

A permissioned blockchain prototype facilitating banking record interoperability

University of Essex



Anrich Potgieter

October 11, 2022

Declaration

Test text

Abstract

Acknowledgements

Contents

1	Introduction	5
2	Background Literature	6
2.1	Defining Blockchain Technology	6
2.1.1	Background	6
2.1.2	Types of Blockchains	7
2.1.3	Blockchain Components	7
2.1.4	Consensus	7
2.1.5	Smart Contracts	7
2.2	Organisational Interoperability	7
2.3	Facilitating Interoperability using Blockchain Technology	7
2.4	Blockchain Technology in Banking Organisations	7
2.4.1	Permissioned Blockchain Networks	7
2.5	Blockchain Data Storage and Retrieval	7
3	Ethical and Professional Considerations	8
4	Evaluation	9
5	Learning	10
6	Conclusion	11
A	Appendices	13

Chapter 1

Introduction

Chapter 2

Background Literature

2.1 Defining Blockchain Technology

2.1.1 Background

Blockchain technology reaches back far further than the inception of Bitcoin, and we can see some of the first implementations stretching back as far as 1998. In a 1998 white paper titled bmoney, we see some of the earliest building blocks of cryptocurrencies and the adoption of blockchain technologies (Dai 1998). Wei Dai outlines some cornerstone concepts that would later inspire Satoshi Nakamoto to create Bitcoin. Wei begins to outline a form of Zero Knowledge proof where two parties involved in an exchange or transaction use pseudonyms in the form of public keys to identify themselves within the context of a transaction.

2.1.2 Types of Blockchains

Permissionless

Permissioned

Consortium

2.1.3 Blockchain Components

Cryptographic Hash Functions

Transactions

Asymmetric-Key Cryptography

Addresses

Ledgers

Blocks

Chaining Blocks

2.1.4 Consensus

Proof of Work (PoW)

Proof of Stake (PoS)

Delegated Proof of Stake (DPoS)

Proof of Elapsed Time (PoET)

Practical Byzantine Fault Tolerance (PBFT)

2.1.5 Smart Contracts

2.2 Organisational Interoperability

2.3 Facilitating Interoperability using Blockchain Technology

2.4 Blockchain Technology in Banking Organisations

Chapter 3

Ethical and Professional Considerations

Chapter 4

Evaluation

Chapter 5

Learning

Chapter 6

Conclusion

Bibliography

Dai, Wei (1998). *Bmoney*. URL: <http://www.weidai.com/bmoney.txt> (visited on 08/18/2022).

Appendix A

Appendices