WIT FinTech Resource

What is FinTech?

Fintech, aka financial technology is a term used to describe ***mobile applications, software*** and other technologies that enable users and enterprises to access and manage their finances digitally

- This term can be used to describe technologies, services, and companies in the financial sector that focus on various capabilities:
    - Banking
    - Financial education
    - Fundraising
    - Cryptocurrencies
    - Investment banking
    - And more

Initially fintech was used by banks to describe technology that helped them: track and manage client accounts

- The term has shifted to include more consumer-related services:
    - Apps and software are used to:
        - Create budgets
        - Track spending
        - Buy and sell stocks

Importance of fintech:
Technology and the finance industry has changed over the course of time, the finance industry has had to adapt to the new digital age

- Some banks don't need a physical infrastructure with digital banks on the rise (neobanks) fee-less, digital-only banking

As banks and financial institutions went from automating and digitizing processes being done manually for years to services that can be done online with a single click (opening new accounts, transferring money, online transactions and online services)

How it operates:

Almost all fintech is delivered to users in an application that can be easily downloaded and used with any mobile device, smartphone, tablet, PC

- These fintech applications relay on the same technology:
    - A combination of application programming interfaces (APIs), mobile applications and web-based services

APIs:

Fintech apps depend on specifically coded APIs to safely connect bank accounts and other highly sensitive financial data belonging to customers.

- Finance APIs enable the sharing of financial data, the transfer of funds, verification and other critical functionalities that make digital banking possible

Mobile applications:

Fintech mobile banking applications are the digital gates through which customers access their funds and perform their desired transactions.

- Fintech apps must be secure to prevent fraud attempts or the compromising of customer data, they must also provide a swift and seamless user experience to remain competitive.

Web-based services:

Most fintech offerings have some kind of web-based presence in addition to an app.

- Allowing customers to access their accounts through an online log-in on a web browser.

What are APIs?

A set of rules or protocols that enables software applications to communicate with each other to exchange data, features and functionality

APIs simplify and accelerate application and software development by:

- Allowing developers to integrate data, services and capabilities from other applications, instead of developing them from scratch

API give application owners are able to:

- Have a simple, secure way to make their application data and functions available to departments within their organization
- Share or market data functions to business partners or third parties

How do APIs work?

- API communication in terms of a request and response between a client and server. The application submitting the request is the client, and the server provides the response. The API is the bridge establishing the connection between them.

Types of FinTech:

Fintech products and services are typically divided into five categories:

Digital banks:

- **Banks are one of the most critical components of any financial system**
    - **Digitizing their products and services has had significant repercussions for both consumers and businesses**

Fintech banks have heavily influenced the digital journey of the financial sector with innovations like:

- **Improved user verification**
- **Ledgers (e.g. blockchain) that enable complex, multiparty transactions and**
- **Disruptive start-ups (e.g. VaroOffer) that offer their services entirely online or through an app**

Digital payments:

- **Common everyday transactions such as purchasing a coffee, an Amazon transaction or a Netflix subscription, these transactions were powered by fintech.**

Fintech underpins all digital and mobile payment solutions by safely and securely connecting bank accounts with a customer's digital device of choice. At the enterprise level, Fintech helps companies with a wide range of tasks, including payroll, taxes, accounting and more.

Personal finance:

- **Personal finance, also known as personal finance management (PFM), is a term that encompasses services like:**
    - **Creating a budget**
    - **Saving money and planning for retirement**

Many fintech start-ups, such as Dave and WealthSimple, educate people about their money while providing straightforward tools to help them reach their financial goals.

Investing:

- **Fintech products and services are all over the wealth management sector.**
    - **The most popular ones, (RobinHood and Atom Finance), offer customers ways to trade stocks right from their phone.**

Lending:

- **It used to be that customers who wanted to take out a mortgage or purchase a car on credit had to physically enter a bank's location, meet with a loan specialist, fill out paperwork and wait.**

Career Pathways and Opportunities

Fintech focuses exclusively on using tech for financial products and services
Fintech also specialises in several different ways

Top Careers in FInTech include:

1) ***Data Science and Analysis***
   a) Every year, there's a new record for the amount of data generated from online transactions that flow through the global banking system
      i) Such as bookings, subscriptions, payments, transfers, trades etc.

2) ***Artificial Intelligence and Machine Learning***
   a) Companies are developing machine learning which would allow the AI to learn those rules on its own
   b) Chatbots and robot advisors have been more useful when catering to the low end of the market
      i) On the higher end, you need more advanced tools that can scan mass amounts of data and spot patterns

3) ***RegTech (Governance, Risk and Compliance using tech)***
   a) RegTech refers to the use of technology to improve and streamline regulatory compliance in various industries
      i) RegTech can be used as a force multiplier and a valuable tool

4) ***Cybersecurity***
   a) Multiple industries reveal that cyber security is one of the main threats to businesses
      i) From losing valuable data to reputational damage
      ii) Especially with IoT (Internet of Things) reaching 20 billion devices
         (1) IoT → refers to a network of physical devices, vehicles, appliances, and other physical objects that are embedded with sensors, software, and network connectivity, allowing them to collect and share data

5) ***Algorithmic Trading/ HFT***
   a) Trading volumes have exponentially increased over the last few decades, a single milli-second can make a difference and trading firms spend millions of dollars to shave off a few milli-seconds off their automated trading platforms

i) Algorithms minimize mountains of data and queue up tens of thousands of trades

(1) But someone still has to create, manage, optimize and tweak such algorithms

6) ***App Development***

7) ***Electronic money institutions (payments, wallets, money transfers)***

8) ***Wealthtech and robi-advisors***

9) ***Blockchain and cryptocurrencies***

10) ***Peer-to-peer lending***

11) ***Crowdfunding***

Classes to take:

Fintech as a major would require students to learn:

1) Fundamentals of finance
    a) Investments, corporate finance, financial markets, risk management
2) Technical skills
    a) Coding (Python, SQL, Java), app development, APIs, data structures
3) Data analytics
    a) Big data, machine learning, predictive analytics for finance
4) Fintech-Specific topics
    a) Block chain and cryptocurrencies, payment systems, digital lending, cybersecurity in finance
5) Regulations and ethics
    a) Compliance, fintech laws, consumer data privacy

Although SDSU doesn't offer Fintech as a major, there are a few related majors and minors that students are able to take in the Fowler College of Business:

1) Information Systems (MIS)
    a) A great fit if interested in the technical backside of fintech
2) Finance
    a) Covers traditional finance topics and provides the financial expertise needed in fintech ventures

3) **Financial Services**
    a) **Focuses on sectors such as:**
        i) **Securities, banking, insurance, real estate finance, and personal financial planning**
            (1) **Useful if more inclined toward the customer-facing and advisory sides of fintech**

Finance major classes:

- **ACCTG 326: Intermediate Financial Accounting**
  Prereq. ACCTG 202
- **FIN 321: Managerial Economics**
- **FIN 325: Intermediate Finance (4-units)**
  Prereq. BA 323 with a minimum of a C
- **FIN 327: Investments**
  Prereq. BA 323
- **FIN 329: International Business Finance**
  Prereq. BA 323
- **FIN 334: Principles of Risk Management and Insurance**
- **FIN 335: Financial Modeling. Prereq. BA 323**
- **FIN 423: Financial Analysis & Management (4-units)**
  Prereq. FIN 321, 325; ACCTG 326