

https://dspace.org/

Implementing blockchain technology in the South African judicial system

Moropa, Xolisile

2024
University of the Witwatersrand, Johannesburg
https://hdl.handle.net/10539/43802
Moropa, Xolisile. (2024). Implementing blockchain technology in the South African judicial system[Master's dissertation, University of the Witwatersrand, Johannesburg].WireDSpace.

Downloaded from a DSpace repository. https://dspace.org/

Implementing blockchain technology in the South African judicial system

Xolisile Moropa

1263179 (student number)

1263179@students.wits.ac.za 065 108 9887

A research project submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg

Thursday, 29 February 2024

Abstract

Technology has played a pivotal role in enhancing many industries and therefore societies, which begs the question whether these technological developments can prove beneficial even to the judicial system in South Africa (Smith, et al., 2019).

This research seeks to answer this question based on a qualitative approach to data collection from in-depth one-on-one interviews held with 15 participants including legal practitioners (attorneys, advocates, magistrates, and judges specialising in different areas of the law), and their clients. A focus group was also held with 10 similar participants.

The research explores the current challenges experienced within the judicial system, and how the integration of blockchain technology could potentially enhance transparency, security, and efficiency in legal processes, thus leading to an improved client experience and benefits to legal businesses and courts in South Africa.

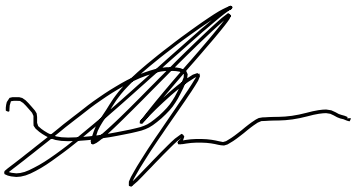
The findings shed light on the potential benefits of blockchain technology implementation in the judicial system, as well as pointing to some of the socio-legal dynamics, technical considerations, and policy implications influencing the adoption of blockchain technology. All of this can offer valuable insights to policymakers, legal practitioners, and technologists who are seeking to navigate the intersection of law and emerging technologies within the South African context.

Keywords

Blockchain; digital platform; South African judicial system; technology acceptance theory; technology diffusion theory.

Declaration

I, Xolisile Masentle Moropa declare that this research report is my own, unaided work. It is being submitted for the Degree of Master of Business Administration at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.



Xolisile Masentle Moropa

Signed on the 26th day of January 2024 in Johannesburg

TABLE OF CONTENTS

LIST OF ACRONYMS viii

CHAPTER 1 INTRODUCTION 9

1.1 STATEMENT OF PURPOSE 9
1.2 BACKGROUND OF THE STUDY 9
1.3 RESEARCH PROBLEM 10
1.4 RESEARCH OBJECTIVES 11
1.5 RATIONALE 11
1.6 DELIMITATIONS OF THE STUDY 12
1.7 ASSUMPTIONS 12

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK: 13

2.1 INTRODUCTION 13
2.2 DEFINITION OF BLOCKCHAIN 13
2.3 EMPIRICAL REVIEW 14
2.3.1 BLOCK CHAIN 15
2.3.2 HOW DIGITISATION CAN ENHANCE THE CLIENT EXPERIENCE IN THE SOUTH AFRICAN JUDICIAL SYSTEM 15
2.3.3 THE BENEFITS OF BLOCKCHAIN TECHNOLOGY FOR LEGAL BUSINESSES AND THE JUDICIARY 16
2.4 THEORETICAL REVIEW 17
2.4.1 TECHNOLOGY DIFFUSION THEORY 17
2.4.2 TECHNOLOGY ACCEPTANCE MODEL 18
2.4.3 TECHNOLOGY ACCEPTANCE MODEL PROPOSITIONS 19
2.4.1 TECHNOLOGY DIFFUSION THEORY PROPOSITIONS 20

CHAPTER 3. RESEARCH METHODOLOGY 22

3.1 INTRODUCTION 22
3.2 RESEARCH APPROACH 22
3.3 RESEARCH DESIGN 22
3.4 DATA COLLECTION METHODS 23
3.5 POPULATION AND SAMPLE 23
3.5.1 POPULATION 23
3.5.2 SAMPLE AND SAMPLING METHOD 23
3.6 THE RESEARCH INSTRUMENTS 24
3.7 PROCEDURE FOR DATA COLLECTION 24
3.8 DATA ANALYSIS STRATEGIES AND INTERPRETATION 25
3.9 LIMITATIONS AND CHALLENGES OF THE STUDY 25
3.10 QUALITY ASSURANCE 25
3.10.1 TRANSFERABILITY 25

3.10.2 Dependability 26
3.10.3 Credibility 26
3.11 Ethical considerations 26
3.12 Conclusion 27

CHAPTER 4. RESULTS AND FINDINGS 28
4.1 Introduction 28
4.2 Importance of findings 28
4.2.1 Informed decision-making 28
4.2.2 Evolving legal landscape 29
4.2.3 Client-centric legal services 29
4.2.4 Efficiency and Cost-Effectiveness 29
4.2.5 Strategic Technological Integration 29
4.2.6 Regulatory and policy considerations 29
4.2.7 Building trust and credibility 30
4.2.8 Academic contribution 30
4.2.9 Preparing for the future 30
4.3 Findings from interviews conducted 30
4.3.1 Emerging themes 31
4.3.2 Other considerations 37
4.4 Conclusion 39

CHAPTER 5. DISCUSSION OF FINDINGS 41
5.1 Introduction 41
5.2 Enhancement of the client experience (RO 1) 41
5.2.1 Increased transparency 41
5.2.2 Efficiency in document handling 42
5.2.3 Enhanced security and data integrity 43
5.2.4 Smart contracts 44
5.2.5 Access to justice 44
5.3 Benefits for legal businesses and courts (RO 2) 45
5.3.1 Improved case management efficiency 45
5.3.2 Enhanced data security and integrity 45
5.3.3 Cost reduction through automation 45
5.3.4 Transparency in legal transactions 46
5.3.5 Facilitation of digital contracts and agreements 47
5.3.6 Remote access to legal services 47
5.4 Synthesis and implications 47
5.4.1 Technology diffusion theory 48
5.4.2 Technology Acceptance Model 49
5.5 Conclusion 49

CHAPTER 6. CONCLUSION 51
6.1 Introduction 51
6.2 Enhancing the client experience (RO 1) 51
6.2.1 Increased transparency and efficiency 51
6.2.2 Access to justice and inclusivity 51
6.3 Benefits for legal businesses and courts (RO 2) 52
6.3.1 Improved case management efficiency and data security 52
6.3.2 Cost reduction, transparency, and sustainable practices 52

6.4 IMPLICATIONS AND FUTURE DIRECTIONS 53

REFERENCES 54

APPENDIX A – PARTICIPANT INFORMATION SHEET 60

APPENDIX B – PARTICIPANT AGREEMENT FORM 63

APPENDIX C – INTERVIEW GUIDE 65

APPENDIX D – ETHICS APPROVAL APPLICATION FORM 67

APPENDIX E – ETHICS TRAINING CERTIFICATE 68

LIST OF ACRONYMS

AI – Artificial intelligence

EU – European Union

FOIA – Freedom of Information Act (USA)

GDPR – General Data Protection Regulation

HiiL – The Hague Institute for Innovation of Law

IT – Information technology

LPIIF – Legal Practitioners Indemnity Insurance Fund

UK – United Kingdom

USA – United States of America

WiFi – Wireless Fidelity

CHAPTER 1 INTRODUCTION

1.1 Statement of purpose

This research assesses the possible benefits that could accrue to the South African judicial system through the adoption of blockchain technology within the legal sector.

1.2 Background of the study

The 2019/2020 Judiciary Annual Report highlighted the lack of modernisation as a critical challenge for South Africa's judicial system, with Chief Justice Mogoeng (2020) noting funding shortages and governmental bureaucracy as major impediments. Law firms and courts still rely heavily on paper and manual processes, leading to issues like prescription claims due to manual tracking errors (Haban, 2019). An incident in 2019, where 45 000 trust files were possibly lost during a storm in the Pretoria Master's office, underscores the vulnerability of paper-based systems (Ensor, 2019).

The adoption of blockchain technology is proposed as a solution to address tracking issues, ensure timely case management, and protect against physical damage. Haban (2019) argues that the benefits of digital infrastructure, such as enhanced security, reduced operating expenses, and improved efficiency, far outweigh the risks associated with maintaining paper-based practices. Furthermore, the International Bar Association's Conference emphasised that technology could expedite case conclusion, increase earning capacity for law firms, enable remote work, and decrease reliance on manual processes.

Aligning court practices with the Electronic Communications and Transactions Act of 2002 is crucial for integrating e-technology in the judicial system (Mabeka, 2018). Outdated document exchange practices, rooted in historical civil procedure rules, are considered archaic, prompting calls for the adoption of e-technology to enhance efficiency (Mabeka, 2018). Additionally, technology could provide judges with immediate access to transcribed court records, potentially reducing case backlogs (Babool-Frank, 2015). Embracing technology in the judicial system is not only a means to modernise processes but also to increase access to justice for more South Africans (Babool-Frank, 2015). The focus of this research is on the potential benefits of

modernising South Africa's court systems through the adoption of blockchain technology.

1.3 Research problem

Jeffrey (2017) highlighted several hindrances in access to justice in South Africa, including increased legal complications, prolonged case durations, high costs, and limitations imposed by physical locations. These challenges, as Jeffrey (2017) suggests, could be reduced through "future justice innovations". However, the South African judicial system remains predominantly paper-based and manual (Ngoepe & Makhubela, 2015), characterised by tracking of cases using physical books, limited recognition of electronic document exchange, and the risk of document loss or theft (Haban, 2019; Mabeka, 2018; Ensor, 2019). This outdated system struggles to meet the demands of a modern society (Ngoepe & Makhubela, 2015).

The inefficiencies of manual paper-based processes in the South African judicial system impact the conclusion of clients' instructions and court cases negatively (Jeffrey, 2017; Haban, 2019). Studies on the South African Road Accident Fund and observations by Modiba, Ngoepe, and Ngulube (2019) reveal that poor records management within the judicial system impedes access to justice, leading to instances where cases are removed from the court hearing roll or dismissed due to missing dockets.

To address these challenges, the proposed use of a blockchain digital platform is presented as a transformative solution (Dowelani, Okoro & Olaleye, 2022; Hasan, Malkamaki & Schmiedel, 2003). Blockchain is suggested to improve case processing, enhance efficiency, capacity, revenue generation, and reduce communication and transaction costs (Greco, 2019; Dowelani et al., 2022). Mathope and Schellnack-Kelly (2022) recommend integrating electronic physical records in the public sector using technologies such as AI and blockchain to alleviate records management challenges.

Barnett and Treleavan (2017) predict that disruptive technologies, including blockchain, will significantly impact legal services and dispute resolution. The use of blockchain is anticipated to reduce the time required for court cases, transforming complicated cases from years to days (Barnett & Treleavan, 2017). However, the resistance to change within the slow-to-adapt judicial system (De Kock, 2019) and potential barriers to new

technology adoption (Komulainen & Natti, 2022) may pose challenges to introducing a blockchain digital platform. This research aims to demonstrate that embracing technologies such as blockchain can provide substantial improvements to the South African judicial system, benefiting courts, legal practitioners, clients, and administrative functions (Komulainen & Natti, 2022).

1.4 Research objectives

Exploring the technology acceptance model and technology diffusion theory, this research seeks to achieve the following objectives:

1) To assess how digitisation and blockchain can enhance the client experience in the South African judicial system.
2) To determine the benefit of digitisation and blockchain for legal businesses and the courts in South Africa.

1.5 Rationale

De Kock (2019) emphasises the positive impact of the fourth industrial revolution on the legal industry, stating that technologies associated with it can accelerate legal research, streamline document preparation, automate client communication, and utilise data more effectively. The proactive pursuit of these opportunities is encouraged to save time and costs for both legal practitioners and clients. In alignment with this perspective, this paper proposes a blockchain digital platform to address challenges faced by the South African judicial system, as supported by research conducted by Adam, Matellini, and Kaparaki (2022). Their findings indicate that blockchain technology can enhance dispute resolution efficiency and integrity through transparency, security, and traceability. Smart contracts, facilitated by blockchain, offer self-execution and programming for contractually agreed actions, ensuring payment fulfilment and securing legal documents against unauthorised access (Maldonado, 2018).

A blockchain digital platform holds potential benefits for the South African judicial system, facilitating the transition from a paper-based to electronic environment while ensuring security and traceability of legal documents. Notable examples, such as the South African Reserve Bank settling daily transactions using blockchain technology (Komulainen & Natti, 2022; Zhao, 2018), demonstrate the practical advantages. The

platform can store all court/legal documents, prevent unauthorised access and maintain information integrity during and after a case. As seen in successful implementations in other jurisdictions like the UK, Dubai and Sweden (Maldonado, 2018), a blockchain digital platform could be instrumental in enhancing the efficiency of the South African judicial system. Fenwick, Kaal, and Vermeulen (2017) stress the necessity of adopting technology, particularly blockchain, within the legal industry to stay competitive. Digital infrastructure can improve efficiencies across various legal processes, from hearing preparation to document discovery, reducing the risk of data breaches and saving time and costs (Mahleka, 2019).

This research explores the potential benefits of a blockchain digital platform in the South African judicial system, considering the technology acceptance model and technology diffusion theory. Barriers to acceptance, including psychological and functional aspects, as well as strategic, tactical, and operational factors, are examined in the context of the proposed solution.

1.6 Delimitations of the study

The research topic is focused on the judiciary, civil and criminal court practitioners, private law firm practitioners, and their clients, who are largely based in the Gauteng province. It explores the introduction of blockchain digital platforms to this industry using the technology acceptance model and the technology diffusion theory.

1.7 Assumptions

1) The interviewees will respond honestly and accurately, irrespective of mood, in order to provide information that is helpful to this research.
2) The interviewees will not be influenced by either conscious or unconscious biases.
3) All information and documents provided/collected will be beneficial to the conclusion of this research.
4) The interpretation of the information received from the interviewees will be accurate and reflect the observations and responses of the interviewees.

CHAPTER 2.LITERATURE REVIEW AND THEORETICAL FRAMEWORK:

2.1 Introduction

This chapter argues for the significant improvement that widely used technologies like blockchain could bring to the legal profession in South Africa, benefiting courts, legal practitioners, clients, and administrative functions (Maldonado, 2018). Despite the global proliferation of AI and digital platforms, the use of blockchain remains limited, particularly in Africa, creating a research focus on how blockchain can enhance the South African judicial system. Drawing on research by Akinradewo et al. (2022) and Sanger (2019), it is proposed that blockchain can streamline contractual procedures, reduce paperwork, and hasten project completion, demonstrating potential benefits for the South African judicial system. This chapter further explores how blockchain can address record-keeping and document challenges faced by the South African judicial system, citing examples from the UK's criminal justice system revolutionised by blockchain (Maldonado, 2018; Crowhurst, 2017). The argument emphasises the need for South Africa to lead the way in adopting blockchain technology, ensuring legislative allowances, and equipping legal practitioners with knowledge to enhance client experiences and improve the country's judicial system (Mires, 2018; Tsele, 2016). The impact of Covid-19 on the paper-based South African litigation court processes reinforces the urgency of modernisation, with blockchain technology, noted for its added security, being a crucial element in transforming the judicial system (Mogoeng, 2020; Babool-Frank, 2019). The legal industry's suitability for adopting blockchain, supported by its large number of players, high volume of documents, and significant friction related to legal fees, suggests that a blockchain digital platform could lead to essential cost savings and more efficient use of legal practitioners' time (Sanger, 2019; Gray, 2019).

2.2 Definition of blockchain

Blockchain technology, also referred to as distributed ledger technology, operates in a decentralised manner, distributing data across numerous computers and hard drives, ensuring immutability, anonymity, and resistance to hacking (Maldonado, 2018). Described by Akinradewo et al. (2022), citing Karafiloski and Mishev (2017), blockchain

functions with a network of nodes that validate and verify transactions through predefined tests, creating a secure communication channel.

As outlined by San et al. (2019), cited in Akinradewo et al. (2022), the key features of blockchain encompass autonomy, decentralisation, peer-to-peer relationships, timestamping, and immutability. With autonomy, blockchain executes transactions independently once programmed, eliminating the need for intermediaries like programmers, as noted by Swan (2015), cited in Akinradewo et al. (2022). Additionally, blockchain ensures transparent access to records for authorised parties, enabling visibility to any modifications or updates to transactions. Each transaction is time-stamped, facilitating traceability and safeguarding historic records from alterations (Akinradewo et al., 2022).

2.3 Empirical Review

In their study, Barnett and Treleavan (2017) investigate the growing utilisation of technology, particularly in alternative dispute resolution in the USA, emphasising its popularity for facilitating discovery through technological platforms. Babool-Frank (2019 supports this perspective, asserting that technology can enhance South Africa's access to justice by introducing e-courts, electronic document exchange, and virtual platforms for testimonies. The researchers illustrate the potential of technology, exemplified by the use of digital platforms for discovery, which can address the time-consuming and costly nature of this process in litigation (Barnett & Treleavan, 2017). It is however acknowledged that the adoption of such technology in South Africa might necessitate adjustments to legislation and legal practice rules (Babool-Frank, 2019).

Blockchain can be utilised for the establishment of virtual courts as a solution to mitigate delays in South Africa, drawing inspiration from initiatives in the USA, UK's modernisation with WiFi and the Crown Court Digital System, and Australia's introduction of an e-court (Barnett & Treleavan, 2017; Babool-Frank, 2019). The global evolution of technology in legal practices, particularly in the integration of blockchain, is highlighted in these countries, where technology facilitates easy access to legal advice (Barnett & Treleavan, 2017). Babool-Frank (2019) underscores the potential benefits of this evolution for the South African judicial system.

The application of a blockchain digital platform for digitising critical legal documents is a solution that can reduce time and costs in both civil and criminal cases in South Africa. Barnett and Treleavan (2017 affirm the potential of blockchain and AI to expedite case resolution, resulting in cost savings and providing certainty in complex cases globally.

2.3.1 *Block Chain*

Blockchain technology ensures data integrity by maintaining an unalterable record of transactions through a digital ledger, distributed across diverse technological platforms (George et al., 2019). The cryptographic protection it offers, as verified by George et al. (2019), makes information immutable over time. In legal contexts, blockchain's trustworthiness becomes pivotal, particularly when traditional argumentation falls short in capturing intricate reasoning (Barnett & Treleavan, 2017). The chain formation in the digital ledger, securing information in blocks with specific identification credentials, enhances the reliability of blockchain (George et al., 2019). This aspect proves valuable in corporate dispute resolution, addressing concerns about document authenticity by providing a trusted platform (Barnett & Treleavan, 2017).

The use of blockchain in the USA's construction industry, reducing reliance on paper and ensuring confidentiality in transactions (Barnett & Treleavan, 2017), lends support to the proposal that blockchain technology can enhance the South African judicial system. This aligns with the broader argument presented in this empirical review regarding the potential benefits of technology, including blockchain, for legal practices in South Africa.

2.3.2 *How digitisation can enhance the client experience in the South African judicial system*

Maldonado (2018) highlights the advantages of integrating blockchain in the legal industry, particularly in enhancing the client experience within the South African judicial system. This involves the development of self-executing smart contracts, coded to initiate contractually agreed actions like distributing or collecting money upon fulfilling certain conditions, thereby ensuring added security (Maldonado, 2018).

Furthermore, the security created with the storage of digital file records on a blockchain platform are highlighted by Maldonado (2018). This method ensures restricted access, requiring specific authorisation, thus safeguarding the integrity and confidentiality of

legally privileged and client information throughout the legal proceedings, both before and after case conclusion.

The benefits, from a client experience perspective, can be seen from examples in Dubai and Sweden, where blockchain has improved services, including land registry and property sales (Maldonado, 2018). The deduction is that leveraging blockchain in the South African judicial system could result in faster turnaround times, cost savings, and heightened overall client satisfaction.

2.3.3 *The benefits of blockchain technology for legal businesses and the judiciary*

Gray (2020) notes that Mastercard and IBM, amongst other large technology companies, offer blockchain solutions for fund transfers and applications, showcasing the growing adoption of blockchain technologies in legal businesses and the judiciary. This transition from paper-based tracking to digital platforms is emphasised by Jooste (2019), indicating a shift towards secure and efficient client billing and payment processes. The implementation of blockchain is thus expected to streamline routine tasks, liberating legal practitioners from mundane activities and enabling them to focus on more complex and strategic aspects of the law, enhancing overall client value (Gray, 2020). Sanger (2019) supports this by highlighting the government's benefit from blockchain in legal systems, including efficient dispute resolution, smart contract development, secure billing, and improved tracking of legal tasks.

In addition, blockchain's capability to create secure digital file records addresses the challenges faced by South African courts, providing accessibility to interested parties while maintaining security and mitigating the risk of file loss or theft (Maldonado, 2018; De Kock, 2019; Ensor, 2019; Jooste, 2019). This holds considerable promise for alleviating the backlog of filing in South African courts.

The potential impact of blockchain on the South African criminal justice system is substantial, addressing inaccuracies, corruption, and the loss of dockets, ultimately transitioning from a heavily paper-based system to one where information can be instantly shared amongst relevant stakeholders (Maldonado, 2018; Mogoeng, 2020; Ensor, 2019). The transformative power of blockchain in the short-to medium-term is echoed by Verschelden (2019) and Mires (2018), who suggest that it may create a new speciality

and enhance global competitiveness for South African law firms. The widespread benefits encompass reduced legal disputes, lowered fees, cost-efficient processes, and improved efficiency across various legal facets (Mires, 2018).

2.4 Theoretical Review

The adoption of blockchain technology is a gradual process due to its foundational nature, requiring changes in governance and regulatory frameworks (Lansiti & Lakhani, 2017). This transformative technology, akin to the internet's evolution, could take approximately thirty years to revolutionise the global economy (Lansiti & Lakhani, 2017). It is in this context that this research explores the technology acceptance model and technology diffusion theory to understand blockchain adoption in the South African judicial system.

Lansiti and Lakhani (2017) assert that blockchain's transformative potential, coupled with factors such as novelty and complexity, influences its slow adoption. Fenwick, Kaal, and Vermeulen (2017) emphasise the legal industry's need to adapt, necessitating skill adjustments amongst practitioners.

2.4.1 *Technology diffusion theory*

The technology diffusion theory, focusing on factors like relative advantage, compatibility, and complexity (Lou & Li, 2017), provides a framework for understanding the challenges South Africa may face in adopting blockchain. The identified barriers, including high adoption costs, employee re-skilling, and a lack of regulatory frameworks (Akinradewo et al., 2022), underscore the importance of addressing compatibility and complexity issues in the South African judicial context.

Sanger's (2019) proposition regarding the pivotal role of law firms in blockchain adoption aligns with the need for education, legal advice, regulatory input, and collaboration to ensure successful technology integration. As legal practitioners adapt their skills and knowledge to compete in the evolving legal landscape (Fenwick, Kaal, & Vermeulen, 2017), they become instrumental in driving the adoption of blockchain within the South African legal system.

The five-stage process of technology diffusion, encompassing knowledge, persuasion, adoption or rejection, implementation, and confirmation (Rodger, 1995; Grover et al.,

2019), offers a roadmap for understanding user attitudes and decision-making processes in the context of blockchain implementation in South Africa. This phased approach allows stakeholders in the South African judicial system to navigate challenges and ensure a successful transition to blockchain technology.

2.4.2 *Technology Acceptance Model*

The TAM outlined by Davis, Bagozzi & Warshaw (1989) is a foundational framework for understanding the factors influencing the adoption of new technology, with perceived usefulness and perceived ease of use as key determinants. Seyed et al. (2021) extended TAM's application to the field of accounting and financial reporting, establishing that the positive impact of blockchain technology on information quality confirms its usefulness in this domain. The qualitative features of information, adapted from accounting to the legal profession, include relevance, timeliness, comparability, verifiability, completeness, impartiality, and profitability in valuation. These features align with the nature and characteristics of information required in the legal profession and judicial system.

Relevance in the legal context refers to controlling access to information at various levels within a firm, mirroring the differentiated access needed in legal matters. Blockchain technology can facilitate this selective access, contributing to the usefulness of the information (Seyed et al., 2021). Timeliness is enhanced by blockchain's ability to reduce the time required for tasks, offering instant verification, online transactions, and task automation. This time efficiency not only benefits clients by reducing costs but also allows legal practitioners to focus on other matters, increasing profitability for the business. Comparability, a feature enabled by blockchain, ensures that disclosed information is comparable and facilitates information exchange amongst multiple parties, crucial in court hearings and other legal matters. Blockchain's decentralisation, security, accuracy, and reliability contribute to increased verifiability of information, ensuring confidentiality and the presentation of evidence. Completeness is supported by blockchain's integration and immutability, enhancing the quality of information. Impartiality is maintained by ensuring information symmetry and accurate disclosure, essential for evidence and corporate transactions. Profitability in valuation, another feature of blockchain, ensures secure information through a secure data network, transparency in transactions, and robust encryption (Seyed, et al., 2021).

The application of TAM, combined with these qualitative features, emphasises that the adoption of blockchain technology in the legal profession, like in accounting and financial reporting, is driven by its perceived usefulness in decision-making processes. Given the critical reliance of the judicial system on the quality and veracity of information, the demonstrated enhancement provided by blockchain positions it as likely to be perceived as useful. This perception of usefulness becomes crucial during the innovation-decision process, suggesting that adequate knowledge about blockchain is essential to foster positive attitudes amongst users and influence their decision to adopt the technology, especially for early adopters in the initial phase (Grover et al., 2019). This reinforces the relevance of blockchain in addressing the needs of the South African judicial system by aligning with essential features of information quality and supporting the decision-making processes of legal practitioners and judicial authorities.

2.4.3 *Technology Acceptance Model Propositions*

The adoption of blockchain technology in the South African judicial system can thus be analysed through the lens of TAM, following a belief-attitude-intention-behaviour relationship approach established by Davis et al., (1989) and adopted by Lou and Li (2017). Taherdoost (2022) emphasises that the influence of perceived ease of use and perceived usefulness directly and indirectly affects attitude and behavioural intention, with perceived ease of use directly impacting perceived usefulness.

In alignment with Lou and Li's approach, the following propositions are formulated concerning the adoption of blockchain in the South African judicial system:

Proposition 1: users' behavioural intention (BI) has a positive effect on his or her actual use of blockchain technology. This suggests that the intention to adopt the technology translates into its practical implementation in the judicial system.

Proposition 2: users' attitude toward using blockchain technology has a positive effect on his or her behavioural intention to use the blockchain technology. This indicates that a favourable attitude fosters the intention to embrace blockchain within the judicial system.

Proposition 3: users' perceived usefulness of blockchain technology has a positive effect on his or her behavioural intention to use blockchain technology. Recognising the practical benefits of blockchain enhances the intention to adopt it in the judicial system.

Proposition 4: users' perceived usefulness of blockchain technology has a positive effect on his or her attitude toward using blockchain technology. The perceived practical value of blockchain contributes to a positive attitude towards its adoption in the judicial context.

Proposition 5: users' perceived ease of use has a positive effect on his or her attitude toward using blockchain technology. The ease of using blockchain contributes to a positive attitude, potentially easing its adoption within the judicial system.

Proposition 6: the quality of information (as proffered by Seyed, et al., (2021)) has a positive effect on the perceived usefulness of blockchain technology. Recognising the improved quality of information provided by blockchain enhances its perceived usefulness in the judicial system.

These propositions provide a structured framework for understanding the dynamics of blockchain technology adoption in the South African judicial system, incorporating factors such as attitude, perceived usefulness, ease of use, and the quality of information. They underscore the importance of stakeholders' beliefs, attitudes, and intentions in driving the successful implementation of blockchain within the judicial context.

2.4.1 *Technology Diffusion Theory Propositions*

In addition, propositions derived from the Technology Diffusion theory, as analysed by Lou and Li (2017), shed light on key factors influencing the technology adoption process:

Proposition 7: comparability and relative advantage have a positive effect on perceived usefulness. This implies that the capacity of blockchain to enhance comparability and provide a relative advantage contributes positively to the perceived usefulness of the technology in legal processes.

Proposition 8: comparability and relative advantage have a positive effect on the perceived ease of use. This suggests that the increased comparability and relative advantage offered by blockchain technology contribute to making it more user-friendly within the judicial context.

Proposition 9: complexity has a negative effect on perceived usefulness. This proposition implies that the complexity associated with implementing blockchain in the South

African judicial system might hinder the perceived usefulness of the technology. Simplifying the technology could be crucial for its successful adoption.

Proposition 10: complexity has a negative effect on the perceived ease of use. In the context of the South African judicial system, this suggests that a complex implementation of blockchain may pose challenges in terms of ease of use for legal practitioners and other stakeholders.

These propositions offer insights into the dynamics of technology diffusion within the judicial system, emphasising the importance of factors such as comparability, relative advantage, and complexity in shaping the perceived usefulness and ease of use of blockchain. Understanding these relationships is crucial for successful adoption and integration of blockchain in the South African landscape.

CHAPTER 3.RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the research methodology for exploring the benefits of implementing blockchain technology in the South African judicial system is outlined. The research adopted a qualitative approach, employing interviews with participants from the judicial system and their clients. This method was chosen to uncover insights into the perceived benefits and evaluate the feasibility of adopting blockchain technology within the judicial context (Jamshed, 2014). The chapter details key aspects such as research design, data collection methods, population and sampling, research instrument, analysis strategies, limitations, quality assurance, and ethical considerations. The chosen methodology aims to provide a comprehensive understanding of the potential advantages and challenges associated with integrating blockchain into the South African judicial system, aligning with the technology adoption and diffusion theories.

3.2 Research approach

The research approach adopted was qualitative, focused on interviewing participants who are relevant to the determination of appropriate conclusions in respect of the research objectives.

Creswell (1998) defines qualitative research as an inquiry process focusing on understanding through distinct methodological traditions, providing a holistic view in a natural setting. This aligns with the research's human-centric nature, addressing issues within the judicial system for broader societal impact.

3.3 Research design

The design of this research was largely in the form of a case study, which was important for the purposes of gaining understanding on the views and considerations of the population involved in the judicial system as set out in 3.4 below. Stake (1995) refers to *"intrinsic, instrumental, and collective"* case studies, of which this research was focused on instrumental as it provided opportunities for the researcher to draw insights essential to determining whether the implementation of blockchain technology could indeed be beneficial to the South African judicial system.

The case study approach provided the researcher with opportunities to develop deep understanding and draw key insights in the study of a specific population or class, with the intention to develop a greater understanding of a larger population group over a certain period of time (Gerring, 2004). This assisted with more in-depth and holistic awareness of the research problem, thus resulting in the ability to elicit more relevant explanations to answer the research problem (Baškarada, 2014).

3.4 Data collection methods

Jamshed (2014) highlights that interviews are widely employed in qualitative research, offering a means to record data and allowing for the examination and reinforcement of extracted information. This research utilised a semi-structured approach involving one-on-one and group interviews lasting 30 minutes to one hour. Semi-structured interviews enabled participants to respond openly to predetermined questions while maintaining focus (Jamshed, 2014). Reinhartz (1992) emphasises that interviewing provides access to people's thoughts and memories in their own words, crucial for meaningful insights in complex contexts like the judicial system. For focus groups, the emphasis was on creating a trusting atmosphere amongst legal peers to facilitate open discussions (Isaacs, 2014).

Leveraging personal experience, the researcher ensured a comfortable environment for participants to openly share in-depth insights. Flexible interview settings, including virtual options, were arranged to accommodate participants' preferences. English was chosen for the interviews due to its prevalence in the legal industry, simplifying recording.

3.5 Population and sample

3.5.1 *Population*

The population included individuals who are part of the judicial system, including judges, magistrates, attorneys, advocates and their clients.

3.5.2 *Sample and sampling method*

The sampling approach for this research was systematic, non-probability sampling, and focused on the legal fraternity, including judges, magistrates, attorneys, advocates, and

some of their clients. This sampling method was suitable for this research as it is centred on a specific set of individuals who either share a profession or have insights into that profession. Further, this sampling method aligns well with a qualitative research methodology (Isaacs, 2014), and the participants to this study were specifically identified as persons who could make a meaningful contribution to the research topic.

The sampling strategy employed was that of maximum variation, allowing for the extraction of a wide range of views given the mix of the participants, although in the same profession (Isaacs, 2014). Given that the researcher is part of the legal profession, this sampling strategy also aided in reducing potential biases which could have led to the misinterpretation of the information provided.

15 participants were interviewed (one-on-one), and 10 participated in the focus group, which number is regarded as an acceptable size in qualitative research (Isaacs, 2014). These participants were recruited through existing relationships and networks within the legal fraternity.

3.6 The research instruments

The main research instrument was the interview guide as provided in Appendix C. For the purposes of this research, and the selected research approach, utilising an interview guide aligned with theoretical sampling which is aimed at developing a greater understanding of the case to refine certain theories (Baškarada, 2014). The interview guide was therefore developed with the intention to answer questions that have emerged as a result of the previous use and benefits of blockchain technology in other industries.

3.7 Procedure for data collection

Interviews were mostly conducted face-to-face, and only virtually where participants were unable to attend physically.

The interview data collected was recorded using a digital recorder and thereafter transcribed. Written notes were also taken by the researcher to ensure data retention in instances of a technological failure. A recorder was however not utilised for the focus group session given the larger number of participants, and only handwritten notes were taken.

3.8 Data analysis strategies and interpretation

A thematic analysis of the data was conducted to establish a clear link and rationale to the key aspects of the purpose of the overall study.

3.9 Limitations and challenges of the study

The limitations and challenges are centred on the type of research approach adopted, i.e. conducting interviews. These are also articulated by Isaacs (2014), and incorporated the following:

1) One-on-one interviews:
    a. They were generally quite time-consuming.
    b. They were influenced by the level of personal interaction and / or personal relatability between the researcher and the interviewee.
2) Focus groups:
    a. Confidentiality could not be maintained in the group setting.
    b. A common group voice developed which may have discouraged dissenting views.

3.10 Quality assurance

For the purposes of this study, the quality assurance concepts of external validity, reliability, and internal validity (Lincoln & Guba, 1986) were replaced with transferability, dependability, and credibility respectively.

3.10.1 *Transferability*

From the preliminary research presented in Chapters 1 and 2 on the benefits and use of blockchain technology within various industries, it can be deduced that the outcomes of this research may be applied to different environments or contexts.

This is supported by Yin (2009) in that "*case studies, like experiments, are generalisable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a 'sample', and the investigator's goal is to expand and generalise theories and not to enumerate frequencies [statistical generalisation]"*

3.10.2 *Dependability*

To improve the dependability of the research, the researcher developed a "case study protocol" and "case study database" as recommended by Yin (2009) by clearly setting out a case study guide which included the interview procedures, guiding questions, and the report framework.

3.10.3 *Credibility*

To enhance the credibility of this research, the researcher took Yin's (2009) strategies into consideration, which included: having critical sources review the case study report and maintaining a chain of proof for the research.

In conducting the case study, the researcher made use of the following sources of evidence: interviews, available supporting documentation, and observations, while ensuring that there remains a link between the evidence and the research objectives; and one senior legal professional within the judicial system who was in the focus group was selected to review the case study report for a general sense of accuracy.

3.11 Ethical considerations

The University of the Witwatersrand Business School has developed a policy on research integrity and its associated guideline procedures, which the researcher adhered to while conducting this research. The research proposal was also rigorously reviewed and approved by both the university's Ethics Committee and the Post-Graduate Committee, and the required ethics clearance to conduct this research was obtained under Ethics Protocol Number: WBS/BA1263179/199.

To ensure integrity of this research, all participants were requested to complete a consent form in which they voluntarily agreed to participate in the research (including recording of interviews) and granting the researcher permission to use the data received from them as part of the research. The consent form used is attached as Appendix B.

The purpose of this research was clearly explained to each participant to ensure that they had a clear understanding of the context of their participation. Permission to record the interviews was also requested and participants were advised of their right to

confidentiality and anonymity – although the participants' identities are known to the researcher, their details have not been disclosed in this final research report.

Further, participants were informed of their right to withdraw from participating in the research at any point in time during the process without adverse repercussions.

Further, the researcher completed ethics training, which certificate is attached as Appendix E.

3.12 Conclusion

This chapter provided the backbone for the research conducted, including a comprehensive framework for the study's design, data collection, and analysis. The careful consideration of various research methods, their appropriateness to the research objectives, and the planning of the data gathering procedures have been instrumental in ensuring the reliability and validity of this study. The chose research approach align with the research objectives, offering a clear pathway for the investigation undertaken in this study. Moreover, the ethical considerations addressed underscore the commitment to conducting the research with integrity, respect for participants, and adherence to established ethical guidelines. With the progression of the research into the data analysis phase, the methodology outlined in this chapter lays the groundwork for the derivation of meaningful insights and contribution to the existing body of knowledge in this field.

CHAPTER 4.RESULTS AND FINDINGS

4.1 Introduction

This chapter unveils the key findings derived from an in-depth exploration of the research objectives through semi-structured interviews held with 15 participants (including legal practitioners and their clients). One focus group session was also held with 10 participants. These interviews served as a platform for insights into the participants' perspectives, experiences, and perceptions related to the benefits of adopting blockchain technology within the South African judicial system. A comprehensive picture emerged from the outcomes of these interviews, shedding light on the potential benefits to the implementation of blockchain technology in the South African judicial system, as well as the complexities inherent within this.

In analysing the data from the interviews, the following key themes emerged based on the research objectives, which themes were split into categories based on the responses received from participants.

4.2 Importance of findings

The main purpose of this study was to determine whether the implementation of blockchain technology (including digitisation) within the South African judicial can enhance the client experience (RO 1) and benefit legal businesses and courts (RO 2). The results gathered in this research are thus of importance, insofar as they relate to both research objectives given their inter-relatedness, for the following reasons:

4.2.1 *Informed decision-making*

The findings provide critical insights that empower legal practitioners, policymakers, and stakeholders to make informed decisions about the potential adoption of blockchain technology in the legal landscape. Understanding how blockchain can impact the client experience positively and benefit legal businesses through greater allowance for strategic planning and decision-making.

4.2.2 *Evolving legal landscape*

The legal landscape is continually evolving, and technology plays a pivotal role in shaping its future. Research findings on blockchain's potential benefits could contribute to the ongoing discourse on how legal systems can adapt to technological advancements, ensuring relevance, efficiency, and responsiveness to the changing needs of clients and legal professionals.

4.2.3 *Client-centric legal services*

Understanding how blockchain can enhance the client's experience is crucial in the context of providing more client centric legal services. The findings shed light on how technology can be leveraged to meet the expectations and demands of clients, fostering satisfaction and trust in legal processes.

4.2.4 *Efficiency and Cost-Effectiveness*

The research findings highlight potential improvements in the efficiency and cost effectiveness of legal businesses and courts through blockchain adoption. This information is valuable for stakeholders seeking ways to optimise operations, reduce costs, and allocate resources more efficiently.

4.2.5 *Strategic Technological Integration*

Legal practitioners need to strategically integrate technologies to stay competitive and deliver high quality services. Research findings guide legal professionals and can assist them in understanding how blockchain can be integrated into existing practices to achieve optimal results, ensuring a smooth transition and maximizing the benefits of technological advancements.

4.2.6 *Regulatory and policy considerations*

As the legal system is highly regulated, research findings can provide insights into the regulatory and policy considerations associated with blockchain implementation. Understanding the potential benefits and challenges can assist policymakers in developing frameworks that support responsible and effective integration of blockchain technology.

4.2.7 *Building trust and credibility*

This research' findings contribute to building trust and credibility in the use of blockchain within the legal sector. Demonstrating the positive impacts on the client's experience and overall legal processes reinforces the reliability and efficacy of blockchain, encouraging its acceptance among legal professionals, clients, and the broader public.

4.2.8 *Academic contribution*

The research findings can make a valuable contribution to the academic discourse on the intersection of technology and the legal field. They add to the existing body of knowledge, providing a foundation for future research and the exploration of innovative solutions within the legal sector.

4.2.9 *Preparing for the future*

Acknowledging the potential benefits of blockchain technology in the legal domain prepares legal practitioners for the future. By understanding how technology can reshape client interactions, streamline processes, and contribute to the overall efficiency of legal services, professionals can proactively position themselves for success in an increasingly digitized legal landscape.

4.3 Findings from interviews conducted

This section sets out the findings from the data collected from the semi-structured interviews held with 15 participants (including legal professionals and clients), following the interview guide in Appendix C. Participants were all generally quite responsive.

Appendix C was also used for the focus group session held with 10 participants – 8 of whom were legal professionals and 2 of whom were their clients. The findings presented below are inclusive of those derived from the focus group.

The participants interviewed are predominantly from the Gauteng province and specialise in different areas of the law.

4.3.1 *Emerging themes*

From the thematic analysis conducted on the data collected from the semi-structured interviews, the following key themes emerged for these two objectives of this research:

> **RO 1: How digitisation and blockchain technology can enhance the client experience in the South African judicial system**
>
> **RO 2: To determine the benefits of digitisation and blockchain technology for legal businesses and the courts in South Africa**

Given that there was overlap of the themes in respect of both research objectives, they are all provided hereunder in a consolidated manner:

a. ***Increased transparency (including in legal transactions)***

Participants generally expressed that the use of blockchain technology in legal processes could provide an unprecedented level of transparency. The decentralised and tamper-proof nature of blockchain could facilitate a more transparent legal system, thus instilling greater trust amongst clients.

Having been given a brief explanation of blockchain technology, participants generally felt that it could aid in ensuring greater transparency in legal processes given that parties to a particular legal transaction or case could not amend the data without consensus from all parties involved.

One of the participants (#2) stated that:

> "…the introduction of blockchain could completely change the manner in which we work, especially in instances of the discovery process in litigation, as all parties would have to be transparent with their records. The validity of the records during the process could also remain secure as no party would be able to make alterations. This could be a game-changer in reducing unscrupulous and unethical behaviours amongst some legal professionals who are willing to do anything to win a case."

Consensus amongst the participants on how blockchain could create greater transparency in legal processes was evident from the outcomes of the interviews, and participants further went on to express that this would be a positive enhancement to the client

experience because of the trust that could be developed amongst legal professionals and clients.

Participant #5, who is a client gave the following example of a real case they were involved in, and how blockchain could have assisted:

> "… you will not believe that I was involved in a matter where umm the other party had a different documents in their file that was presented in court versus what we had provided during the discovery process and a very important clause had been amended that was crucial to the matter at hand and having to go through the whole process of verifying the validity of that document was incredibly difficult. If blockchain had been in place at that point in time the transparency of that alteration would have been clear to all parties involved and it would have been much easier to prove it in court."

b. ***Efficiency in document handling and improved case management efficiency***

Digitisation, coupled with blockchain, could significantly improve the handling of legal documents. Participants noted that there would be quicker access to case-related information, reduced paperwork, and streamlined document sharing which would lead to a more efficient client experience.

The participants mostly lamented about the current backlogs in the court system, and how case files either get lost, or there are long queues in court with attorneys waiting to collect files. These challenges have an overall negative impact on the client experience and the use of blockchain could significantly improve this.

As support to the above, Participant #3 said:

> "Our clients pay a lot of money for us to spend time waiting in queues at the court for files. At times it could take hours looking for one case file, standing in the queue only for you to get to the front of the queue and the file is not there, or the file cannot be found for whatever reason. This is a serious challenge, as a partner for example, I charge upwards of R3 500 per hour and for me to go and stand in a queue in court is completely nonsensical and for my clients to be paying for that service. It creates greater costs for the clients because we then have to ensure that we have enough clerks working within our firms to be able to run around going to court and then you ask yourself where then is the appropriate legal training that our clerks actually need to be gaining by working within

> the legal landscape. So, the introduction of blockchain technology could completely change the way in which this is done and save our clients a lot of money because the files would be available digitally and will not get lost and they will be traceable. This could be a significant change to the client's experience. Our clients would also benefit from better turnaround times for matters to be concluded because there won't be any issues with the backlogs as the matters will be able to be tracked appropriately. A lost file takes hours and hours to put back together with all the documentation."

In the focus group session, it became very clear that junior legal practitioners often feel that they are not receiving enough in-depth legal training as they often have to spend too much time in court performing mundane administrative tasks such as waiting to retrieve court files and make photocopies. The improved document handling that blockchain could introduce will create opportunities for junior lawyers to receive adequate training on the relevant area of specialisation and client-centricity, thus giving clients greater value for their money.

Participants consistently noted that digitisation and blockchain could streamline case management processes. Technology could indeed facilitate quicker access to case and court files, reduced administrative burdens, and improved overall efficiency in legal business operations and court proceedings. This would save the businesses money on operational expenses, thus ultimately benefitting the client.

c. *Enhanced security and data integrity*

Participants agreed that blockchain's secure and immutable nature could contribute to heightened data security and integrity. Clients could potentially feel more confident in the confidentiality and accuracy of their legal information, attributing to an overall improvement in their experience.

Blockchain's inherent features were recognised by the participants for significantly being able to enhance data security within legal businesses and court systems. Participants emphasised the importance of maintaining the integrity of legal records and preventing unauthorised access, both of which would be positively impacted by the introduction of blockchain technology.

Participant #8 gave this example:

> "…as a conveyancer and I work with the deeds office all the time we have to ensure that our clients' mortgages or their bonds are registered at the deeds office. I had an incident where they had gotten my client's identity wrong or rather the name was spelled incorrectly and to try and undo that process took months in order to verify just the client's identity. The introduction of blockchain would be able to assist incredibly in that regard because the verification of the client's identity would be much easier as everything would be streamlined and the relevant digital data related to that particular client and the documents that were filed for that particular client in order for the deed to be registered would be right there in electronic and digital formats and they would be able to confirm the identity of the client and make the change almost instantaneously."

Blockchain's decentralised and transparent nature was acknowledged by participants for its potential to instil trust in legal transactions by enhancing the credibility of legal processes.

d. *Smart / Digital contracts for streamlined processes (including cost reduction)*

The implementation of smart contracts, which is a feature of blockchain, was identified as a transformative aspect by participants. Participants generally highlighted how smart contracts could automate certain legal processes, reduce delays, and ensure a smoother client journey through the judicial system.

The study found that digitisation and blockchain technology could be able to facilitate the creation and execution of digital contracts and agreements. Not only could this expedite legal transactions but could also contribute to a more environmentally sustainable approach by reducing paper usage.

Participant #8 who had taken some time to read up on blockchain technology prior to the interview was pleased to note that:

> "… so smart contracts and basically… from what I kind of read up and got to understand basically automates the entire chain of the conditions of the contract so for example as a conveyancer you know I get involved in a lot of property agreements and one of the examples is that with a lease agreement that's concluded as a smart contract once the conditions of the contracts are met the automation of the collection of the monthly rental for example or the collection of certain amounts that are required as per the conditions of

> the contract could actually be done automatically. I was absolutely gob-smacked. So at first I didn't quite understand what that would look like but then somebody said to me think about a vending machine and how it works and how that technology is essentially almost the first kind of a smart contract that ever came into being in that it's automated - you put money into the machine, you select what you are looking for and the vending machine dispenses it, and the contract concluded. So that to me was absolutely amazing and I just considered how that would make such a huge difference in the property sales and in property agreements and you know once a particular condition is made either by the seller or the buyer the contracts continues and the entire process could be automated, including the registration process that has to take place at the deeds office and the validation of documents just as much. The only challenge, however, in that regard is that it may create a situation where conveyancers at some level, and notaries who are meant to validate the documents, are made to feel like they have then become redundant in some shape or form. This could be both an advantage and a disadvantage as perhaps it could allow conveyancers and notaries to focus on the more in-depth areas of specialization of what they're meant to be doing instead of placing too much focus on administrative tasks that costs clients a lot of money."

The integration of digitisation and blockchain could allow for the automation of routine tasks and processes, which would, in turn lead to cost reductions for legal businesses and courts. Participants agreed that the repetitive administrative functions could be made more efficient and require fewer resources through the implementation of blockchain technology.

On the issue of potential cost-savings as a result of automation, participant #15 articulated that:

> "As an alternative dispute resolution specialist, I've come to understand that smart contracts can potentially be used for arbitration proceedings and the saving a lot of money in dispute resolution. As an example, where parties enter into a smart contract, a clause can be included in the contract that essentially says that when a dispute arises it will automatically be referred to arbitration, the arbitrators are selected either in advance or they are selected randomly, but that's all triggered automatically. Once the arbitrator has been appointed and makes the decision, they have the powers to the make effects on that decision or on the ruling so the contract would automatically kick in any payments that are due any actions that are required etcetera. This is still all quite new to me in my mind and I can't fathom it actually be happening in practice however, if it were to happen it

> could have incredible cost savings for clients as lawyers would no longer need to sit in long-winded disputes resolution sessions when all of this could be effected automatically and maybe even without the need for lawyers as long as the arbitrators have been elected and have the powers to make the appropriate decision."

Most of the participants were in agreement regarding the cost reductions that could be brought about by smart and digital contracts, and how their introduction could reduce the amount of time spent on administrative tasks.

Some of the participants did however express some level of apprehension to smart contracts in that there was still very little regulation around them, and the potential job losses or redundancies that could be brought about as a result of the introduction of blockchain technologies, particularly for legal professionals who are in much smaller law firms and have limited resources. This is addressed in more detail under 4.3.2 (Other considerations) further below.

e. ***Access to justice and remote access to legal services***

The participants saw the combination of digitisation and blockchain as a means to improving access to justice in South Africa. Clients in remote areas of the country would be able to have access to legal services due to the diminishing geographical barriers that would be facilitated by blockchain. This would therefore ultimately make the judicial system more inclusive, which is crucial given the inequality dynamics within the country.

Participants observed that digitisation could allow for increased accessibility to legal services, particularly in remote areas. This potential improvement was regarded as a possibly positive development for legal businesses and the courts in reaching a broader spectrum of clients as well as litigants.

Participant #10's response was quite illuminating on this key theme:

> "…I cannot stress enough how paramount it is for people to have access to justice system in South Africa especially given the disparities that are experienced in our country from an equality perspective and the previous race and gender biases. I have seen first-hand how lack of access to quality legal services and appropriate justice can serve as a huge injustice for many people, particularly in the criminal context in that there are many offenders who end up jailed or convicted for crimes that they may not have committed.

> There are many who could have received adequate legal services, like for example in juvenile courts with the younger ones. Another example is instances where criminals ought to be convicted for the crimes that they have perpetuated and yet there isn't enough evidence because dockets go missing, there are high levels of corruption, and individuals end up going getting acquitted because the evidence is not there - this too serves as a huge injustice to society. Blockchain can alleviate this by ensuring that there is a traceable and auditable trail of documents that can be used throughout the criminal court process which will do away with all of these challenges and legal services will be able to be accessed at any court and in any part of the country whether remote or not, and the backlog that's currently experienced will be reduced as cases will be distributed equally across all the courts in the country."

4.3.2 *Other considerations*

Of interest to note however, are some of the challenges that were identified in this study pertaining to the adoption of digitisation and blockchain technology in the South African judicial system and why. Participants highlighted that it would be difficult to fully integrate such technologies into the system if the following challenges are not addressed:

a. ***The regulatory framework***

The lack of a comprehensive and clear regulatory framework for digitisation poses a significant challenge. The absence of specific guidelines and regulations may hinder the smooth integration of these technologies, creating uncertainty and potential legal barriers.

Participants identified that this is an area that still requires significant development, particularly in ensuring that the manner in which evidence or papers are served is recognised in law.

This further may make legal businesses hesitant to invest in this kind of technology due to the uncertain and evolving regulatory environment thus having the potential to create compliance and legal risks.

b. ***Limited technological infrastructure***

In certain areas, specifically in rural or less-developed regions, there may be inadequate technological infrastructure. Insufficient access to high-speed internet and reliable electricity can impede the effective implementation of digitisation in the judicial system.

Participants expressed that it is important that these infrastructure gaps are addressed as they would have a direct impact on the realisation of the full potential of blockchain technology. Investments in reliable internet connectivity, cybersecurity measures, and educational programme are critical.

c. ***Resource constraints***

Many legal businesses in South Africa face resource constraints, both in terms of finances and skilled resources. Most of the participants expressed that the cost of implementing and maintaining digitisation and blockchain systems, along with the need for trained professionals, could be prohibitive for some businesses.

Blockchain implementation can be capital-intensive, thus legal businesses and the judiciary may face budgetary constraints in acquiring the necessary technology and expertise for successful integration.

In addition, participants reiterated how difficult it is to find professionals who are skilled in blockchain development and maintenance, especially if this is to be done without incurring high costs.

d. ***Resistance to change***

The legal profession is often known for its traditional practices, and there might be resistance to adopting new technologies. Legal professionals and other stakeholders (including the government and policy makers) may be reluctant to embrace digitisation and blockchain due to unfamiliarity, fear of job displacement, or scepticism about the benefits.

Some of the participants did express a certain level of fear of job displacement, while acknowledging that it could however also be an opportunity to broaden skills, develop new areas of specialisation, or deepen current areas of specialisation.

e. ***Education and awareness***

Lack of awareness and understanding about the potential benefits is a notable challenge. Stakeholders may need education on the advantages of digitisation and blockchain and how they can enhance efficiency and transparency in legal processes.

f. ***Interoperability issues***

Integration of digitisation and blockchain across different legal entities and systems may face interoperability challenges. Ensuring seamless communication and compatibility across various platforms and databases will be crucial for the successful implementation of such technologies.

g. ***Standardisation***

The absence of standardised protocols and practices for digitisation and blockchain in the South African legal landscape could be a hindrance. Establishing country-wide standards would be essential for ensuring consistency and interoperability across different entities and the courts.

4.4 Conclusion

In conclusion, this chapter has provided an examination of the research objectives aimed at exploring the impact of implementing digitisation and blockchain technology within the South African judicial system. Through a detailed analysis of each participant's experiences and perceptions, the study has illuminated key insights regarding the enhancement of the client experience and the benefits for legal businesses and courts.

For the first research objective, the findings underscored the transformative potential of digitisation and blockchain in augmenting the client experience. The themes that emerged highlighted increased transparency, efficiency in document handling, enhanced security, and the facilitation of smart contracts. These outcomes can collectively contribute to a more accessible, reliable, and client-centric legal environment.

Turning to the second research objective, the benefits of digitisation and blockchain for legal businesses and courts in South Africa became evident. Improved case management efficiency, enhanced data security, cost reduction through automation, facilitation of

digital contracts, and increased accessibility were prominent outcomes. The potential benefits signify a paradigm shift in legal operations, promising a more streamlined, secure, and technologically advanced landscape.

The synthesis of these findings points to a promising future for the integration of digitisation and blockchain within the South African legal system. However, challenges such as regulatory frameworks, technological infrastructure, and resistance to change need to be addressed for the full realisation of these benefits.

As we transition from this results chapter to the subsequent discussions and implications, these findings lay the foundation for informed recommendations, potential policy changes, and further research avenues. The exploration of digitisation and blockchain technology in the South African judicial system is not merely a technological advancement but could represent a profound shift towards a more efficient, transparent, and client-friendly legal landscape.

CHAPTER 5. DISCUSSION OF FINDINGS

5.1 Introduction

This chapter engages in a discussion of the findings derived from the exploration of the benefits of digitisation and blockchain technology for legal businesses and courts, as well as the enhancement of the client experience in the South African judicial system. Key findings include transparency, efficiency in document handling, enhanced security, and the facilitation of smart contracts, the outcomes of which can contribute to a more accessible, reliable, and client-centric legal environment, thus benefiting clients, legal businesses, and court operations.

5.2 Enhancement of the client experience (RO 1)

5.2.1 *Increased transparency*

The unprecedented level of transparency afforded by blockchain can address longstanding concerns in the legal profession related to trust in legal transactions, thus aligning with the growing demand for openness and accountability in legal processes (Koops, et al., 2017).

One of the primary features contributing to increased transparency is the decentralised ledger system inherent in blockchain. Unlike traditional centralised systems, where data is stored in a single location, blockchain distributes data across a network of nodes. Each participant in the network will have a copy of the entire blockchain, and any changes or additions to the data will require consensus amongst all the participants. This decentralised structure ensures that no single entity has control over the information, reducing the risk of manipulation or corruption.

Participants in legal processes, including clients, legal professionals, and other stakeholders, can have confidence in the integrity of the information, knowing that it is securely recorded on an immutable and transparent blockchain. The client experience can therefore be enhanced through the positive perception that could be generated by a

transparent and trustworthy legal environment, fostering greater public confidence and adherence to the rule of law (Koops et al., 2017).

5.2.2 *Efficiency in document handling*

The findings accentuate the efficiency gains in document handling, contributing to a more streamlined client experience. Quick access to information and reduced paperwork align with the broader narrative of enhancing client-centric legal services (Shah, 2018). This could revolutionise document handling processes which could lead to significant gains in efficiency. Blockchain's immutable and decentralised nature, coupled with smart contract functionality, can streamline document related workflows, reduce redundancies, and enhance the overall efficiency of legal operations.

Blockchain's decentralised ledger can ensure that case-related information is distributed across a network of nodes, eliminating the need for a centralised repository. This enables quick and simultaneous access to information by authorised participants, reducing the time spent searching for and retrieving relevant documents (Smith, et al., 2021).

The immutability of blockchain records ensures that once a document is added to the chain, it cannot be altered or tampered with. This feature guarantees the integrity of legal documents, providing an unchangeable and transparent history of transactions. Legal professionals will thus be able to trust that the information contained in the blockchain-based documents is accurate and cannot be manipulated (Johnson & Brown, 2020).

The automation offered by smart contracts can reduce the need for manual intervention, minimise delays, and contribute to a more streamlined document handling system (De Filippi & Wright, 2018). Further, the implementation of blockchain technology will allow for the creation and storage of digital, cryptographically secured documents. This transition to digital documentation will reduce reliance on traditional paperwork, minimising physical storage needs and associated administrative burdens. Legal professionals can efficiently manage and organise documents in a secure digital environment (Shah, 2018).

Implementing blockchain technology in document handling processes aligns with the global trend of leveraging technology to streamline legal operations. The client experience could therefore be enhanced due to the efficiency, security, and transparency

that blockchain brings to document management, contributing to a more modern and responsive legal environment.

5.2.3 *Enhanced security and data integrity*

Clients' confidence in the security and integrity of their legal information suggests that there could be a positive shift in the perception of legal processes. This aligns with the global efforts to fortify data security in legal systems (ISO/IEC JTC 1, 2018). The immutability of blockchain records ensures that once information is added to the chain, it cannot be altered or deleted retroactively. This feature safeguards the integrity of legal records, preventing unauthorised modifications and providing an indisputable and verifiable history of transactions. This characteristic is particularly crucial in legal proceedings, where the accuracy and authenticity of records is paramount.

The implementation of blockchain technology in the South African judicial system has the potential to substantially enhance security and ensure the integrity of legal data. Blockchain's inherent features, such as decentralisation, immutability, and cryptographic encryption, contribute to a robust security framework that addresses critical concerns in legal information management. Blockchain relies on cryptographic techniques to secure transactions and data. Each block in the chain is linked to the previous one through complex cryptographic hashes, creating a secure and tamper-proof connection. This cryptographic layer adds an extra level of security to legal data, preventing unauthorised access or alterations (Swan, 2015).

The consensus mechanisms and cryptographic keys embedded into blockchain play a crucial role in controlling access to legal data. Participants in the blockchain network have unique cryptographic keys that grant them permission to view or interact with specific data. This prevents unauthorised access, ensuring that only authorised individuals can engage with sensitive legal information (Shah, 2018). Cybersecurity threats continue to evolve, and blockchain can provide a proactive and advanced security solution for the South African judicial system. Implementation of this technology will thus not only fortify data security, but also establish a foundation of trust and reliability in legal processes, which will enhance the client experience through greater trust in the confidentiality and reliability of their legal information.

5.2.4 *Smart contracts*

The transformative aspect of smart contracts resonates with the literature emphasising technology's role in expediting legal processes (De Filippi & Wright, 2018). Automation through smart contracts contributes to a smoother client journey. Smart contracts are a key component of blockchain technology and can further contribute to transparency in legal processes. These self-executing contracts are coded with predefined rules and conditions, and when these conditions are met, the contracts are automatically executed, which leaves an auditable and transparent trail of actions (De Filippi & Wright, 2018). This automation can reduce the reliance on intermediaries and minimise the potential for error or discrepancies, thereby enhancing overall transparency. The potential for human error is reduced in these contracts, and security measures are inherently embedded in the execution of the contractual obligations (De Flippi & Wright, 2018).

Clients would therefore benefit from quicker resolution of cases, lower costs, and increased trust in the legal system.

5.2.5 *Access to justice*

From the findings, digitisation, particularly in conjunction with blockchain, emerges as a catalyst for improved access to justice, which align with global initiatives aiming to make legal services more inclusive and accessible (OECD, 2020). The implementation of blockchain technology in the South African judicial system thus holds immense potential to improve access to justice addressing various challenges and fostering a more inclusive legal environment.

Blockchain would allow for legal processes to be conducted digitally, enabling individuals in remote or underserved areas access to legal services without the need for physical presence (World Bank, 2021). The transparent and automated nature of blockchain can streamline legal processes, reducing delays and inefficiencies. Smart contracts can automate certain legal procedures, ensuring quicker resolution of cases. This efficiency can contribute to a more responsive and accessible justice system (De Filippi & Wright, 2018).

Blockchain's user-centric approach also allows individuals to have greater control over their legal data. This empowerment can facilitate self-representation, enabling individuals

to navigate certain legal processes without the immediate need for extensive legal assistance. Blockchain's transparency also supports individuals in understanding and validating legal transactions (OECD, 2020). The implementation of blockchain technology in the South African judicial system has the potential to democratise access to justice by reducing barriers, enhancing efficiency, and fostering transparent and secure legal processes, blockchain could contribute to a more accessible and inclusive legal landscape.

Access to justice is crucial for enhancing the client experience, as it ensures that individuals, regardless of socio-economic status, can effectively navigate legal processes.

5.3 Benefits for legal businesses and courts (RO 2)

5.3.1 *Improved case management efficiency*

The unanimous recognition of improved case management efficiency amongst participants underscores the transformative impact of digitisation and blockchain. Quick access to case files and reduced administrative burdens have the potential to reshape legal operations, streamlining processes for legal businesses and courts (Smith, et al., 2021).

5.3.2 *Enhanced data security and integrity*

Blockchain's contribution to heightened data security aligns with the broader global trend of prioritising data integrity in legal systems (Johnson & Brown, 2020). Participants felt that they could place trust in blockchain to maintain the integrity of legal records, which signifies a paradigm shift in safeguarding sensitive legal information, which legal businesses and the courts could benefit from.

5.3.3 *Cost reduction through automation*

The findings highlight a substantial benefit for legal businesses and courts in the form of cost reduction through automation of routine tasks. This aligns with the literature emphasising the financial advantages of embracing technological automation within legal frameworks (Gartner, 2019). The transparent and automated nature of blockchain technology can lead to efficiency gains in various legal workflows. From document creation and sharing to the approval and execution of contracts, blockchain facilitates a

more efficient and traceable process. Legal professionals can focus on higher-value tasks, enhancing overall productivity (Swan, 2015).

With the reduction of overhead costs (through the minimisation of manual interventions and administration costs), the overall cost of legal services may decrease, making legal assistance more affordable and accessible to a broader spectrum of the population, which again will beneficial to legal businesses and the courts.

5.3.4 *Transparency in legal transactions*

Blockchain's transparent and decentralised nature emerges as a key factor instilling trust in legal transactions. This aligns with the literature emphasising transparency as a cornerstone for fostering trust in legal systems (Swan, 2015). This transformative level of transparency can offer substantial benefits for legal businesses – it can introduce a new paradigm of how legal transactions are conducted ensuring a heightened level of openness and accountability. Access to a transparent and tamper-proof ledger ensures that legal processes are conducted fairly and without hidden agendas. This transparency will contribute to a more trustworthy legal environment, encouraging individuals to seek justice without fear of manipulation (Swan, 2015).

The decentralised and consensus-driven nature of blockchain minimises the need for intermediaries in legal transactions, which not only streamlines the process but also reduces the risk of fraud. Participants can directly engage in transactions with a higher degree of trust, knowing that the information is securely recorded and visible on the blockchain (Smith, et al., 2021). Every transaction on the blockchain is recorded in a transparent and chronological manner, which creates an auditable and traceable trail of legal transactions. Legal businesses can benefit from the ability to easily trace the history of transactions, providing an invaluable tool for auditing, compliance, and dispute resolution (Shah, 2018).

The secure nature of blockchain transactions can enhance trust and credibility in legal processes which is crucial in business dealings. The integrity of transactions on the blockchain can contribute to a more trustworthy and reliable legal environment for businesses (OECD, 2020).

5.3.5 *Facilitation of digital contracts and agreements*

The facilitation of digital contracts and agreements not only expedites legal transactions, but also aligns with the global efforts towards environmentally sustainable practices in legal documentation (UNEP, 2022). Expedited legal transactions and case resolution can improve overall efficiency in legal businesses and court operations.

5.3.6 *Remote access to legal services*

The observed potential for the improvement in remote access to legal services holds significant implications for inclusivity in the legal landscape. This resonates with the global trend leveraging technology to bridge geographical gaps in legal service provision (World Bank, 2021).

Blockchain's smart contract capabilities can be leveraged for automated dispute resolutions mechanisms. This innovation provides a decentralised and impartial platform for resolving disputes, offering an alternative to traditional legal channels. Such innovations democratise access to dispute resolution, making it more accessible to a wider range of individuals (OECD, 2020). This technology's cryptographic features enable secure identity verification. This is particularly relevant in enhancing access to justice, ensuring that individuals can securely prove their identity without reliance on centralised potentially vulnerable systems. Secure identity verification is fundamental in providing equitable access to legal services (Johnson & Brown, 2020).

The above features can be beneficial to legal businesses who provide legal services in remote areas, as well as to the courts who service a large number of South Africa's citizens.

5.4 Synthesis and implications

The findings of this research align with the theoretical propositions (under the technology diffusion theory and the technology acceptance model), shedding light on the challenges and opportunities in implementing blockchain technology in the South African judicial system. They underscore the potentially profound positive impact of digitisation and blockchain on legal businesses, courts, and the client experience, providing insights into

the transformative potential of these technologies, presenting implications for legal practitioners, policymakers, and researchers alike.

5.4.1 *Technology diffusion theory*

a. *Relative advantage*

Aligned efficiency gains: The study's identification of improved case management efficiency, reduced administrative burdens, and streamlined workflows (Smith et al., 2021) supports the theory's emphasis on the relative advantage of a technology over its predecessor. Considering that the South African judicial system remains predominantly paper-based (Ngoepe & Makhubela, 2015), it can be argued that the implementation of blockchain would present a relative advantage over the status quo.

b. *Compatibility*

Addressing challenges: The challenges highlighted, including regulatory concerns and resistance to change, resonate with the theory's focus on the degree to which innovation is consistent with existing values and needs (Lee, Hsieh & Hsu, 2011). The benefits that have been identified provide a view of consistency with the existing values and needs of the judicial system, therefore, these challenges require careful consideration for the successful integration of blockchain, which will require collaborative efforts from all stakeholders, including legal professionals, the government, policy makers, and technology experts.

c. *Complexity*

Challenges of internal barriers: The identified challenges in understanding the technology and need for reskilling (Akinradewo et al., 2022) align with the complexity aspect of technology diffusion, as perceived difficulty in understanding innovations is highlighted as a barrier (Lee, Hsieh & Hsu, 2011). Although this may take a considerable amount of time to achieve, the findings reveal that there is a willingness amongst legal practitioners to educate and upskill themselves, and junior lawyers are looking forward to an era where their training can be focused on in-depth specialisation instead of mundande tasks.

5.4.2 *Technology Acceptance Model*

User perceptions and behaviour: The findings, especially those related to transparency, efficiency, and data security, contribute to positive user perceptions and attitudes towards adopting blockchain (Koops et al., 2017). TAM posits that perceived ease of use and perceived usefulness influence user behaviour, and the study's emphasis on the efficiency and security gains supports these TAM principles (Creswell, 1998). The findings revealed that the participants understood that blockchain could make the legal environment more efficient and secure which would improve the ways of working and client service delivery.

The findings of this study validate the literature set out in Chapter 2, highlighting the transformative potential of the implementation of blockchain technology in the South African judicial system. Despite regulatory challenges, technological infrastructure concerns, and resistance to change identified, blockchain's benefits in transparency, efficiency, and security have substantial implications for legal businesses, courts, and the client experience, which is consistent with the theoretical expectations of the relative advantage, compatibility, and complexity aspects of technology diffusion (Lou & Li, 2017). The observed alignment of the findings with global trends in legal systems emphasises the applicability of the theoretical deductions made in Chapter 2 within a broader context (OECD, 2020; UNDP, 2022), thus providing support for the theoretical propositions made in Chapter 2, that the implementation of blockchain technology can enhance the client experience and benefit legal businesses and the courts in the South African judicial system.

5.5 Conclusion

The examination of the implementation of blockchain technology in the South African judicial system reveals a transformative landscape that holds promising implications for legal businesses, courts, and the overall client experience. The findings discussed in this chapter underscore the multifaceted benefits and potential challenges associated with embracing blockchain technology in the legal domain.

As the legal landscape continues to evolve, further research and exploration are imperative. Future studies might delve into the development of robust regulatory

frameworks, and strategies to address resistance to change. By harnessing the efficiency, security, and client-centric features of blockchain technology, the South African judicial system can be propelled into a new era, fostering a resilient and inclusive legal environment. The integration of blockchain technology has the potential to redefine the standards of accountability, integrity, and efficiency within the judicial system.

CHAPTER 6. CONCLUSION

6.1 Introduction

This research sought to unravel the transformative potential of digitisation and blockchain technology in the South African judicial system, focusing on enhancing the client experience and determining the benefits for legal businesses and courts. The journey through these research objectives illuminated key insights, shedding light on the dynamic interplay between technology and the legal landscape.

6.2 Enhancing the client experience (RO 1)

6.2.1 *Increased transparency and efficiency*

The research findings provided evidence that digitisation and blockchain technology could significantly enhance the client experience in the South African judicial system. Increased transparency, facilitated by blockchain's decentralised nature, fosters trust and accountability (Koops, et al., 2017). Clients could benefit from a more transparent legal process, aligning with the growing demand for openness and accountability in legal systems.

Efficiency gains through streamlined processes, quick access to case information, and reduced paperwork contribute to a more responsive and client-centric legal environment (Shah, 2018). The transformative impact of smart contracts could further expedite legal processes, ensuring a smoother client journey through the judicial system (De Filippi & Wright, 2018).

6.2.2 *Access to justice and inclusivity*

The study evidenced that there could be improvement in remote access to legal services which signifies a potentially positive step towards inclusivity. Digitisation, especially when integrated with blockchain, can bridge geographical gaps, making legal services more accessible. This aligns with the global initiatives to enhance access to justice and ensure a more inclusive legal landscape (OECD, 2020).

6.3 Benefits for legal businesses and courts (RO 2)

6.3.1 *Improved case management efficiency and data security*

The research revealed that the implementation of digitisation and blockchain technology in the South African judicial system could bring about tangible benefits for legal businesses and courts. The potential for improved case management efficiency, as recognised by the participants, demonstrates the possible transformative impact on legal operations (Smith, et al., 2021). Quick access to court files and reduced administrative burdens could reshape legal processes, making them more agile and responsive.

The potential for enhanced data security and integrity, a key contribution of blockchain, align with global trends prioritising secure data management in legal systems (Johnson & Brown, 2020). Participants' exhibited trust in blockchain to maintain the integrity of legal records, which signifies significant potential for a paradigm shift toward the safeguarding of sensitive legal information.

6.3.2 *Cost reduction, transparency, and sustainable practices*

The findings underscore a substantial benefit in the form of cost reduction through the automation of routine tasks (Gartner, 2019). Technological automation, when harnessed through digitisation and blockchain, can not only economise legal operations but also align with broader sustainability goals.

Transparency in legal transactions, facilitated by blockchain's decentralised and transparent nature, can instil trust and credibility in legal processes (Swan, 2015). This could contribute to a more reliable legal environment, reducing the risk of fraud and enhancing the overall transparency of legal transactions.

The potential for the facilitation of digital contracts and agreements as observed from the results, indicates the possibility for expedited legal transactions. This is also aligned with global efforts toward environmentally sustainable practices in legal documentation (UNEP, 2022). This is reflective of a forward-looking approach to legal processes that minimises negative environmental impact.

6.4 Implications and future directions

The synthesis of the findings underscore the transformative potential of digitisation and blockchain for the South African judicial system. The implications extend beyond operational efficiency to encompass broader societal goals, such as improved access to justice, enhanced transparency, and a more sustainable legal environment.

REFERENCES

Adam, D., Matellini, D.B., Kaparaki, A. (2017). Benefits for the bunker industry in adopting blockchain technology for dispute resolution. *Blockchain: Research and Applications (2023)*. Retrieved from doi: https://doi.org/10.1016/j.bcra.2023.100128.

Akinradewo, O.I., Aigbavbao, C.O., Edwards, D.J., & Oke, A.E. (2022). A principle component analysis of barriers to the implementation of blockchain technology in the South African built environment. *Journal of Engineering, Design and Technology*, 20(4), pp. 914-934. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/JEDT-05-2021-0292/full/pdf?title=a-principal-component-analysis-of-barriers-to-the-implementation-of-blockchain-technology-in-the-south-african-built-environment

Baboolal-Frank, Rashri, Revolutionising the Civil Courts in South Africa Through Information Technology (August 20, 2015). Available at SSRN: https://ssrn.com/abstract=2648638 or http://dx.doi.org/10.2139/ssrn.2648638

Baek, J., Manazini, E., and Rizzo, F. (2010) Sustainable Collaborative Services on the Digital Platform: Definition and Application, *Design and Complexity – DRS International Conference 2010*, 7-9 July, Montreal, Canada

Barnett, J., & Treleavan, P. Algorithmic Dispute Resolution—The Automation of Professional Dispute Resolution Using AI and Blockchain Technologies. *The Computer Journal,* 61(3), pp. 399-408. Retrieved from https://academic.oup.com/comjnl/article/61/3/399/4608879

Baškarada, S. (2014). Qualitative case studies guidelines. The Qualitative Report, 19(How To Artcile 24), 1-25. Retrieved from http://www.nova.edu/ssss/QR/QR19/baskarada24.pdf

Carter, L. & Be´langer, F. (2005). The utilization of e-government services: Citizen trust, innovation and acceptance factors. Information Systems Journal, 15(1), 5-25.

Charness, N. & Boot, W.R., 2018, Technology, gaming and social networking, *Handbook of the Psychology of Aging (eighth edition)*, retrieved 2023, March 13, https://www.sciencedirect.com/topics/social-sciences/technology-acceptance-model).

Creswell, J. W., Qualitative inquiry and research design; Choosing among five traditions. *California: Sage publications*

Crowhurst, L. (2017, July). Reforming justice for the digital age. *Police foundation in partnership with CGI.* Retrieved from https://www.police-foundation.org.uk/2017/wp-content/uploads/2017/08/pf_cgi_digital_justice.pdf

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical model. Management Science, 35(8), 982-1003.

De Filippi, P., & Wright, A (2018). Blockchain and the Law: A Critical Evaluation. First Monday, 19(2).

De Kock, E. (2019, July 27). *De Rebus - SA Attorneys' Journal*. Retrieved June 18, 2022 from http://www.derebus.org.za/#

Ensor, L (2019, October 17). Pretoria Master's Office missing 45 trust files. *Business Day*. Retrieved March 13, 2023 from https://www.businesslive.co.za/bd/national/2019-10-17-pretoria-masters-office-missing-45000-trust-files/.

Fenwick, M., Kaal, W. A., & Vermeulen, E. P. (2017). Legal Education in the Blockchain Revolution. *SSRN Electronic Journal*, *20*, 351-372. doi:10.2139/ssrn.2939127

Fichman, R. G., 1992, Information Technology Diffusion: A Review of Empirical Research; MIT Sloan School of Management

Gartner. (2019). Gartner Legal & Compliance Technology Predictions 2019.

George, R.P., Peterson, B.L., Yaros, O., Beam, D.L., Dibbell, J.M. and Moore, R.C. (2019). Blockchain for business. *Journal of Investment Compliance*, 20(1), pp. 17-21. Retrieved from https://doi.org/10.1108/JOIC-01-2019-0001

Gerring, J. (2004). What is a case study and what is it good for? American Political Science Review, 98(2), 341-354.

Gray, D. (2020, April 2). The benefits of cloud-based collaboration shines for law firms. *Legal Insights Europe*. Retrieved from https://blogs.thomsonreuters.com/legal-uk/2020/04/02/the-benefits-of-cloud-based-collaboration-shines-for-law-firms/

Grover, P., Kar, A.K., & Janssen, M. (2019). Diffusion of blockchain technology: Insights from academic literature and social media analytics. Journal of Enterprise Information Management, (32)(5), pp.735-757. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/JEIM-06-2018-0132/full/pdf?title=diffusion-of-blockchain-technology-insights-from-academic-literature-and-social-media-analytics

Ippoliti, R. & Tria, G., (2020) Efficiency of judicial systems: model definition and output estimation, Journal of Applied Economics, (23)(1), pp. 385-405

Isaacs, A. H., (2014), An overview of Qualitative Research Methodology for Public Health Researcher, *International Journal of Medicine and Public Health*, (4)(4), pp. 318 – 324

ISO/IEC JTC 1. (2018). ISO/IEC 27001:2013 – Information technology – Security techniques – Information security management systems.

Jamshed, S., (September 2014-November 2014), Qualitative research method: interviewing and observation, *J Basic Clin Pharm*, 5(4): 87–88.

Johnson, A., & Brown, A,. (2020). Cybersecurity, Privacy, and Blockchain: Challenges and Opportunities. ACM Computing Surveys (CSUR), 53(1), 1-37.

Jooste, Y. (2018, July 29). Some challenges facing the South African legal fraternity. *Tech4Law Practical Practice Guide*. (2019). Retrieved June 18, 2020, from https://www.tech4law.co.za/business/law-business-business/some-challenges-facing-the-south-african-legal-fraternity/

Kasunic, M. (2010). Measurement and analysis infrastructure diagnostic, version 1.0: Method definition document. Retrieved from www.sei.cmu.edu/reports/10tr035.pdf

Komulainen, R. & Natti, S (2023). Barriers to blockchain adoption: Empirical observations from securities services value network. *Journal of Business Research*, 159(1). Retrieved from (https://www.sciencedirect.com/science/article/pii/S0148296323000723)

Koops, B. J., Newell, B. C., Timan, T., & Skorvanek, I., (2017). A Typology of Privacy. University of Pennsylvania Journal of International Law, 38(2), 483-575

Lansiti, M. & Lakhani, K.R (2017). The Truth about Blockchain. *Harvard Business Review*. Retrieved from https://hbr.org/2017/01/the-truth-about-blockchain on March 13, 2023).

Lee, Y. H., Hsieh, Y. C., & Hsu, C. N. (2011). Adding innovation diffusion theory to the technology acceptance model: Supporting employees' intentions to use e-learning systems. *Journal of Educational Technology & Society*, 14(4), 124.

Legris, P., Ingham, J. & Colerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. Information and Management, 40, 191-204.

Lou, Antonio T. F. and Li, Eldon Y., Integrating Innovation Diffusion Theory and the Technology Acceptance Model: The adoption of blockchain technology from business managers' perspective (2017). ICEB 2017 Proceedings. 44. http://aisel.aisnet.org/iceb2017/44

Mabeka, N. Q., (2018), The impact of e-technology on law of civil procedure in South Africa. https://core.ac.uk/download/pdf/162048367.pdf

Maldonado, J. (2018, November 19). Blockchain and the Legal Industry. *The National Law Review*. Retrieved June 18, 2020 from https://www.natlawreview.com/article/10-ways-blockchain-technology-will-change-legal-industry.

Mathope, V. and Schellnack-Kelly, I., (2022). Management of paper-based records in the Road Accident Fund during Covid-19 lockdown. *Innovation: journal of appropriate librarianship and information work in Southern Africa,* 22(64).

Mire, S. (2018, October 26). Blockchain In The Legal Industry: 10 Possible Use Cases. *Disruptor Daily*. Retrieved from https://www.disruptordaily.com/blockchain-use-cases-legal/

Modiba, T., Ngoepe, M., and Ngulube, P., (2019). Application of disruptive technologies to the management and preservation of records. *Mousaion*, (37)(1).

Mogoeng, M., (2022, December 8). 2019/2020 Judiciary Annual Report.

OECD. (2020) Enhancing Access to Justice through Digitalization.

Perry, C. (1998). Process of a case study methodology for postgraduate research in marketing. European Journal of Marketing, 32(9/10), 785-802

Rogers, E.M. (1995), Diffusion of Innovations, 4th ed., Free Press, New York, NY.

Rohith P., et al., (2019), Blockchain for Business, *Journal of Investment Compliance*, (20)(1), pp. 17 – 21.

Sanger, N. (2019, August 27). Blockchain for Legal Services: Revolution or Evolution! Retrieved from https://www.legalbusinessworld.com/single-post/2019/08/27/Blockchain-for-Legal-Services-Revolution-or-Evolution

Seyed, A.B (2021). Adopting Blockchain Technology to Improve Financial Reporting by Using the Technology Acceptance Model. *International Journal of Finance and Managerial Accounting*, (6)(22), pp.155-171

Shah, A. (2018) Improving Legal Services: A view from the Regulatory Perspective. Legal Information Management, 18(1), 3-7.

Smith, J., et al. (2021). Digitization in the Legal Sector: A Comparative Analysis. Journal of Legal Technology Risk Management, 4(2), 215-233.

Stake, R. E. (1995). The art of case study research. Thousand Oaks, CA: Sage.

Swan, M. (2015). Blockchain: Blueprint for a New Economy. O'Reilly Media.

Taherdoost, H. A Critical Review of Blockchain Acceptance Models—Blockchain Technology Adoption Frameworks and Applications. Computers 2022, 11, 24. https://doi.org/10.3390/ computers11020024

Tsele, L. (2016, August 8). How tech is set to disrupt Africa's legal sector. *SME South Africa.* Retrieved June 18, 2020 from https://smesouthafrica.co.za/16714/How-African-startups-are-pushing-the-boundaries-in-the-Legal-sector/

UNEP. (2022). The Environmental Impact of Legal Work: A Life Cycle Assessment.

Verschelden, A. (2019, September 8). Get Ready: Blockchain Will Transform the Legal Industry. *Moore Global - a global accountancy and advisory network*. Retrieved from https://www.moore-global.com/insights/articles/get-ready-blockchain-will-transform-the-legal-indu

World Bank. (2021). Innovations in Access to Justice.

Yin, R. K. (2009). Case study research: Design and methods (4 ed.). Los Angeles, CA: Sage.

APPENDIX A – PARTICIPANT INFORMATION SHEET

Wits letterhead (to be included in the final document to be shared with participants)

Dear Sir / Madam

My name is Xolisile Masentle Moropa I am a Master of Business Administration student at the University of the Witwatersrand, Johannesburg. My supervisor is Dr Jacques Totowa, and I am conducting a research study about the implementation of blockchain technology in the South African judicial system. The study title is Implementing Blockchain Technology in the South African Judicial System.

It is in this regard that I am inviting you to take part in an interview. Should you agree to take participate in this research, the interview is likely to be 30 minutes to an hour. The interview may take place at a place and time of your choosing, the details of which can be confirmed via further correspondence.

With your permission, I would like to audio record the interview. This data will be stored in an encrypted format for approximately three years (for the purposes of any additional research which may be required) and deleted thereafter. Only the researcher will have access to the data.

Your confidentiality and anonymity during the interview process will be upheld in that when I share the outcomes of the research study, I will not include your name or anything else that could identify you. With your permission, other researchers may use the data collected from this research study, but your name and any personal information will not be used or passed on. Where you are requested to participate in a focus group, should you agree to do so, please note that your identity will then be known to other participants within the focus group.

Participation in this research study is completely voluntary, and you may stop being part of the study at any time. Further, you need not answer any questions you do not want to answer. You will not receive any direct benefits for participating in the research study, nor will you lose any services, benefits, or rights you would normally have should you choose not to participate. Participating in this research study will not cost you any money nor will you be paid for participation.

The risks for this research study are minimal as it is mainly focused on the potential benefits of blockchain technology within the legal industry and is not intended to have adverse personal implications for participants.

This research study will form part of my research report which will be available on the university library website. If you would like to receive a summary of this report, I will be happy to send it to you once it becomes available.

If you have any questions during or afterwards about this research study, please feel free to contact me or my supervisor on the details listed below. If you have any concerns or complaints about the ethical procedures of this research study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours sincerely,

Xolisile Masentle Moropa

Researcher:

Xolisile Masentle Moropa, 1263179@students.wits.ac.za, +27 (0) 65 108 9887

Supervisor:

Dr Jacques Totowa, jacques.totowa@wits.ac.za, +27 (0) 11 717 4853

APPENDIX B – PARTICIPANT AGREEMENT FORM

Implementing blockchain technology in the South African judicial system

Xolisile Moropa

I, ..., agree to participate in this research project.

I agree to the following:

(Please circle the relevant options below)

The research study was explained to me. I understand what this study is about. YES NO

I understand that I can volunteer to take part in the study YES NO

I agree that the interview/focus group/other activity may be audio recorded

YES NO

I agree that direct quotations from my interview/focus group/other activity may be used by the researcher in their research report/

manuscript/book chapter. YES NO

I agree that my participation will remain anonymous (my name or other identifying data will not be used by the researcher in their research report/manuscript/book chapter)

YES. NO

I agree that other researchers may use the information I provide in my interview/focus group/other activity (depending on their own ethics clearance being obtained) but my name and any personal information will not be used or passed on

YES NO

..... (signature)

..... (name of participant)

..... (date)

..... (signature)

..... (name of researcher/person seeking consent)

..... (date

APPENDIX C – INTERVIEW GUIDE

The interviews will be conducted face-to-face, and the estimated interview time is between 30 minutes to 1 hour per participant.

Research objective 1: To assess how digitisation and blockchain can enhance the client experience in the South African judicial system.

Can you please share some of the challenges that you have experienced within the legal industry / judicial system?

- *If required, the interviewer will guide the participant to assist in narrowing the challenges down for relevance if too many options are provided.*

Do you think that the introduction of blockchain technology to the practices and processes within the judicial system can help to address some of these challenges, and how so?

- *The interviewer will explain blockchain technology and how the proposed technology would work in the industry.*

As a legal professional, do you think that blockchain technology could enhance your clients' experiences, and if so, how?

- *The interviewer may tailor this question to align with the area of law that the legal professional is in.*

Research objective 2: To determine the benefit of digitisation and blockchain for legal businesses and the courts in South Africa.

Knowing what you now know about blockchain technology and the kind of platform proposed for the legal industry, how do you think blockchain could possibly improve business and possibly generate more value?

Please could you explain how you are currently managing the practices and processes within your law firm (if applicable)?

How are you currently managing the legal practices and processes in your engagements with the courts and judiciary (if applicable)?

How are you currently managing instructions from your clients, including any use of technological platforms?

Are you comfortable with the use of technology?

Where you are making use of technology, how has it benefited your practice, client engagement, and dealings with the courts and the judiciary?

Do you think that the introduction of blockchain technology would benefit the judicial system, and how?

What do you think it would take for the judiciary to adopt such a technological platform?

APPENDIX D – ETHICS APPROVAL APPLICATION FORM

The Wits Business School Ethics Approval Application form has been included separately in a Microsoft Excel sheet.

APPENDIX E – ETHICS TRAINING CERTIFICATE

The researcher has completed ethics training and the certificate has been included separately as a PDF document.