

Unit-III: FinTech Innovation

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Objective/s of this session

- To introduce FinTech Innovation
- To illustrate various innovations done using latest technology trends in FinTech
- To Describe the innovation in FinTech
- To Introduce an innovative Fin Tech strategy
- To Study the development of FinTech Application and about future trends in Fin Tech

Learning Outcome/Course Outcome

- After completion of the course, student will be able to
- 1. Understand what FinTech is and the sub sectors that comprise it.
- 2. Classify various models of the Fintech
- 3. Illustrate various innovations done using latest technology trends in FinTech.
- 4. State the Critical Success Factors in Fin Tech.
- 5. Be able to adopt an innovative Fin Tech strategy within their own organization to lead a digital transformation project.
- 6. Develop the application using the concepts of FinTech as a case study

Unit 3 Contents

Part A :

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- **Introduction,**
- Innovation and FinTech : Digital Transformation and FinTech,
- A model for an integrated innovation strategy,
- Types of Innovation : Product (or services),
- Process, Organization, Business models
- Examples of Innovation
- Fintech business model canvas
- Process Innovation : Big Data Analytics, Value Creation from Big Data Analytics
- Kreditech's self-learning algorithm
- Internet of Things
- Blockchain Technology
- Organizational Innovation: Social Networks,
- Business Model Innovation, Robots, The V4 business model framework for Kreditech, Virtual Currencies, Technology Acceptance Model.

Introduction

- One of the critical aspects in finTech initiatives is their intrinsic .
- This is a global phenomenon aiming to provide innovations in the financial services industry.
- FinTech initiatives have been leveraging on innovation
- Especially by means of new technologies : often delivered through online and mobile channels

9 Fintech Innovations Impacting the Consumer Experience

- Chatbots and virtual assistants for consumer education.
- Artificial intelligence for predictive analytics



- **Digital-only banking**



- **Blockchain**



- **Augmented reality**



- **Internet of things (IoT)**



- **Quantum computing**



- **Peer-to-peer (P2P) transaction technologies**



Digital Transformation and Fintech

- Simply a matter of using digital technologies to sell and service clients more effectively, more efficiently, and in a more customized way.

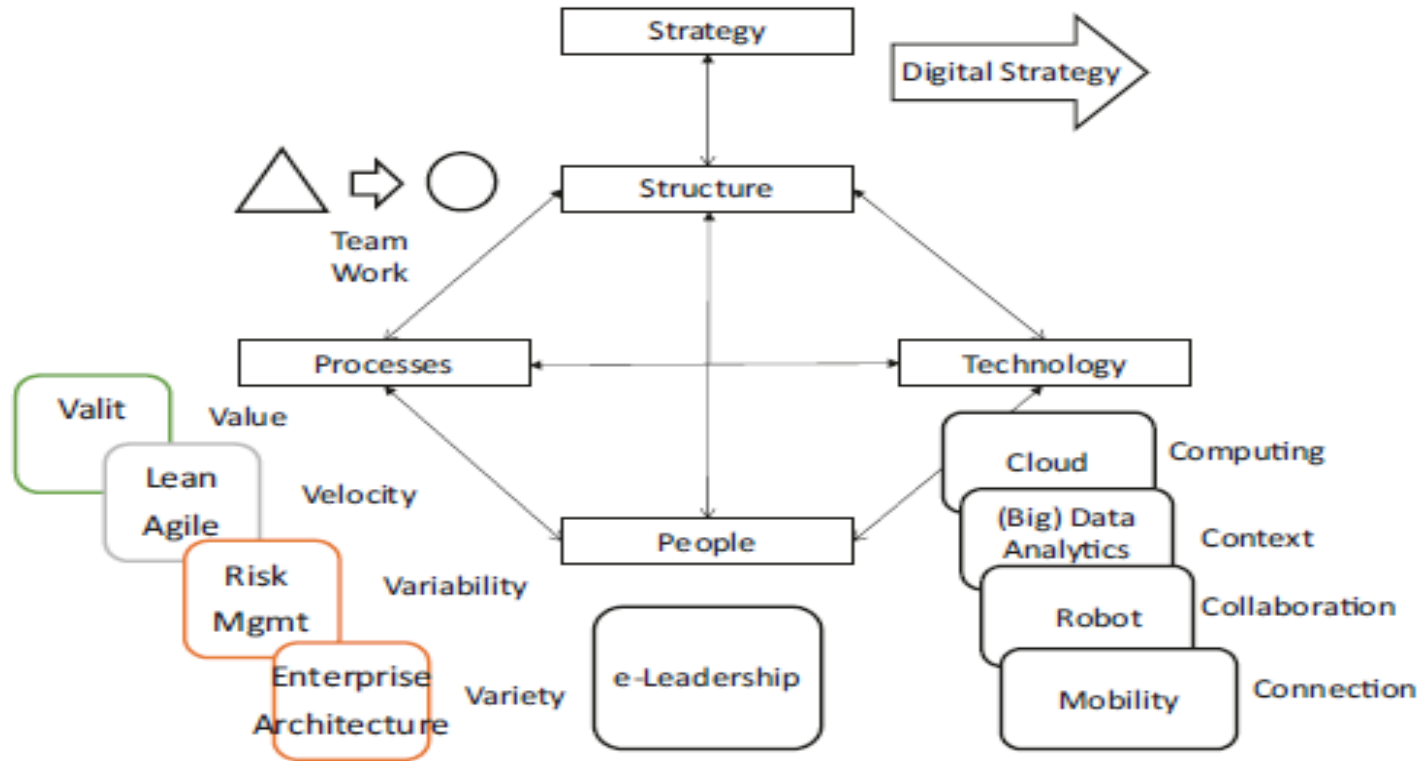
In the case of digital transformation, this would mean to answer the following questions:

- Why digital transforms the organization?
- For whom to do the transformation?
- What is the product it should aim to provide?
- Where can it take place?
- When can it take place?
- How to implement a digital transformation?

Table 4.2 Innovation in financial services (adapted from Lopez et al. 2015)

Traditional model	Digital innovations	Why are they innovative?
The main objectives of technology are employee productivity, compliance, and integration of disparate and legacy ICT systems.	Well-designed platforms, focused on simplicity, speed, and intuitive workflows through digital and mobile channels	Technology aims to improve the customer experience with financial advices for the investors.
Traditional marketing and advertising through brochures, company websites, and direct mail campaigns	Compelling editorial content and financial education distributed openly online with a focus on human connection; provision of constant feedback on the customer's financial health	Focusing on the human connection and financial education in plain language through digital/mobile channels improves investor awareness. It also brings greater confidence, trust, and engagement.
Fees on assets under management typically above 100 basis points, difficult to understand, and with low visibility for investors	Average fees between 25 and 50 basis points; provision of free tools to analyze fees across accounts while offering cost-savings options	Leveraging low-cost exchange-traded funds (ETFs) and share/bond indexing enables portfolio diversification at lower prices with a transparent fee structure.

- In dealing with this digital innovation, it is important to refer to a model of innovation (Nicoletti 2016).
- Organizations should approach digital innovation in a holistic way.
- To approach this challenge it is necessary to consider the four connected variables:
 - Structure (organization)
 - Processes
 - Technology
 - Persons

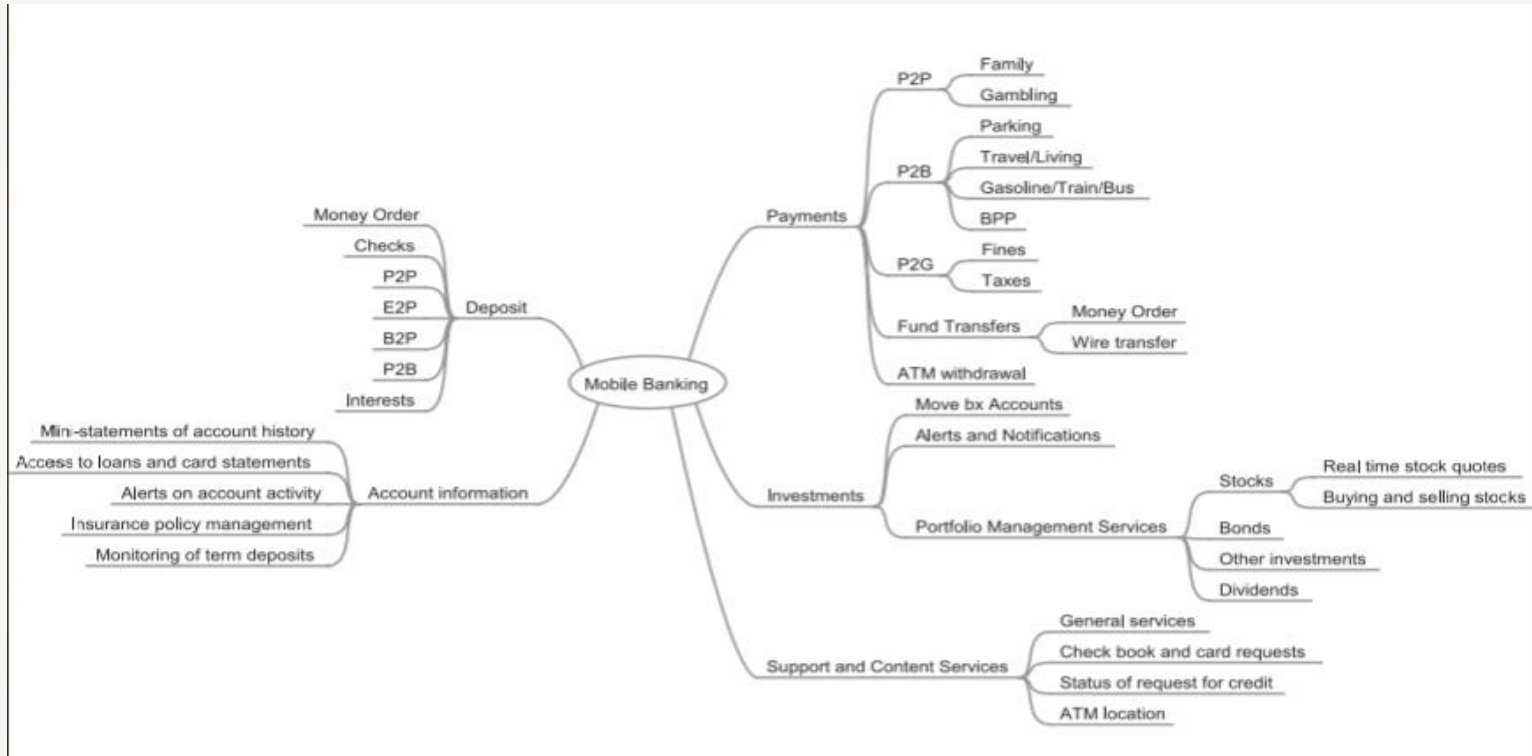


- The financial services industry is on the brink of major innovation.
- Development in this sector contributes to the economic growth.
- From a practical point of view, the innovation can be in the following:
 - Product (or services)
 - Process
 - Organization
 - Business models

Examples of Innovation

- The following sections present the relevant innovations exploited by fintech initiatives.
- **Product Innovation**
- Mobility is at the center of several financial institutions' business plans.
- It is interesting to analyze what mobility is and why its adoption has grown up at such an unpredictable pace.

Services in mobile banking



Mobile Financial Services and Fintech

- The Classification based on product innovation includes five areas:
- Account information
- Payments
- Deposits
- Investments
- Support and content services

Process Innovation

- **Big Data Analytics**

- Big Data Analytics is the use of a large collection of data gathered and collected from inside and outside the company. Making use of such datasets is generally a very complex thing to do and using traditional processing applications may not be enough. This gap in the traditional processing applications has actually stimulated the burgeoning and growth of multiple companies, interested in capitalizing on Big Data Analytics.

- Big Data Analytics provides opportunities in existing environments.
- Big Data Analytics are the solutions, processes, and procedures that allow an organization to create, manipulate, store, and manage a relatively large amount of data to get information
- It also creates new opportunities for financial institutions' stakeholders.
- These opportunities were not possible by dealing with structured content in traditional ways. Big Data Analytics has three characteristics—the so-called
- 3 Vs: Volume Velocity and Variety

- Big Data Analytics means:
- storing a large amount of data;
- examining (or mining) them;
- getting appropriate information; and
- identifying hidden patterns, unknown correlations, and similar things in support of decision-making.

- It is important to follow a correct process in storing Big Data Analytics:
- Selecting data sources for analysis
- Defining data models: key value, graphics, document
- Analyzing the characteristics of the data
- Improving the data quality, for instance, eliminating redundant or duplicated data

- There are several actions important in storing large sets of data:
- Choosing the correct data stores based on the characteristics of the data
- Moving code to data
- Implementing polyglot data store solutions
- Aligning business goals to the appropriate data store
- Integrating disparate data stores
- Mapping data to the programming framework
- Connecting and extracting data from storage
- Transforming data for processing
- Monitoring the progress of job flows
- Using advanced tools, such as *D3.js*

There are a certain number of questions that need to be answered when dealing with Big Data Analytics:

- Which types of solutions to be used in Big Data Analytics?
- Where data are stored: centralized or distributed or cloud storage?
- Where processing is done: mainframe, distributed servers/cloud?
- How data are stored and indexed: high-performance schema-free databases?
- What operations are performed on data: sequential, analytic, or semantic processing?
- What are the risks?
- Are the right talents available capable of choosing the right data to solve the right problem?

Kreditech's self-learning algorithm



Internet of Things

- ***Internet of (Everything)Things***
- One impressive development in technology is the IoT. Cisco calls it also the IoE.
- IoT is the interconnection of uniquely identifiable embedded computing devices within the existing internet infrastructure. IoT allows using the internet to connect not only persons but also objects of any type.

- Typically, IoT offers advanced connectivity of devices, systems, and services.
- It covers a variety of protocols, domains, and applications.
- The interconnection of these embedded devices (including smart objects) allows automation in nearly all fields.
- In insurance, IoT can refer to a wide variety of devices, such as health monitoring implants, biochip transponders on farm animals, vehicles with built-in sensors, or field operation devices that assist in remote monitoring plenty of apparatus and situations.

Internet of Things and Fintech

- It is interesting to analyze the general use of IoT in fintech.
- IoT finds its best applications in the insurance industry.
- IoT is a potential game-changing factor and a highly disruptive element in the financial services industry, similar to what have been smartphones and tablets
- While, still today, most of the financial information needed by people for their decisions need to be accessed in some steps, in the era of IoT, they will most likely be retrieved in real time.

- Perhaps one of the biggest potential benefits would be in claims management:
- In insurance, by using IoT, it could be possible for insurance companies to use such sensors to record and possibly anticipate and prevent damage.
- This might save costs in the end not just for reinsurers and investors, but also for individuals and communities.

Blockchain Technology

- Blockchain was born in connection with Bitcoin, a virtual currency.
- It is essentially a database for recording transactions in a secure way.
- Blockchain technology has interesting potential in several fields and especially in the financial services industry.
- Blockchain offers trust and provenance.
- Blockchain is a distributed database, able to generate a public ledger of all the transactions, not entirely stored at a single physical location, but rather dispersed over a network of interconnected computers

- Blockchain is a decentralized solution.
- For instance, all participants of a P2P network have a copy of the full set of records.
- Blockchain has much greater potential than digital currency alone, even if the concept was born in connection with Bitcoin
- It enables point-to-point transactions without a clearing intermediary.
- In this way, it reduces substantially transaction time, quality, and costs.
- Blockchain makes it possible to issue automatically digital securities and trade financial derivatives.

- In a distributed ledger, there are two types of records:
- **Transactions**
- **Blocks**
- Transactions are at the core of the entire process.
- In the case of the blockchain used for the virtual currency Bitcoin, a transaction is the transfer of a Bitcoin value between users. Blocks contain the correct amount and order of valid transactions—indelibly added to the database.

Different Types of Blockchain

- Concerning access protocols, distributed ledgers can either be
 - Public: Any user who wishes to do so can access the ledger and submit transactions for inclusion.
 - This is the blockchain technology used in Bitcoin.
 - Many consider this the truly democratized form of the ledger and the ideal system.
 - Private: Only a select few participants can view as well as submit transactions.
 - Although the market can have many participants, only certain individuals or institutions will have access to the ledger and the development of the blockchain

- In addition to public and private ledgers, blockchain falls under two similar but independent categories
- Permissionless means : permissionless ledger, anyone can choose to participate in this verification network and obtain potential rewards of participation.
 - The verification or mining process can be very complex.
- Permissioned blockchain:Permissioned blockchains are gaining traction within financial institutions and digital ledger-based startups. A financial institution must verify non-cash payments between individuals for the transaction to be complete.

Main Potential Applications of Blockchain

- It is possible to use blockchain as an open data affecting the interactions between financial institutions and third parties: agency networks, external vendors, and customers.
- Distributed ledgers such as blockchain have numerous cross-industry use opportunities.
- These include distributed ledgers with limitations concerning verification, transaction recording, and access.

Organizational Innovation: Social Networks

- McKinsey sees a very bright future for social technologies.
- It defines social technologies as digital technologies used by people to interact socially and together to create, enhance, and exchange content
- Social technologies distinguish themselves with the following
 - three characteristics:
 - They are enabled by information technology.
 - They provide distributed rights to create, add, and/or modify content and communications.
 - They enable distributed access to consume content and communications.

Business Model Innovation

- A business model describes the rationale of how an organization creates, captures, and delivers value (Osterwalder et al. 2010).
- The economic literature has identified the primary dimensions of a business model in the V4 business model framework (see Fig. 4.7):
 - The value proposition
 - The value architecture
 - The value finance
 - The value network

Technology Acceptance Model

