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## Introduction

The research explores the **usability factors** influencing user **satisfaction and the adoption** of blockchain-based attestation systems in academic settings among individuals with varying levels of exposure to blockchain technology.

The study seeks to identify key factors driving blockchain technology's successful implementation in enhancing academic document integrity through a comprehensive analysis of **user interactions and feedback**.



## Research questions

What factors influence user satisfaction of using blockchain-based attestation systems to authenticate and verify academic documents and ensure the authenticity of student work in academic settings?

How do usability factors influence the adoption of blockchain-based attestation services among academic staff and students, especially those with limited exposure to blockchain technology?



## Literature Findings

The literature review explores the integration of blockchain technology within the academic sector for document attestation and authentication.

The review uncovers the factors influencing user satisfaction and the adoption of blockchain-based attestation systems. This synthesis of previous research presents expert opinions, argues coherently, critically analyses existing literature, and identifies research gaps.

**Adoption & Usability:** Investigations into blockchain adoption reveal concerns over regulatory challenges and the importance of stakeholder awareness. Highlighting the need for usability, scalability, and interoperability in blockchain adoption for certificate verification.

**Security & Efficiency:** Utilization of blockchain (Hyperledger, Ethereum) for improved degree attestation. Challenges include implementation complexity and integration with current systems.

**Certificate Verification:** Advances in certificate management and digital verification are noted for security enhancements via smart contracts, with further research needed on data security and regulatory aspects.

**Transparency & Integrity:** Blockchain's decentralisation and security features enhance document verification, promoting trust among academic stakeholders.

**Record Transparency:** Proposals for transparent academic record management face issues in architecture detail and accessibility



## Technologies



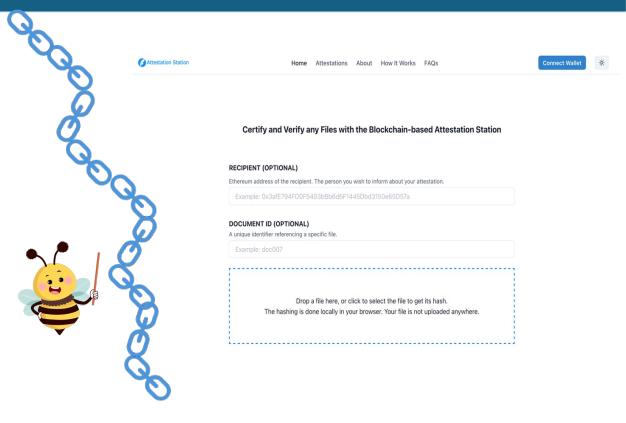
## Methodology

The research adopts a **mixed-methods** approach, integrating quantitative and qualitative strategies to explore the research questions.

The **literature review** examines existing literature on blockchain technology within the academic sector, focusing on systems for **proof of existence**. It establishes a foundational understanding and identifies gaps in current research.

Central to the study is the design and implementation of a blockchain-based attestation system. Participants, including academic staff and students, engage directly with the application, providing valuable insights through testing and evaluation. This **case study method** is instrumental in assessing user interaction, satisfaction, and the system's overall efficacy.

This approach will provide a detailed system analysis, including its advantages, limitations, and suitability.



## Early Indications and Next Steps

### Early Indications:

There is a **lack of detailed case studies** or empirical research on blockchain applications for **authenticating and verifying students' assignments and academic work** in academic institutions.

There is a gap in understanding **how usability factors** such as user interface design and user experience **influence the adoption** and effectiveness of blockchain-based attestation services **among academic staff and students**.

### Next Steps:

Conduct **case studies and surveys** to gather in-depth usability feedback from users, focusing on those new to blockchain technology.

Document and analyse all data relevant to the research questions and **identify key insights and patterns**.

**Discuss** the findings to assess their significance and the potential impact of **integrating blockchain in academic verification processes**.



## Related Literature

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- Khan, A.A., et al. (2021). Educational Blockchain: A Secure Degree Attestation and Verification Traceability Architecture for Higher Education Commission. Applied Sciences (Basel), 11(22), 10917.
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