FinTech: disrupting finance
Leveraging new technologies in your organization

A five-day executive education course

Learn from experienced industry speakers and top EPFL professors about the new technologies disrupting financial services and become an ambassador of innovation in your company.
This program will introduce you to the different digital technologies that are impacting financial services, such as blockchain/distributed ledger technologies, machine learning or cloud computing.

With course material adapted to a business audience, you will gain a unique overview of the complex technologies directly from EPFL professors who are world experts in these areas. Experienced practitioners will then illustrate how these technologies have been leveraged in their banks or FinTechs and what are the important factors to be considered, including security aspects and applicable regulations.

But understanding technology is only one aspect of adapting to the new environment. Others are the right mindset and an understanding of how to effectively collaborate with the technology experts, whether in-house or external. Modern IT companies have accelerated growth by using radically different working methods than those that banks are traditionally used to. Both bank and FinTech experts will come to tell you how to adapt to these methods and bring the various stakeholders on board. Furthermore, we will teach you how to think differently about client needs and how you can become an actor of change in your organization.

By the end of the five days you will have become a competent partner in expert discussions when assessing new technology or partnership opportunities, you will have mastered the jargon and you will be confident about how to successfully leverage new technologies in your organization.
The courses will be taught by accomplished professors from EPFL with particular expertise in artificial intelligence, machine learning, blockchain and cryptography, deepfakes, computing trends or business models for technology. Furthermore, industry speakers with experience in implementing these technologies in the banking industry will provide the practical knowledge to leverage this information in your organization.

**Course speakers**

**Prof. Touradj Ebrahimi** – is a professor at EPFL specialized in multimedia signal processing, with a special interest in deepfake technology. He is also the executive chairman of RayShaper SA, a Swiss start-up company active in computational vision and its applications. He is the convener of the JPEG standardization committee.

**Prof. Marc Gruber** – is a management scholar and researcher specialized in technology commercialization. He is a professor at EPFL and holds the chair of entrepreneurship and technology commercialization at EPFL's College of Management of Technology.

**Prof. Andreas Fuster** – is a professor at the Swiss Finance Institute at EPFL and research fellow at the Center for Economic Policy Research. He conducts research in the area of financial intermediation, with a focus on FinTech and household credit markets.

**Prof. Karl Aberer** – is a professor of distributed information systems at EPFL working on semantic interoperability, information retrieval and social networks. He is also co-founder of LinkAlong, a start-up providing open source document analytics.

**Prof. Pierre Vandergheynst** – is a professor of electrical engineering and computer and communication sciences. He is also the academic director of the Center for Intelligent Systems and was EPFL's vice-president of education from 2017 to 2021.

**Prof. Co-Pierre Georg** – is a professor at the University of Cape Town and holds the South African Reserve Bank Research Chair in financial stability studies. He is also the convener for the MPhil in Financial Technology at UCT where he teaches courses on “FinTech and cryptocurrencies”.

**Prof. Louise Muhdi** – is a professor of innovation and strategy at IMD with a holistic understanding of business ecosystems, dynamics, drivers and challenges as well as customer, partner and stakeholder requirements and needs.
Some of the Industry speakers for the 2022 course

Mr. Baptiste Ancey – is the head of innovation and digital transformation at Indosuez Wealth Management (Switzerland) after having spent nearly 9 years at ING where he led digital services and innovation initiatives.

Mr. Pierre Bongard – is chairman of the supervisory board of Mirabaud SCA, member of the board of directors, chairman of the audit and risk committee of the Banque Cantonale de Neuchâtel and managing partner of Wisebow Advisers LLC.

Dr. Andrea Dunbar – runs the Edge AI and vision group at CSEM, which brings the latest research results in computer vision, machine learning, data analytics and embedded programming into industry supporting the digitalization process. She is also an IEEE reviewer and a board member for the Cantonal Bank of Neuchâtel.

Mr. Lino Finini – is the COO of Swissquote and part of the company for more than 20 years, he furthermore is a member of the Board of Swissquote Financial Services (Malta) as well as board Member of Kazko2go at Zug and GHOL.

Dr. Florent Garcin – is the head of data and analytics at Pictet Asset Management. Prior to joining Pictet Asset Management, he was the co-founder of a start-up providing artificial intelligence solutions to the media industry. He holds a PhD in artificial intelligence from EPFL.

Mr. Henri Gautier – is the founder of Titanium, Gautier & Associée where he trains and coaches professionals in the field of change management. He is also a lecturer on management, leadership, strategy and change at the HES-SO and teaches career management in the Sumas.

Mr. Mike Hofmann – has 15 years’ experience in the financial industry working for leading global financial organizations in Zurich, New York and Hong Kong and is now driving the open finance platform “bLink” at SIX.

Mr. Jérôme Kehrli – is the CTO of Netguardians and has extensive experience in developing banking software. He is currently responsible for innovation and product development activities and is specialized in information system architecture design and artificial intelligence.

Dr. Maxime Monod – is the founder of Twist Lab, an innovation lab supporting banks and startups in their Fintech initiatives, with a special focus on Open Banking. Previously, he was Head of Innovation at BCV, co-founded a company in the payment industry and was CTO of two software development companies.

Dr. Paul Such – is the founder and director of the computer and network security company Hacknowledge. He is also a board member of Evooq and the Cantonal Bank of Fribourg.

Dr. Kim Vervink and Mr. Sebastien Beaumont – are product owners and business development drivers at Evooq and Edgelab, defining product solutions and integrating investment solutions to make investing radically simpler.
## Course outline and take-aways

5 days, 6 hours of lectures a day with breaks

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1. Judge how traditional key institutions have adapted to the digital transformation of the financial services industry.
2. Feel comfortable discussing the technologies that have started disrupting the banking world in recent years.
3. Identify what machine learning can do with data available in your organization.
4. Classify the main crypto assets and their particularities.
5. Learn how the cloud can be used as an enabler for technology and how to ensure data remains protected and secured.
6. Experience the client-centric approach that has made many FinTech firms so successful.
7. Use the right technical jargon and buzzwords to increase your impact in the decision-making process.
8. Understand the regulatory landscape to exploit maximal innovation while respecting the law.
9. Know the tools to strengthen your leadership role and successfully implement new ideas in your institution.
11. Determine how your organization can build a systematic “entrepreneurial” capability by identifying technology-enabled growth opportunities.
12. Get a feeling of what technology has in store for the next decade and how a future banking world might look.
Why attend a FinTech program at EPFL?

In recent years, many CEOs of large banks have made statements along the lines of “We are a technology firm with a banking license.” Yet, the reality in the financial services industry typically lags behind these statements. For instance, a 2021 study of Swiss banks\(^1\) found that “the implementation of digitalization, i.e. the path from the strategic blueprint via project and line work to market-ready offerings and processes, is (still too) slow in many institutions. [...] The digital leadership culture and flexibilization of bank structures by means of cross-functional teams and agile organizational forms are still not very well developed.”

What better place to study FinTech and how your organization can benefit from it than EPFL, which combines world-leading technology expertise with deep knowledge of the management of innovation, finance and technological change. EPFL researchers are pushing the frontiers of knowledge in domains such as AI, blockchain, business models and innovation management that are of key relevance for the future of the financial services industry and by coming to EPFL you will not only gain an overview of the current state of the art, but also of future possibilities – helping your organization become future-proof.

Benefit also from the bonus offered by the EPFL program and its exceptional campus:

- **Make connections**
  Social events will be organized on the first and last days allowing participants to network after the course.

- **Visit campus**
  Enhance this on-site course with a campus tour, which will give you an impression of the innovative work being done daily at one of Europe’s most vibrant technical universities.

- **Get inspiration**
  Become immersed in the EPFL innovation Park to understand how start-ups work and experience how many successful FinTechs started out.

\(^1\) Source: Digital Pulse Check – Switzerland, Swiss Finance Institute and zeb, 2021
**FutureFi – How FinTechs are shaping the future of the financial system**

Technology is disrupting financial services at an unprecedented pace. In this course, we start by introducing those areas that are already being disrupted: payment services, securities trading, lending and insurance. We then open a window into the emerging technologies that facilitate this disruption. Blockchain makes it possible for transactions to be processed in a fully decentralized way without traditional intermediaries, while machine learning and artificial intelligence are turning ever-increasing data pools into prediction machines. To understand the disruption in practice, we zoom in on the emerging new actors: the multitude of start-ups that can penetrate the financial services sector that once seemed impenetrable, to the Big Tech platforms that use the abundant data they harvested to provide high-value financial services. Finally, we show how traditional financial institutions have successfully partnered with emerging FinTechs as part of their digital strategy and how current trends are shaping the financial services industry of 10-15 years from today.

**Demystifying industry jargon**

Do you need a quick and transparent explanation of the buzzwords that you hear but for which you lack the deeper understanding to fully grasp the concepts that they uphold? Do you want to know what lies behind the software concepts (API, Cookie, SaaS, etc.), new technical words (Edge & Cloud computing, ML, AI, Blockchain, NFT, Big Data, Meta Data) and what these mean for the business of finance and regulation (Embedded finance, PSD2)? Learn the jargon to enable you to communicate on an equal level with your stakeholders. In this course our expert will demystify some of the tech jargon and shine a light on what it is and where it is used.

**Deepfakes and fraud awareness**

Introduction to digital image forensics with particular emphasis on the use of artificial intelligence in concrete real-world examples. The course starts with an overview of how advanced imaging techniques are used today to alter documents, pictures, audio, images and videos for both creative and artistic purposes as well as maliciously intended practices such as forgery in insurance, banking, administration, propaganda, attacks on the dignity of persons and enterprises and their reputation and fake news. The course then continues with a description of solutions to counter such attacks, through the use of forgery detection and provenance techniques where the advantages and drawbacks of each are highlighted. The course ends with a look into emerging threats and potential solutions to counteract them.
Day 2 and 3
October 4-5, 2022

Technology at the service of finance
EPFL professors explain the technological concepts behind different tools that are used in modern financial services. Practitioners will use their personal experience to illustrate the link between these top-notch technologies and how they have been successfully used in financial applications.

Distributed ledger technologies and NFTs
Understand the principles behind distributed ledger and blockchain technologies, how do they work, what are their technological complexities and what is making them popular and increasingly used in many applications? What new evolutions and future trends can you expect over the coming years. Learn about the implications of Non-Fungible Tokens (NFTs) and how they can impact our lives like the World Wide Web or social networks. Explore the evolution from Bitcoins to Ethereum smart contracts and get to know the banking specific blockchains such as R3/Corda. What are the practical use cases for cryptocurrencies and what are the technological and legislative hurdles? How is the banking industry adapting to this new technology?

Machine learning and artificial intelligence
Explore the journey from data generation to machine learning (ML) with potential challenges, opportunities and threats. Familiarize yourself with the basic paradigms and methods of ML and learn how to turn large bodies of unstructured data and content into knowledge and insights. Understand the source of biases in ML training data and how to deal with them.

How to make sure ML projects add value in your organization, what are examples of successful implementations and which programs have proven to be more challenging than expected. Learn how to put in place processes such that the business can adopt ML and how to try different small projects and evaluate their potential fast.

Cloud computing and cybersecurity
In this course, cluster computers, grids and cloud-based computers are covered as well as the implications of the current “virtualization” trend. Learn how to set up your infrastructure in order to be compliant with local legislation and how to protect your data. Explore cyber attacks and improve cyber resilience to prevent damage in the future. Assess, analyze and model threats. Discover measures and technologies used to protect your networks and software. Understand the importance of user awareness and education in mitigating risks.

Keeping regulation in mind
Understand how regulators are also disrupted by the very rapid pace of digitalization and gain an overview of the regulatory framework governing the FinTech ecosystem. Recognize the key risks and opportunities associated with this change process and how regulators aim to ensure a level playing field with adequate risk management, protection and fair competition. What does the law require when handling cryptocurrencies, big data or machine learning algorithms? Learn about the main takeaways from the PSD2 and GDPR to understand open banking.

How open banking and APIs are changing the financial industry
Buzzwords such as “open banking”, “embedded finance”, or “banking-as-a-service” have become popular in recent years, supported by experts and leading institutions predicting significant impact on the financial services industry. But what do these terms actually mean and what are the benefits and impacts for customers, financial institutions and FinTechs? Going forward, any financial institution needs to consider “open banking” in its strategies. Hence, an understanding of these topics and the different implementation approaches across markets, especially the EU and Switzerland, becomes critical.
Shaping your new business opportunities
Technology is a key driver of disruption – a fact that is more than evident in the financial service industry. Given that established players often struggle to embrace new technological advances and have difficulty in discovering new market opportunities arising from them, this session is dedicated to reframing the boundaries of financial service companies and creatively identifying new growth spaces that lie beyond established competitive turfs. Particular emphasis will be placed on the mindsets and capabilities required to figure out “Where to Play” and understand how innovative opportunities can be pursued in a more systematic manner. Part of the session will be held in a workshop style, with participants engaging in market opportunity discovery by using the Market Opportunity Navigator – a business tool already used by more than 50,000 companies worldwide and included as the 4th tool in the lean start-up toolset.

Choosing your collaboration model and partner
When introducing new technologies, should you opt for an in-house solution, partner up, or rather buy an existing FinTech? We will cover how to assess different solutions and providers. What are the key points to be aware of when choosing your partner?

Understanding modern methodologies
In this module we will dive deeper into the different governance principles adopted by modern, young IT companies – such as FinTechs – that allowed them to be successful within a short time. How can Spotify, Google, or WhatsApp be so successful with the roll-out of new projects and what are the tips and tricks you can use in your bank to make a (development) process more efficient? Concepts like agility, lean start-up, DevOps and scrum will be demystified in this course.

Example of a bank’s roll-out plan
Learn from a practitioner how they managed the roll-out of their digital strategy in practice and what different axes they addressed to steer their bank into the modern era. What are the takeaways, what worked and what failed?

Digital transformation: key steps to building empathy into your processes
To succeed at digital transformation today, leaders need to ensure customers get empathetic technology interactions. We need tech to “speak human”. In this session, we will discuss why a customer-centric mindset is crucial to success and why starting with the customer experience and then working backwards to the technology can help organizations capture opportunities in a digital world. Furthermore, you will learn about principles, processes and tools that you and your team can use to build customer empathy and drive customer-centric innovation in your organization.

Example of a FinTech’s integration plan
We will study different integration projects between traditional banks and new FinTechs: what are the cultural, technical and governmental challenges when partnering up with FinTechs? How did these partnerships leverage their complementarity into a win-win situation or how can these differences also lead to a collapse in mutual trust and failed partnerships? Learn from the experience of a local FinTech concerning successful and less successful integrations of IT systems. What do both parties need to put in place to create a recipe for success?
**Participant profile**

As new technologies and their implementation lie at the core of the FinTech disruption, it is essential for all professionals in the industry to understand the opportunities they have available in their own organizations. This program is designed for middle and senior managers in the banking industry who are engaged with digital transformation projects, new technologies, or new technology partnerships.

Participants are typically from private and retail banks and hold functions such as business line experts, members of head office, project managers and sponsors, legal and compliance officers as well as bankers working with new tools or advising clients on new technology investments.

This overview course is ideal for professionals eager to learn, but often short on time. No prior technological knowledge is required.

**FAQ**

**How much does the program cost?**
The program costs CHF 4'900 per person including two networking drinks.

**Do I get a diploma at the end of the course?**
Yes, you will receive a certificate of attendance from EPFL.

**What language will be spoken?**
All lectures will be given in English.

**Is there a price reduction when a group of participants from the same organization register?**
Yes, for more information please contact us at executive@epfl.ch.

The course is offered by the College of Management of Technology. The organizing committee:

- **Prof. A. Fuster**  Academic director, professor of Finance
- **Prof. M. Gruber**  Academic director, professor of Entrepreneurship and Technology Commercialization
- **Dr. K. Vervink**  Program director

*Please note that the program can still be subject to slight changes*
Registration and information

🌐 go.epfl.ch/fintech
✉️ executive@epfl.ch