# **Research Paper 2: Mobile Connectivity and Mobile Commerce**

# **INFO8190**

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1. **NFC is the preferred technology behind mobile payments. Dig into NFC and list several of its advantages in this area of mobile payments over other wireless technologies such as Bluetooth**

Near Field Communication (NFC) technology has indeed emerged as a preferred choice for mobile payments due to several advantages it offers over other wireless technologies like Bluetooth. For NFC to function, a minimum of one sending device and one receiving device are required.

**Advantages of NFC Over other wireless technologies:**

* Security:

NFC is appropriate for mobile payment transactions because it provides a high level of security. It uses authentication and encryption mechanisms to guarantee safe data transfer between devices

* Contactless Transactions:

Contactless transactions are made possible by NFC, which lets customers pay with just a tap of their smartphone on a payment terminal.

* Easy to Use:

NFC technology is simple to use and doesn't require a lot of setup. Many customers can use it since it's easy for users to enable NFC on their smartphones and link their payment methods.

* Compatibility:

NFC is a very compatible technology for mobile payments, as it is extensively supported by contemporary smartphones and payment terminals. NFC capabilities are often included into cellphones by default, thus no additional hardware or accessories are required.

* Low electricity Consumption:

When compared to other wireless technologies like Bluetooth, NFC technology uses less electricity. This keeps mobile devices' batteries from depleting too much, so consumers may rely on NFC for mobile payments without worrying about their devices' batteries dying too soon.

1. **One of the reasons that NFC is considered secure for payments is that mobile payment platforms use tokenization for each transaction. Research and explain what tokenization is and how it works.**

Tokenization is a security feature that improves transaction security in a number of areas, including mobile payments. It entails replacing sensitive data like credit card numbers or personal information with a token, which is a non-sensitive counterpart. This token is a character string that was created at random; it has no inherent value and cannot be decrypted to reveal the original contents.

**Working of tokenization**

Tokens are created, stored, sent, and validated by a secure method that is part of the tokenization process. In extremely secure settings, payment systems safely retain the tokens in addition to references to the original card information. The token is sent to the payment processor for validation when a transaction takes place, along with certain transaction identifiers. The processor authenticates the transaction, approves the payment, and decrypts the token to obtain the actual card information. Tokenization helps mobile payment services comply with strict data protection standards like PCI-DSS, improves security, and lowers the chance of fraud by utilizing tokens instead of actual card data. Tokenization, in general, offers a strong security layer that guarantees the integrity and confidentiality of private data in mobile payment transactions.

1. **Research three leading mobile wallets. Create a grid that lists each of the wallets, their features, strengths and weaknesses, ease of use, and security.**

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| --- | --- | --- | --- | --- | --- |
| **Mobile Wallet** | **Features** | **Strengths** | **Weakness** | **Ease of Use** | **Security** |
| APPLE PAY | 1.Accepts contactless transactions  2.Integrates with Apple devices and services | 1.Robust security measures  2.Widely accepted at various merchants, both in-store and online | 1.Restricted accessibility on devices other than Apple  2.less flexibility in terms of device compatibility | Easy-to-use UI | Tokenization with secure element chip |
| GOOGLE PAY | 1.Contactless payments  2.Online payments | 1. Payment is widespread among retailers  2.Simple setup and usage | 1.Compatibility issues with some devices  2.Varying security level | Easily connects with Google services PIN security | 1.Remote device lock/wipe  2.Tokenization technology |
| SAMSUNG PAY | Accepts MST and NFC payments | compatible with a variety of payment terminals | restricted availability on gadgets other than Samsung | Simple setup that utilizes magnetic strip readers | Secure Knox platform, fingerprint/iris scanning, and tokenization technology |

**4. Which of them would you recommend and why?**

I would suggest Apple Pay based on the comparison, taking into account general security and usability. Strong security features like tokenization and Secure Element chip technology are included, along with a fluid and simple user interface that is especially appealing to iPhone users. Furthermore, Apple Pay maintains user convenience while enhancing security through its integration with biometric identification techniques like Face ID and Touch ID. For users inside the Apple ecosystem, Apple Pay offers a reliable and practical mobile payment option, despite its possible restricted availability on non-Apple devices.

Apart from its easy-to-use interface and robust security features, Apple Pay also has the advantage of being widely accepted at a variety of international merchants. With Apple Pay's wide network of enabled shops and payment gateways, users can make contactless payments with confidence in stores, within applications, and online. In addition, Apple protects consumers' financial information by regularly updating its security processes to counter new threats. When it comes to acceptability, security, and ease of use, Apple Pay is the clear choice for anybody looking for a dependable and safe mobile wallet.

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