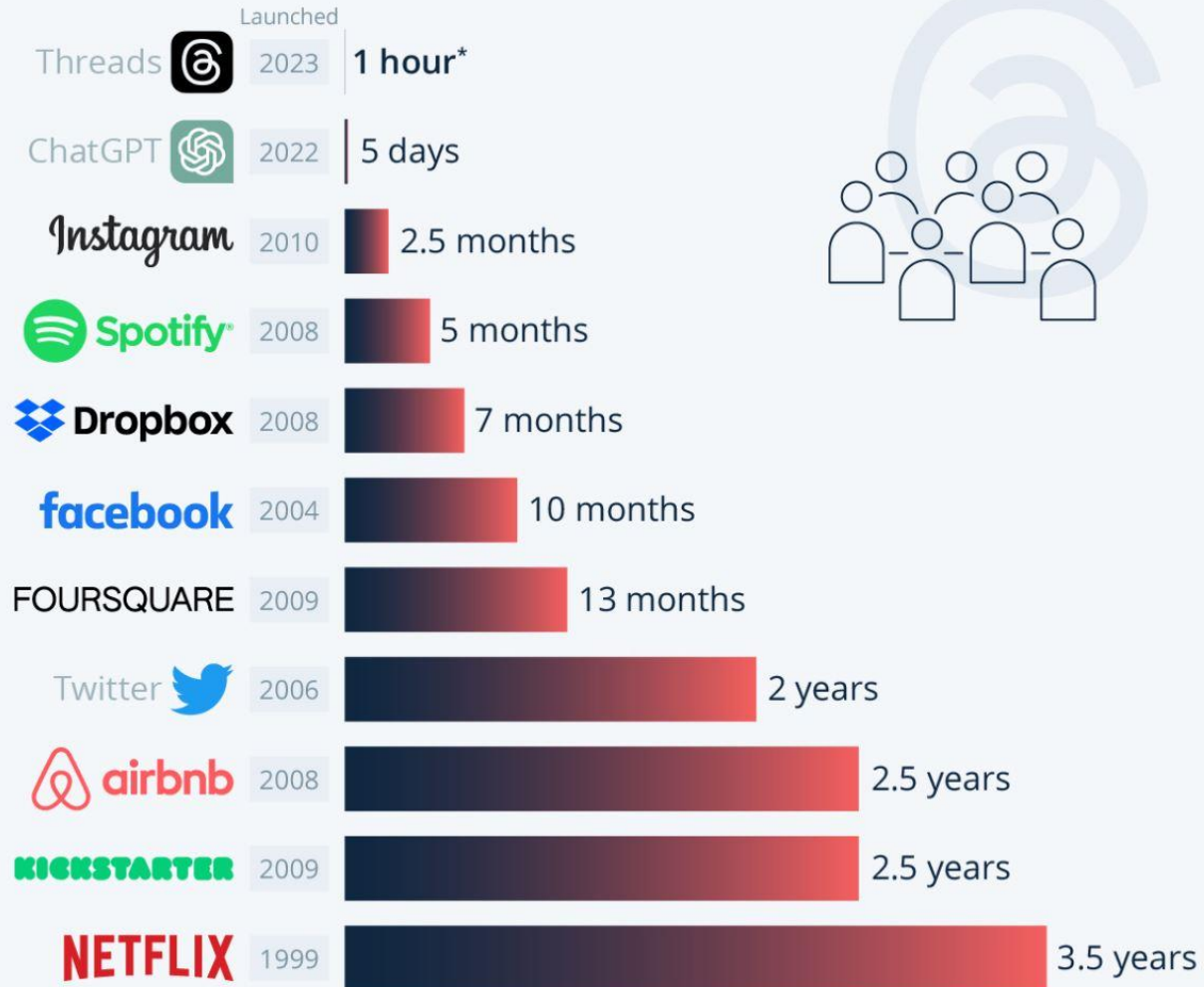
Future

# Elon Musk's Brain Implant Startup Is Ready to Start Surgery

Neuralink has FDA clearance to start messing with people's heads—and not just figuratively.



## Time it took for selected online services to reach one million users



Refers to one million backers (Kickstarter), nights booked (Airbnb), downloads (Instagram/Foursquare)

\* Two million signups in two hours

Source: Company announcements via Business Insider/LinkedIn



# FinTech - ABC

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A B C D E

# FinTech

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**A - Artificial Intelligence**

**B - Blockchain**

**C- Cloud**

**D - Data**

**E – Efficiency,,, Embedded Finance**

**F - Futuristic Vision – First Principle Thinking**

**G – Globalization**

# What is FinTech

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Technology-enabled innovation in financial services associated with new business models, applications, processes or products, all of which have a material effect ...



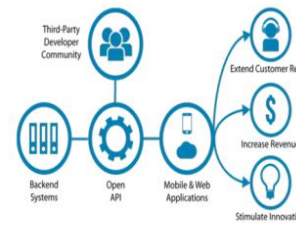
**AI & ML**



**Blockchain**



**Natural Language  
Processing**



**Open API**



**Biometrics**



**Chatbots**



**Cloud**

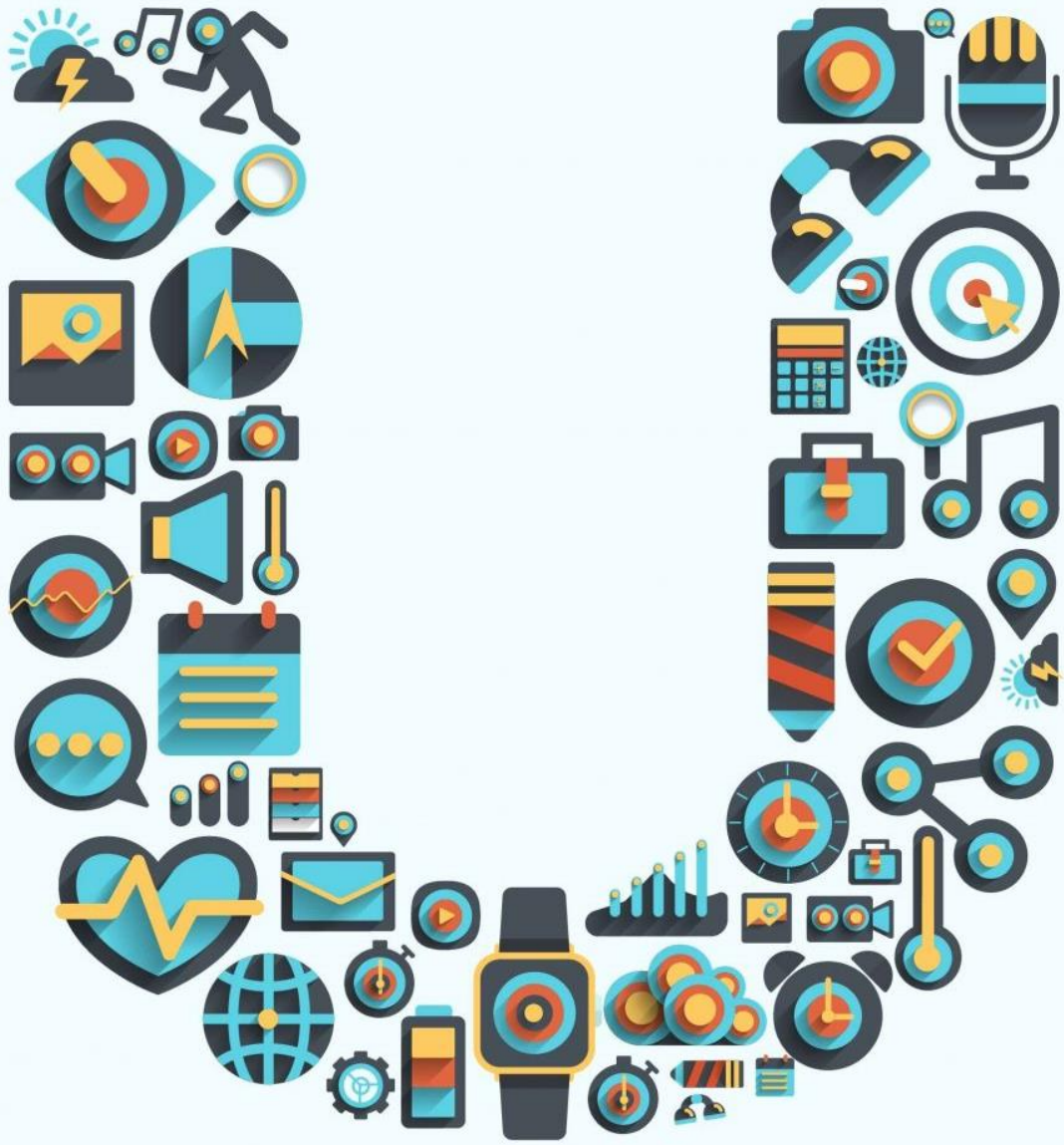


**Robotic Process  
Automation**

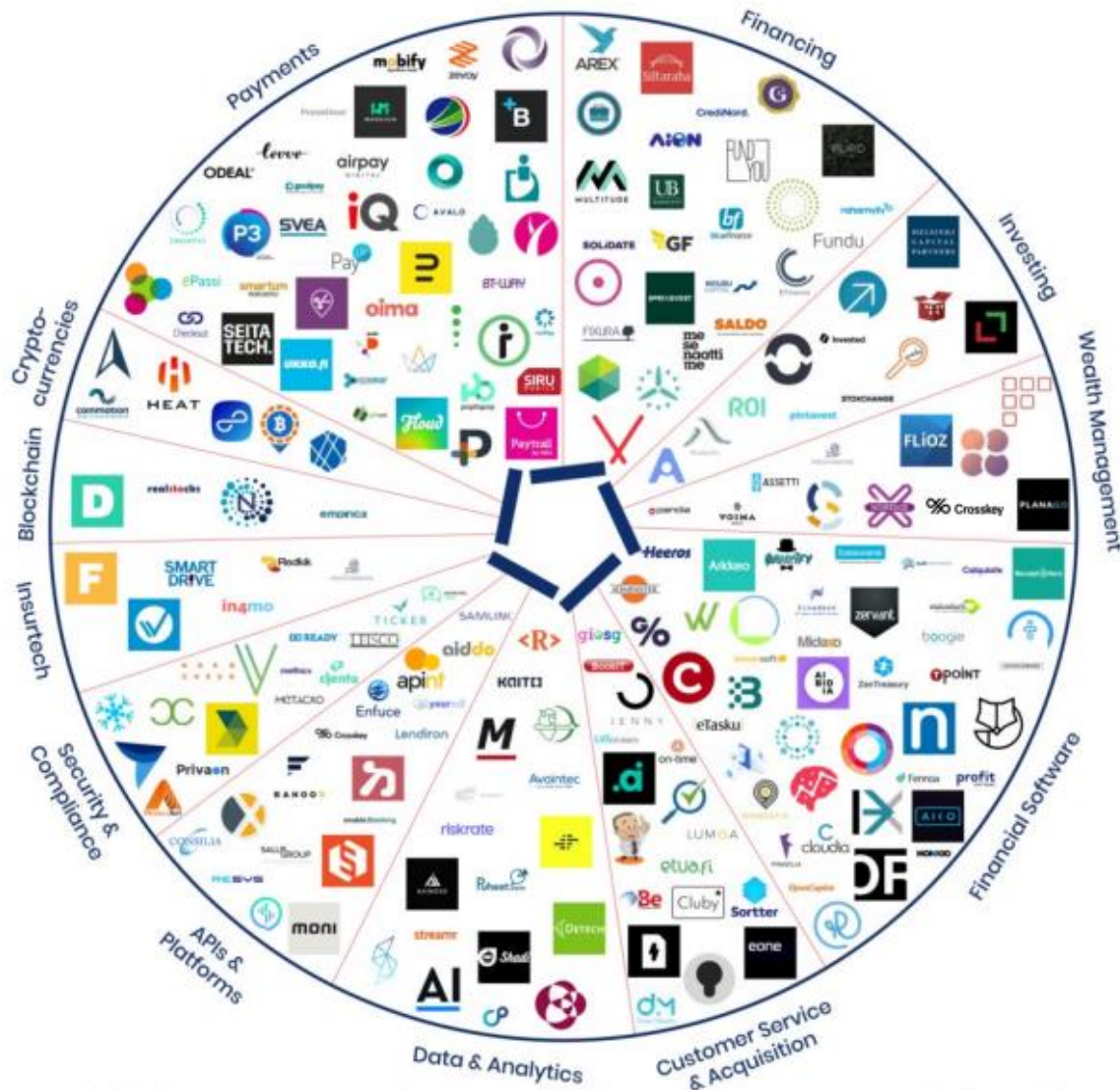


# Quantum Computing Gen AI

A



# Fintech Finland



Finnish Fintech Landscape by Fintech Farm © Version 2.5 December 2021 [www.helsinkifintech.fi](http://www.helsinkifintech.fi)

Finland has roughly 200 Fintech companies

The revenue of the fintech industry was over 1.2 billion euros in 2020

Investments made were over 600 million euros.

One of the strongest areas in Finland are financial software, back-end technologies and financing and payments.

Source: Fintech Farm with their permission

# Future Financial Industry Professionals

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Data Scientist

Machine Learning Specialist

Experience Designer/Storyteller

Behavioural Psychologist

Blockchain Integrator

Compliance and Risk Programmer

Community Advocate

Identity Broker

# What is this course

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For those wishing to explore FinTech: ·

How new technologies are disrupting the financial services industry ·

Business models, products, applications and customer user interface ·

AI, Deep learning, Blockchain Technology and Open API's ·

Competitive Landscape of FinTech Startups & Big Tech vs. Big Finance



# Course Content

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After the course student have better understanding in Financial Technology Industry and better capabilities to work in FinTech startups and technology driven assignments in banking, insurance, and investment management industry.

# Course content

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- Digital transformation of Financial Services Industry
- Emerging technologies in Financial Services Industry
- Fintech (financial industry) regulation
- Responsible Innovation
- Academic research in Fintech

# Syllabus – Case - Papers

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Please check MyCourses

# Case: Way Working

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Groups preassigned: Diversity

Week 1-2: develop ideas who/what companies could provide financial services (banking, credit, payment, investments, insurance, pension...)

- Why, access to customers, large customer base
- Existing technology platform, mobile....
- How financial services could support their current business, financial benefits,,,,

Week 3-4: Start thinking how regulation, different technologies etc. could support or limit above opportunities

Week 5-(6): Prepare final presentation, rehearse presentation and divide roles for group members. Prepare for questions from the other students and OP Lab people

# Case: First Principle Thinking

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Note: this should not be detailed feasibility study with in detailed market study nor technology plan in detail. The purpose is the promote “First Principle Thinking” in the line Elon Musk has done with Tesla car and paypal or Apple has done with touchphone. Do not limit to improve existing try to think something undoable new! Keep it at the high-level.

# Case: Deliveries

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There will be case assignments to be presented on the day of the respective student-led case sessions 28.5.2024 and 30.5.2024. Deadline for all written case presentations (pdf document) will be 26.5.2024 regardless of day group is presenting orally their case results. Expected deliveries are as follows:

- Written report as described later in pdf format. Case reports (presentable version in .pdf) must be submitted on MyCourses by 11:45 (sharp!) on the due date
- Oral presentation as assigned later for each group in the scheduled course meeting times on 28.5.2024 and 30.5.2024. It is expected that presentation is supported by Power point presentation which should be submitted on MyCourses prior presentation time. It is also expected that everyone in the group will contribute to actual presentation. Length of the presentation will be defined later as we know ow many groups we will have in total
- The actual results and presentation will be graded by instructor. In addition group members are expected to provide valuation of contribution of each member into group work. OP Lab representatives read reports and follow presentations based on which they also provide feedback.

# Case: Whitepaper

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## Content

- 1) What do you want to achieve
- 2) To whom your solution idea would be relevant and how it would help them
- 3) What are the problems you want to solve
- 4) What are the possible obstacles
- 5) Step by step solution how to resolve above (identify means, technologies and solutions but remember feasibility study, technology details etc. are not needed)
- 6) Identify and give examples examples how real companies could provide embedded finance to solve these problems

# Case: Presentation

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Case presentation will be 10-15 minutes (depending on number of groups). For the presentation prepare Powerpoint presentation and divide presentation so that all group members will participate. Presentation format is free but all presentations and feedback are as follows.

- 1) Group presentation 10-15 minutes
- 2) Instructor and OP Lab feedback and questions 5 minutes
- 3) Questions and feedback from audience up to 5 minutes?



# Quest Lectures. Write-ups

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2.5.2024 14.15-16.00 Quantum Computing - Mikio Nakahara, IQM

21.5.2024 10.15-12.00 Cybersecurity - Mikko Hyppönen, WithSecure

23.5.2024 14.15-16.00 FinTech Industry - Janne Salminen, Helsinki Fintech Farm

# Books

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1. Fintech entrepreneurship
  - a. FinTech Founders: Inspiring Tales from the Entrepreneurs that are Changing Finance By Agustín Rubini and Susane Chisti **or**
  - b. Fintech, Small Business & the American Dream: How Technology Is Transforming Lending and Shaping a New Era of Small Business Opportunity by Karen G. Mills
2. Emerging technologies and regulation
  - a. **Bank 4.0: Banking Everywhere, Never at a Bank by Brett King or**
  - b. Blockchain Bubble or Revolution: The Future of Bitcoin, Blockchains, and Cryptocurrencies by Neel Mehta, Aditya Agesha, and Parth Detroja **or**
  - c. A Guide to Financial Regulation for Fintech Entrepreneurs by Stephan Loech
3. Selected academic articles (see samples with good literature reviews below)

# Book Summary

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## **Bank 4.0: Banking Everywhere, Never at a Bank by Brett King**

See details in Instruction document

15.5.2024 at 11:45

# Schedule – MyCourses will be updated if needed

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Date	time	Topic	Quest / Note
23.4.2024	10.15-12.00	Intro and Embedded Finance	OP Lab Heikki Rautila
25.4.2024	14.15-16.00	Financial Tehnology - Banking	<b>LECTURE ROOM CHANGE</b>
30.4.2024		Case Vappu - NO LECTURE	
2.5.2024	14.15-16.00	QUEST LECTURE - Quantum Computing - Mikio Nakahara	Mikio Nakahara
7.5.2024	10.15-12.00	Financial Tehnology - Wealth Management	
8.5.2024	14.15-16.00	Financial Tehnology - Insurance	
14.5.2024	10.15-12.00	Blockchain and Artificial Intelligence	
16.5.2024	14.15-16.00	Nordict FinTech Summit	
21.5.2024	10.15-12.00	QUEST LECTURE - Cybersecurity	Mikko Hyppönen
23.5.2024	14.15-16.00	FinTech Industry - Helsinki Fintech Farm	<b>Janne Salminen n.n.</b>
28.5.2024	10.15-12.00	<b>Case 10.00-12.15</b>	
30.5.2024	14.15-16.00	<b>Case 14.00-16.15</b>	