

# A permissioned blockchain prototype facilitating banking record interoperability

University of Essex



Anrich Potgieter

September 11, 2022

# Declaration

Test text

# **Abstract**

# **Acknowledgements**

# Contents

<b>1</b>	<b>Introduction</b>	<b>5</b>
<b>2</b>	<b>Background Literature</b>	<b>6</b>
2.1	Defining Blockchain Technology . . . . .	7
2.1.1	Background . . . . .	7
2.1.2	Types of Blockchains . . . . .	7
2.1.3	Blockchain Components . . . . .	7
2.1.4	Consensus . . . . .	7
2.1.5	Smart Contracts . . . . .	8
2.2	Organisational Interoperability . . . . .	8
2.3	Facilitating Interoperability using Blockchain Technology . . . . .	8
2.4	Blockchain Technology in Banking Organisations . . . . .	8
2.4.1	Permissioned Blockchain Networks . . . . .	8
2.5	Blockchain Data Storage and Retrieval . . . . .	8
<b>3</b>	<b>Ethical and Professional Considerations</b>	<b>9</b>
<b>4</b>	<b>Evaluation</b>	<b>10</b>
<b>5</b>	<b>Learning</b>	<b>11</b>
<b>6</b>	<b>Conclusion</b>	<b>12</b>
<b>A</b>	<b>Appendices</b>	<b>13</b>

# **Chapter 1**

## **Introduction**



# **Chapter 2**

## **Background Literature**

### **2.1 Defining Blockchain Technology**

#### **2.1.1 Background**

#### **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)**

test

### **Delegated Proof of Stake (DPoS)**

test

### **Proof of Elapsed Time (PoET)**

test

### **Practical Byzantine Fault Tolerance (PBFT)**

test

## **2.1.5 Smart Contracts**

## **2.2 Organisational Interoperability**

## **2.3 Facilitating Interoperability using Blockchain Technology**

## **2.4 Blockchain Technology in Banking Organisations**

### **2.4.1 Permissioned Blockchain Networks**

## **2.5 Blockchain Data Storage and Retrieval**

## **Chapter 3**

# **Ethical and Professional Considerations**

## **Chapter 4**

### **Evaluation**

# **Chapter 5**

## **Learning**

## **Chapter 6**

## **Conclusion**

# **Appendix A**

## **Appendices**