**Essay Title:** “The introduction of Bitcoin in January 2009 was the single most important FinTech development in history.”

**1. Introduction**

Leveraging an in-depth comprehension of financial technology, with a particular focus on Bitcoin, acquired through the cutting-edge Exeter MSc FinTech program, this essay will assess the significance of Bitcoin from the perspective of its historical and future contributions to the development of financial technology. A critical examination will be conducted to address the aforementioned question by comparing Bitcoin to previous advancements and current trends in financial technology.

**2. Comparing Bitcoin to previous advancements**

It is argued that the initial launch of Bitcoin in January 2009 marked a turning milestone in the history of financial development. While the traditional system effectively handles the majority of transactions, it nevertheless suffers from the vulnerability associated with the trust-based model (Nakamoto, 2008).

It is observed that speed, costs, and security risks are primary challenges that diminish the efficiency and convenience of the traditional system. The primary reason for delayed transactions and high costs is that the traditional financial system relies significantly on centralised entities such as banks, payment processors, clearinghouses, and government agencies to oversee and facilitate transactions.Those financial firms have to deploy various layers of protection, including risk premiums and collaterals, and execute many independent risk management procedures and inspections to guarantee security and integrity. In addition, to offer comprehensive and diverse financial services, financial institutions must establish partnerships with various counterparties, and adhere to the intricate contractual frameworks. Consider a situation of cross-border payment where Bank A aims to send 100 USD to Bank B in exchange for JPY, however, due to the absence of a direct banking connection before, they must employ one or many intermediary banks where both hold accounts – the correspondent bank. In this case, financial institutions must comply with regulatory and compliance requirements set by dozens and sometimes hundreds of government agencies and regulatory bodies. The stringent requirements and complex structures delay payments and increase the cost of international litigation if any issues arise. Besides, delayed transactions and rising costs occurred as it is impossible for traditional systems for non-reversible transactions, in which financial institutions act as intermediaries aware of all transactions and decide which transaction will go first to avoid double-spending issues. The mediation cost from reversibility leads to an increase in transaction costs, imposing restrictions on the minimum practical transaction size, and eliminating the feasibility of small casual transactions. Another factor contributing to the increasing costs and delayed transactions is how the traditional system addresses double-spending issues. In traditional online payment processing, the double-spending issue is solved by clearing every transaction through the central databases of one or many third parties, such as a money transfer service (like Western Union), a commercial bank (Citicorp), a government body (Commonwealth Bank of Australia), a credit card company (Visa), or an online payment platform (PayPal) (Tapscott & Tapscott, 2016). In some regions, settlement can take days or even weeks (Tapscott & Tapscott, 2016).

It is plausible that cryptocurrencies in general and Bitcoin in particular supplant intermediaries, creating a decentralised and transparent network (Harwick, 2016). Serving as an electronic payment system, Bitcoin operates with cryptographic proof, enabling direct transactions without the need for trusted third parties. Each transaction is cryptographically connected to the preceding transaction, establishing a chain of blocks that are confirmed by the network participants through the mining process. By leveraging blockchain technology, Bitcoin disrupts the traditional model, creating a distributed ledger across a network of computers. These characteristics of Bitcoin eliminate the intermediary and regulatory costs. Additionally, Bitcoin can tackle the double-spending problem using a peer-to-peer distributed timestamp server, providing computational proof of transaction order. Supported by distributed ledger technology (DLT), this decentralised system ensures data immutability, hence, enhancing Bitcoin's resilience against double-spending and fraud.

Moreover, traditional payment systems encounter various security risks, including the vulnerability of centralised databases to cyberattacks, potential data breaches, and the misuse of sensitive financial information. In the traditional model, as sensitive user data is stored in a centralised database, it becomes an attractive target for malicious actors aiming to exploit vulnerabilities. Cyberattacks, such as hacking attempts and data breaches, pose a significant threat to the security of traditional payment networks. A successful attack on a central server could compromise large amounts of personal and financial information, leading to identity theft, fraudulent activities, and financial losses for users. Furthermore, in the traditional payment methods, users must enter sensitive information such as their personal information, credit card details to process transactions. This way can be utilised by cybercriminals to misuse. Instances of phishing, skimming, and other fraudulent activities exploit weaknesses in the traditional payment infrastructure, putting users at risk.

On the other hand, Bitcoin employs cryptographic techniques and decentralised blockchain technology to tackle the above security risks. On the Bitcoin network, transactions are pseudonymous, with users identified by cryptographic addresses rather than personal information, therefore, reducing the risk of identity theft and unauthorized access to sensitive data. Specifically, bitcoin transactions do not require users to enter sensitive financial information between parties, users only need to provide their public keys, hence, maintaining the anonymity and mitigating the potential risks of unauthorised access to sensitive data. Besides, because of the decentralised block chain technology, where all information is not stored in a centralised database, Bitcoin can effectively mitigate the risk of security breaches.

**3. Current trends in financial technology**

As of July 2023, publicly traded fintech companies had a market capitalisation of $550 billion, marking a two-fold increase compared to 2019 (F-Prime Fintech index).During the same period, there were over 272 fintech unicorns with a total valuation of $936 billion, a sevenfold rise from 39 businesses worth $1 billion or more five years earlier (Dealroom.co, McKinsey analysis). The rapid expansion has been boosted by the robust growth of the banking sector, fast digitalisation, shifting customer preferences, and the growing support of investors and regulators.

Aligned with the fintech trends, the applications of Bitcoin and its underlying technology - blockchain - in the financial industry are now attracting interest and being investigated by government agencies, financial institutions, companies, and individuals. In several developed nations such as Singapore, Australia, and the UK, regulatory bodies are proactively establishing sandboxes to explore various scenarios and ways in which technological advancements such as blockchain can effectively address challenges. The Ubin project, which is led by the Monetary Authority of Singapore (MAS), is a notable case exploring the use of Blockchain and DLT for clearing and settlement of payment and securities. Each phase of this project aimed to address the pressing challenges encountered by the financial industry and the blockchain ecosystem, specifically, focusing on (i) conducting interbank payments using blockchain technology, (ii) developing software prototypes for decentralised interbank payment and settlements with liquidity savings mechanisms, (iii) developing Delivery versus Payments capabilities for settlement of tokenised assets across different blockchain platforms, (iv) examining existing challenges and considering alternative models, and (v) developing the blockchain-based multi-currency payments network prototype. The success of the Ubin project through collaborations between MAS and DLT companies, various financial consortiums, technological partners and especially the Central Bank of Canada, along with its expansion (Ubin+), has convincingly demonstrated the significance and diverse applications of blockchain in the current and future of financial technology.

It is observed that there is a noticeable surge in customer demand for integrating crypto wallets across browser plug-ins, mobile apps, in-wallet browsers. By establishing connections across various components of the crypto ecosystem, this integration will create accessibility and usability for consumers. Plaid, which is a unicorn fintech best known for bridging consumers’ bank accounts with online payment platforms, released its first crypto product – a wallet connector. This tool facilitates seamless integration for crypto developers to connect with different crypto wallets to satisfy diverse needs of customers. In addition to Plaid, Coinbase is a leading cryptocurrency that allows customers to buy, sell, and store various cryptocurrencies, including Bitcoin. In Coinbase’s platform, users can create accounts, link their bank accounts or credit cards, and seamlessly trade digital assets. The platform's commitment to security, compliance with regulations, and user-friendly design has contributed to its widespread adoption and solidified its position as a key player in the cryptocurrency ecosystem. Plaid and Coinbase serve as notable examples, representing the concerns and development trends of many fintech companies that are closely monitoring the advancements in blockchain and cryptocurrency.

**4. Conclusion**

Through the above assessments of advantages that bitcoin and its underlying technology contribute to financial technology, considering previous advancements, future trends, and the concerns of government authorities, financial institutions, companies, and individuals, it can convincingly conclude that the introduction of Bitcoin in January 2009 stands as the most significant development in history, which will lead to positive changes in the financial industry.

**References**

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