

**BLOCKCHAIN TECHNOLOGY AS AN INNOVATION  
STRATEGY FOR COMPETITIVE ADVANTAGE BY KENYA  
REDCROSS SOCIETY**

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## DECLARATION

I, the undersigned declare that this research project is my original work and has not been presented to any other institution or forum for any other award before this declaration.

Signed.....

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## SUPERVISOR'S APPROVAL

This project has been submitted for examination with my approval and advice as the University Supervisor.

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## **DEDICATION**

I dedicate this thesis to my loving family, my lovely wife Shukri Ali Musa and our children, son Hamza and newborn daughter Halima for their unwavering support, motivation, and patience all through this journey. May Allah bless them.

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First, I want to thank Almighty Allah the most beneficiary the most merciful for blessing me with good health and helping me reach this point. Secondly, I sincerely appreciate my family Dad, Mum, and siblings for pushing me all through. To my wife and children for their encouragement, patience, and full support they gave me during my study. Without whom this would not be possible.

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## **ABSTRACT**

This study aims at establishing how blockchain technology as an innovation strategy provides a competitive advantage for Kenyaredcross Society. This research employed a descriptive case study research whereby an interview guide was used to collect primary data. Data from the interview guide was analyzed down by using content analysis. The response rate was 66% with four out of the six responses on the questions issued. The research covered three main departments from KRCS namely ICHA, Disaster Operations, and ICT. The major limitation of the study was due to the Covid\_19 Pandemic face to face interviews were not possible due to social distancing and busy schedules by the respondents. The study found out that the pros of using Blockchain technology exceeded the cons and thus recommended the use of the technology but with enough planning and strategizing before embarking on it because it was very expensive and required a lot of funding and resources to be sustainable. The study noted that Blockchain brought transparency and trust to the donors.

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## **ABBREVIATIONS AND ACRONYMS**

<b>CTP</b>	Cash Transfer Program
<b>DM</b>	Disaster Management
<b>GOK</b>	Government of Kenya
<b>ICHA</b>	International Center for Humanitarian Affairs
<b>ICRC</b>	International Committee of Redcross
<b>ICT</b>	Information Communication Technology
<b>IFRC</b>	International Federation of the Redcross
<b>KBV</b>	Knowledge-Based Theory
<b>KEMSA</b>	Kenya Medical Supplies Authority
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>KRCS</b>	Kenya Red Cross Society
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MEAL</b>	Monitoring, Evaluation, Accountability, and Learning
<b>MSF</b>	Médecins Sans Frontières
<b>NGOs</b>	Non-Governmental Organizations
<b>POC</b>	Proof of Concept

<b>PR</b>	Public Relation
<b>RBV</b>	Resource-Based View
<b>UNHCR</b>	United Nations High Commissioner for Refugees
<b>UNICEF</b>	United Nation International Children's Emergency Fund

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

The extremely dynamic nature of the humanitarian supply chain owing to the need for transparency coupled with the ever-increasing number of charity based non-governmental organization presupposes the need for humanitarian organizations to adopt strategies that assure their competitiveness and overall sustainability in the dynamic environment (Williams, 2015). Reinforcing transparency in the supply chain can improve operations among humanitarian organizations and enhance their competitive advantage by enabling evidence-based management and interventions, accurate and effective decision making, and increasing accountability. Blockchain technology, through the provision of a publicly visible ledger, enhances transparency in humanitarian supply chains. It's also used as an information platform for tracing the use, origins, and humanitarian supplies' destination.

Various schools of thought can be used to explain creativity and innovation as critical in achieving sustainable competitive advantage among global firms Pinto and Morris (2007). They support the adoption of new technologies including the use of blockchain technology to improve creativity and innovation in the management of global firms (Bondarouk & Olivas-Lujan, 2013). According to Curado (2006), the knowledge-based theory (KBV) argues that a firm considers knowledge as the most strategically significant resource of a firm. Knowledge-based resources are not easy to imitate since they are socially complex as well as diverse in nature. Sustained innovation is giving individuals opportunities to learn how to come up with innovative ideas collectively, and a sense of purpose to manage their skills throughout the organization and teaching them how to recognize opportunities (Bondarouk & Olivas-Lujan, 2013).

Kenya Redcross Society was created by an Act of parliament (Chapter 256 Laws of Kenya). It remains a leading humanitarian organization in Kenya, East Africa, and Africa as a whole. KRCS roles include disaster mitigation, blood donation and first aid service, emergency response, and health. Humanitarian organizations in Kenya operating in disaster situations include KRCS, UNICEF, and UNHCR. KRCS crisis readiness and response team is in charge of disaster management through the planning of disaster response mechanisms and mitigation. UNICEF is a world pioneer in the acquisition of provisions for children. UNHCR tasked to ensure settlement of displaced people around the world. This study aims at discussing blockchain technology in the humanitarian sector (i.e. KRCS) because previous studies conducted on blockchain were concerning the private and public sectors.

### **1.1.1 Concept of Blockchain Technology**

According to Bisoux (2018), blockchain can be portrayed as a morally driven record of financial transactions that may change to record any cash related trading and also everything in that regard. Blockchain advancement joins a creating once-over of records, called blocks, which are associated using cryptography and each block contains a cryptographic hash of the past block. Blockchain development models are timestamp and fuse trade data.

As demonstrated by Zhao et al. (2018), in light of the blockchain advancement, the blocks attached to system data cannot be penetrated or changed. This is because it is an open, wide record that can record trading among two get-togethers gainfully or in a certain and enduring technique. To use it as a scattered record, blockchain customarily had to be administered by a framework sticking to a tradition between center correspondences and adopted new blocks.

Bisoux (2018) found that once recorded, the data in some irregular blocks can't be balanced retroactively without change of each ensuing block, which requires unity of the structure's larger part. Verily, it is important that regardless of the way that blockchain records are not unalterable, blockchains may be seen as secure by plan and embodies a passed on enlisting system with high byzantine adjustment to non-basic disappointment. The blockchain advancement is organized in a way that it supports trades, which are constant and can't be deleted easily.

### **1.1.2 Innovation Strategy**

The concept of innovation strategy refers to unique and new programs that organizations use to formulate, implement, and evaluate their policies and procedures to achieve sustainable competitive advantage. Innovation strategy also encourages or enables organizations to come up with new advancements in technology to better compete in the market. This includes the use of unique and rare resources in terms of human resources and other assets to achieve long term goals and objectives (Kasahara, 2015).

Innovation strategy plans include the use of new and unique game plans by global firms to help them position the company in its chosen market arena, compete successfully as well as please their customers and achieve good business performance in terms of profitability. The adoption of innovative and creative course of action and programs is also part of strategic management. Innovative and creative strategies can also help organizations analyze their external and internal environment, allocate resources effectively, and achieve their set goals within timeline and budget (Nicholson, 2017).

Innovation strategic plans usually result in the long term or sustainable long-term business success. This is because innovative strategy plans involve identifying and defining the organization's long-range direction, business domain, key result areas, broad objectives, and supporting shared values. Through innovative strategy practices, global firms find a means of communicating to stakeholders its long-term goals, desired vision, organizational culture, values, and actions which result in sustainable competitive advantage (Bondarouk and Olivas-Lujan, 2013).

### **1.1.3 Industry Competitive Dynamics**

Competitive dynamics are referred to as what organizations do in a competitive environment to counter what the competition is doing. Specific competitive achievement is a key pointer of competitive dynamics as each organization passes these actions to enhance its competitive advantage as compared to its competitors. Donors don't necessarily hand the funding to agencies they have to work for it to be awarded.

According to Michael Porter's model, it is important to determine how organizations compete with each other, humanitarian agencies in this context play a major role. In the humanitarian sector, there is a lot of competition between agencies on which they were given donations and funding through a competitive process. This is determined by proposal writing to the donor and track record of work previously done by the agency.

The Kenya Redcross is ahead of the pack because it does not rely on the normal humanitarian donor funding to run its day-to-day affairs. KRCS has come up with various businesses created and run by it and all profits go to the humanitarian agency to enhance its work of alleviating human suffering. These businesses are for example BOMA hotels, Switch T.V, Emergency ambulance services, First aid, and Hospitality schools.

#### **1.1.4 Competitive Advantage**

Competitive advantage refers to how a firm contends in a specific business and gains by purposely choosing a distinctive set of activities. As per Porter (1980), a firm can achieve two fundamental kinds of competitive advantage low cost or differentiation. Porter's model of Competitive advantage recommends that a firm's situation inside an industry was a factor in achieving competitive advantage. Choosing the scope of the firm's exercises can play an intense role in deciding competitive advantage since it plans to build up a beneficial and manageable position against the powers that decide your industry rivalry.

The two main sources of sustainable competitive advantage as anchored in the Resource-Based View (RBV) theory include capabilities and assets (Porter, 1980). Assets are different from capabilities whereby as opposed to assets, a monetary value cannot be attached to capabilities as can equipment and physical plant, and are so intensely entrenched in the organizational practices and routines that they can't be imitated or traded. Capabilities denote the cord that holds together assets and makes it possible for them to be advantageously deployed, assets refer to the accumulated resource endowments (Day, 1993).

Strategic choices that a firm can seek after to achieve a competitive advantage hand for development may comprehensively be classified into serious, defensive, joint endeavor, and a combination of strategies (David, 2001). In a competitive environment, firms pick strategies that can give them an outcome competitive advantage. The main aim of a competitive strategy for a business is to discover a situation where the firm can best safeguard itself against external competitive forces or influence them in its favor.

### **1.1.5 Humanitarian Organizations in Kenya**

These are associations that are non-profit and sometimes non-governmental or private and which provide services to the most vulnerable in society. The humanitarian organizations focus on the most defenseless and most victims of the danger of disease, refugees, and also displaced people. Their capacity incorporates a range of exercises, including readiness, plan, obtainment, financing, transporting, repositioning, following, and custom flexibility (Oloruntoba and Gray, 2006).

Compassionate association includes segments, for example, fund, acquirement, transportation, warehousing, stock administration, offering and hold offering, announcing, and responsibility to address crisis needs. It includes a stream of help from the benefactor to the recipients. Similarly, the helpful association includes parts, for example, "fund, obtainment, transportation, warehousing, stock administration, and military hold-offering, reporting, and accountability to address crisis needs." (Mbohwa, 2006).

Humanitarian organizations in Kenya operating in disaster situations include KRCS, UNICEF, and UNHCR. KRCS crisis readiness and response team is in charge of disaster management through the planning of disaster response mechanisms and mitigation. UNICEF is a world pioneer in the acquisition of provisions for children. UNHCR is mandated to ensure the settlement of displaced people around the world. Humanitarian operation is divided into the developmental and emergency sectors. The development sector includes activities that occur over a long period while the emergency sector deals with short term activities mainly during disasters (Oloruntoba and Gray, 2006).



### **1.1.6 Kenya Red-Cross Society**

The Kenya Redcross Society was founded in 1965 as one of the many International Red Cross and Red Crescent Movement societies around the world. KRCS mostly works with other agencies to make sure all human being's rights are respected as well as prevent and alleviate all human suffering in society. The institution manages numerous activities all aimed at creating awareness of the Kenyan population about the current problems that they face. The organization's roles include disaster mitigation, blood donation, and first aid service, emergency services, and health ([www.redcross.or.ke](http://www.redcross.or.ke)).

Application and use of blockchain technology-assisted KRCS on its mandate of alleviating human suffering. This technology allowed the organization to provide digitized, decentralized financial transactions competitively. By less funding, humanitarian organizations are sourcing funds in other ways than to rely on the traditional means of donor funding to remain competitive. This assisted to reduce corruption cases in the KRCS financial transactions, keep track of digital currency transactions without central recordkeeping, and remain competitive among other Red Cross Societies in Africa.

Kenya Redcross Society was created by an Act of parliament (Chapter 256 Laws of Kenya). Kenya Redcross remains a leading humanitarian organization and first in Kenya, East Africa, and Africa as a whole. This is clear with the expectation and confidence bestowed on it by the communities living in Kenya. At the national level, operations are run by a management team led by the Secretary-General while at the regional level by a board and day to day activities directed by a Regional Manager. ([www.redcross.or.ke](http://www.redcross.or.ke)).

## **1.2 Research Problem**

According to Zhao et al. (2018), the application of blockchain technology is emerging nearly in every industry in the market and innovative strategy application is not an exception. Notably, the main aim of using blockchain technology as an innovative strategy is to give organizations a sustainable competitive advantage. Organizations use blockchain technology to continually align their internal capabilities with the demands of the dynamic external environment.

There is indeed a relationship between the technology application and the achievement of long-term success by global firms. The innovative strategy involves environmental scanning and analysis, strategy formulation, strategic choice, strategy implementation, and strategy evaluation (Kasahara, 2015). Bisoux (2018) investigated the link between blockchain technology innovative strategy and competitive advantage but his findings were limited by both context and scope.

The Kenya Redcross Society was founded in 1965 as one of the many International Red Cross and Red Crescent Movement societies around the world. KRCS mostly works with other agencies to ensure human being's rights are respected as well as prevent and alleviate all human suffering in society. The organization's roles include disaster mitigation, blood donation, and first aid service, emergency services, and health ([www.redcross.or.ke](http://www.redcross.or.ke)). Other agencies include UNICEF a pioneer in the acquisition of provisions and rights for children. UNHCR mandated to ensure settlement of displaced people and refugees from different countries.

In New York, Santos-Álarez and García-Merino (2011) studied “managerial cognition and innovative strategy: rethinking internationalization strategies” and found that managers are seeking technologies that improve their organization's entry point on the diffusion of the innovation adoption curve. Blockchain technology is providing this to many organizations around the globe and improving financial management and corporate governance of companies.

Cambridge Massachusetts study on “using blockchain to protect personal data” by Zyskind, Nathan and Pentland (2015), established that the application of blockchain technology associated with organizations have proper and effective governance without managers or employees because blockchain technology can allow an organization to run completely by autonomous computer software, whereby trust among actors is established cryptographically.

Kaburu (2011) analyzed the importance of blockchain technology at Kenya medical supplies agencies (KEMSA) and employed case study research design and content analysis to analyze the participant’s responses. The study established that blockchain technology is highly secure with limited malpractice and well observed at the high end of a firm. The research concluded blockchain technology is important in keeping and tracking records of medical supplies companies in Kenya.

Odongo (2014) researched the effects of blockchain in Kenya institutions focusing on Kisumu County. Results established the importance of blockchain management and its function in an organization and the benefits were more than its challenges. The study concluded that blockchain technology is useful in tracking ledgers and reports from various departments in an organization and it is hard for one to amend transactions hence keeping the information open with high-secured source and storage.

Moreover, no studies have been done locally to show the relevance of blockchain technology in developing strategic plans for humanitarian institutions. This study filled this gap by providing research-based findings on the relationship between blockchain technology as an innovation strategy for competitive advantage in the case of KRCS. The study, therefore, attempted to answer the question; does blockchain technology as an innovation strategy provides a competitive advantage for KRCS?

### **1.3 Research Objective**

To establish how Blockchain technology as an innovation strategy provides a competitive advantage for Kenya Red-Cross Society.

### **1.4 Value of the Study**

Expectations are that the results of the study has benefitted several stakeholders including top leadership and management of Kenya Redcross Society, the employees within Kenya Redcross Society, the policymakers as well as the academicians and government agencies. The study findings has provided top leadership and management of Kenya Redcross Society with an opportunity to learn how to use blockchain models in promoting competitive advantage.

Moreover, the study findings has helped different policymakers to adopt the best innovative strategy policies after careful consideration of the various application of blockchain technology. The study has also allowed academicians to conduct further studies on the relationship between blockchain technology as an innovative strategy and competitive advantage practices. Notably, the study findings is acting as a reference point in future studies related to the topic of the study.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The literature review focuses on theoretical and empirical literature with the study's conceptualization. This chapter enumerates the literature and theoretical underpinnings by identifying and discussing theories relevant to the linkage between blockchain technology as an innovative strategy and competitive advantage within the Red-Cross Society. The empirical review is presented from both international and local perspectives.

This chapter looked at how blockchain works and what aspects of it bring competitive advantage to Kenya Redcross Society. The researcher has expounded by explaining digital ledger and what it entails, as well as smart contracts, permission blockchains, and transaction validation. All these entities of blockchain increase the competitive advantage of Kenya Redcross Society and its functions.

A lot of research has been done on Blockchain as a topic but most if not all of them have only covered the corporate sectors, parastatals, private sector, and government agencies but none has been done on humanitarian organizations. This paper discussed how blockchain gave Kenya Redcross Society an innovative and competitive advantage over all other humanitarian agencies.

## **2.2 Theoretical Foundation**

The theories under consideration include the knowledge-based theory as well as systems theory to explain and establish the linkage between blockchain technology as an innovative strategy and competitive advantage within various global organizations.

### **2.2.1 Knowledge-Based Theory**

According to Curado (2006), the information based hypothesis (KBV) of the organization emphasizes on learning as the biggest asset of a firm. The advocates of the hypothesis contended that learning-based assets are difficult to emulate since they are socially perplexing and also heterogeneous. It is the information, encounters, and abilities of the representatives that enable the firm to have the high supported upper hand and predominant corporate execution in the general public.

Knowledge-based theory recognized the different capabilities and special characteristics of workers in society. A good example of the theory's application is the information technologies that help global firms to synthesize and improve. They also speed up extensive scale intra-and between a firm's information, administration, and frameworks. Critically, some individuals contend that the learning-based perspective of the firm is an augmentation of the asset-based hypothesis (Curado, 2006).

Grant (1996) noticed that the firm learning is installed and helped through numerous substances and models. For instance, there is the hierarchical culture, innovation, corporate strategies, schedules, and additionally the firm personalities and frameworks. The information-based hypothesis is connected with the asset-based perspective of the firm (RBV) which bolster the requirement for the utilization of learning and accessible assets to enable the firm to accomplish an upper hand in the public domain.

The condition of most information-based assets is unclear and it changes, taking into account unusual advancement through way reliance and causal vagueness, which are the premise of the component for monetary lease creation in the learning-based perspective of the firm (Kirsimirja and Aino, 1990). In this manner, global firms ought to consider information as the most imperative vital asset around the globe.

### **2.2.2 Systems Theory**

According to Malecic (2017), an organization is an interdependent system of integrated structures and functions, which mainly constitute groups of people who must work together in harmony. In a system, each person must know what the others are doing and they must collaborate in promoting their activities and goals. This can help organizations to imagine living frameworks as frameworks of components in a common unique association, and find the laws that oversee the example of parts and procedure of the ideas of the association including high levels of self-regulation.

Prominently, a framework is entirely made up of parts and each part can influence how different parts work and how all parts cooperate decided how well the framework functions. This is a central test to current administration full of new technologies and changes. Miller (2007) argued that a manager must embrace the change of their systems to solve problems and make informed decisions.

According to Belinfanti, Stout (2018), two systems policies indicate that every system is perfectly designed to achieve exactly the results it gets and if the management can put good people in a bad system, the system won every time. This is partly the reason why firms need to check and evaluate their systems to achieve substantial results. The principle framework ideas incorporate the framework condition limit, input, yield, and frameworks data.

Blockchain is a classification of interconnected ledger accounts connected by blocks and rely on each other to share and distribute data. Therefore, systems theory functionality is the same as blockchain technology because of interdependency and how blocks are connected. Blockchain technology likewise is a new way of doing things, an innovation strategy that organizations are using to add to their competitive advantage.

### **2.3 Digital Ledger and Competitive Advantage**

Blockchain technology was technologically advanced grounded on a digital account book named Bitcoin, a peer-to-peer, open-source crypto-currency developed and launched by Nakamoto Satoshi in 2009 (Nakamoto, 2009). This structure is grounded on private-public key technology and the spread-out system of payment clearing to permit almost anonymous transactions.

Franco (2014) argues that in comparison with precious metals or fiat currency, it's not possible to appropriate bitcoin giving it strength. Bitcoin further avoids disproportionate taxation and capital controls. As long as one can keep a copy of the private keys when connecting to the internet, only the owner of the bitcoin can access the funds. This gives firms that use this digital ledger a competitive advantage over those which do not.

All transactions on the bitcoin system are assembled in a block together for validation and complex cryptography problem is resolved by the system. A "proof-of-work" is completed by all peers on the network and shared with others by the addition of their respective transactions to the blockchain. All transactions are open and transparent and everyone on the chain can see what transactions have taken place between other users.



## **2.4 Smart Contracts and Competitive Advantage**

Blockchain was initially founded to develop cryptocurrencies, but entrepreneurs have come up with new ways of using blockchain, referred to as “smart contract”. This is an agreement among parties, which is uploaded and coded to the blockchain. Third-party authorities are not required in this arrangement as all processes are automatically controlled. Only after all parties have accomplished their duties, is the contract executed (Swan, 2015, 25).

The process of negotiation is made easier and more efficient by smart contracts as the function eliminates all possible uncertainties concerning the implementation of the contract conditions. The interface is usually clear and takes after the contractual clauses’ logic purposely to decrease the contracting cost as well as ensure the contractual processes are secure (Kakavand et al., 2016, 17-18).

Among the major features is allowing “trustless” transactions, which are bilaterally enforced, monitored, and validated transactions platformed on a digital network. Multiple digital signatures can be incorporated into smart contracts for participants to approve. In the event a smart contract relies on real-world data, it can be monitored and verified by a system called “oracles” (Swan, 2015, 25). This gives firms that use smart contracts a competitive advantage over those who do not.

## **2.5 Permission Block Chains and Competitive Advantage**

Presently, any distributed ledgers can be used by everyone using Bit-coins for communication with individuals. Everyone can furthermore write or read from such ledgers; subsequently, it is attractive for many uses. There are, however, several applications in which transaction counter-parties may require that all transaction information be kept private, for instance, exchange of medical records, financial transactions, or shipment of goods (Kakavand et al., 2016).

Private or permissioned blockchains are in good demand for such transactions owing to their relevancy and appropriacy for numerous commercial applications. The application of permissioned blockchains grants the capability to assess whether any participant is available in the network so that the information is kept private (Swan, 2015). Data is kept in confidence to specific uses that require privacy.

In permissioned blockchains, the network always invites new participants. Various ways of inviting new participants are available to this end, for instance, single-user invitation, unanimous agreement, or principal group's approval satisfaction of a set of pre-determined requirements (Kakavand, 2016). In this regard, supply chain logistics among firms using blockchain are secure giving them a competitive advantage over rivals.

## **2.6 Transaction Validation and Competitive Advantage**

As a security and transparency insurer, blockchain is hailed as a good fix for supply chains (Bonneau et al., 2015). The key relevant data in the management of a supply chain can be identified by registering the product transfer on the digital ledger. In this case, the nodes cryptographically validate all transactions and ignore invalid transactions on the blockchain network. Dickson (2016).

The key blockchain features could be instrumental for supply chain application, including the ability of all parties to participate in the supply chain by the decentralized structure; ability to trace products to the end customer from the place of origin by the public availability feature; as well as an assurance of security by its immutable and cryptography-based nature.

There have been to this day, several efforts made to apply blockchain for the enhancement of Supply Chain Management. Ramamuthy (2016), states “42% of companies in retail and manufacturing spheres are planning to spend \$5 million on such kind of technology”. In this regard, supply chain logistics among firms using blockchain are better managed, giving them a competitive advantage over those that do not.

## **2.7 Empirical Studies and Knowledge Gaps**

Pinto, Morris (2007) conducted a study on the interrelationship among supply chain, project technology, and procurement management in New Jersey. The researcher used survey design and data was analyzed using both SPSS and Microsoft excel. The study concluded that blockchain is a new database technology that transforms competitiveness, organizational design, and governance. It allows firms to adopt a distributed ledger that records and maintains indefinitely an ever-growing list of unaltered data records (Zhao et al., 2018).

In New York, Santos-Álvarez, García-Merino (2011) studied “managerial cognition and innovative strategy: rethinking internationalization strategies” and found that managers are seeking technologies to improve their organizations' entry point on the diffusion of the innovation adoption curve and blockchain technology is providing this status to many organizations around the globe. It has improved the management of companies in terms of financial management and corporate governance.

In Japan, Bisoux (2018) a study on “building on BlockChain”, it is often associated with the formulation and implementation of innovative strategic plans. Applying blockchain technology to manage organizations improves corporate governance in terms of transparency. Organizations that use blockchain technology operate and trade with other firms without problems associated with the unregulated market.

In South Korea, Zhao et al. (2018) conducted a study on manufacturing service behavior modeling based on blockchain theory. The researcher used descriptive research design while Pearson correlation determined the relationship between the variables. Results indicate that blockchain technology can automate several existing functions in global companies. Cambridge Massachusetts a study on “using blockchain to protect personal data” by Zyskind, Nathan, and Pentland (2015), established the application of blockchain associated with organizations have proper and effective governance without managers or employees because it runs completely using a computer-generated software.

Kaburu (2011) analyzed the importance of blockchain technology at Kenya medical supplies agencies (KEMSA). He used a case study research design and content analysis to analyze the participant's responses. The study established that blockchain technology is highly secured with limited malpractice and well observed at the high end of a firm and concluded that blockchain technology is of importance in keeping and tracking records in medical supplies companies in Kenya. A study conducted by Ouma (2015) focused on the importance of blockchain technology in parastatals in Kenya. The study discovered that technology is of much importance more so in the growing nature of innovation brings a competitive edge between organizations with highly secured and effective systems. The study concluded that blockchain technology ensures transparency of reports between departments in state agencies thus it gives institutions a competitive advantage in terms of quality service.

Odongo (2014) researched the effects of blockchain in Kisumu County, establishing the benefits were more than challenges. The study concluded that blockchain technology is useful in tracking ledgers and reports from various departments and hard to amend transactions hence keeping the information open, high-secured source, and storage. A study on the impacts of blockchain technology in the Kajiado County Government in the finance and operations departments revealed that challenges, when wrong data is submitted, require the administrator to log into the system and lodge corrections. Selei (2016) Therefore, while mixed findings were notable in the literature reviewed, there was no attempt to quantify the effectiveness or measure the exact interrelationship among these variables from respondents on the ground through personal interviews and questionnaires. As such, a similar study ought to be conducted on the Kenya Red-Cross Society adopting a primary data approach for actual participants.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The research methodology is the process used to collect information and data for purposes of making business decisions. The research methodology includes surveys, interviews, publication research, and other study methods and could include both historical and present information (Tashakkori, Teddlie, 2008). This chapter, therefore, presents the research design, data collection technique, and, data analysis.

This chapter introduces the system that was utilized in the exploration examination. The sub-point speaks to the examination structure, information accumulation techniques; explore systems, and the philosophy that was utilized in the investigation. The system that was utilized empowered the scientist to achieve the exploration goals.

This chapter further explores the procedures and analysis techniques that were adopted and analyzed to bring out the findings of this study. The section provides the preliminary practices that were performed to ascertain the reliability and validation of the research instrument as well as to ensure normality and linearity of the study results. Finally, a detailed explanation of the data processing and analysis is given.

### **3.2 Research Design**

The study was conducted through a descriptive research case study and can be considered important because it permits a detailed study of blockchain technology as an innovation strategy for competitive advantage by KRCS. The background investigation approach is the hugest technique in this examination since it is capable of taking care of subjective data.

According to Gerring (2005), case study analyzes persons, activities, decisions, times, projects, policies, establishments, or different things that blockchain measures studied smartly by one or a lot of strategies. The case that's the unit of the inquiry is an associated instance of a category of phenomena that offered associate analytical frame, an associate object at intervals that the study is conducted, and that the case illuminates and explicates.

### **3.3 Data Collection**

This investigation utilized essential information gathered from the administration and staff individuals from Kenya Redcross. Kenya Red Cross Society's center business zones, around which its exercises rotate include Operations, Health and Social Work, Water & Sanitation, Organizational Capacity Development, Procurement, Supply-Chain, and Finance units. While, bolster administrations of the KRCS incorporate Public Relations, Human Resources, Monitoring and Evaluation, Training, Internal Audit & Risk, ICT, Legal, and Security.

Participants in this study included Cash & Voucher Assistance focal point from Disaster Operations, innovation manager, and innovation officers from (ICHA), ICT officer software and a Research consultant owing to their conversance with blockchain and its effect on the organization's competitive advantage. Using an interview guide, primary data was collected from the respondents in their respective departments. These participants are preferred since they understand the blockchain technology and the training they have been undergoing on the same.

The consultation had un-organized questions that were utilized to help the respondents to produce point by point results without uncertainty kept down in opening up some random data. With unstructured inquiries, a respondent's reaction may give an understanding to his sentiments, foundation, concealed inspiration, interests, and choices and give however much data as could reasonably be expected without keeping down.

### **3.4 Data Analysis**

Data examination is subjective, because of this reality; the content examination was utilized to break down the information. Mugenda, Mugenda, (2003) characterizes content examination as a strategy for making surmising by methodically and unbiased distinguishing indicated ideas of messages and utilizing the equivalent to associate patterns. Information was acquired from the administration colleagues acting as finance managers or different staffs working in the same division and contrasted against one another to get more revelation on the gaps under study.

Particular data from the interview guide was analyzed down by utilizing content analysis since this research tries to give subjective information. Investigation of information gathered was contrasted and the theoretical approaches and documentation referred to in the literature review. The researcher shall further obtain clearance from the University of Nairobi before initiating the study. The respondents were made aware of voluntary participation. The researcher shall ensure confidentiality of the information that the participants give, by ensuring their names are not mentioned.



## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1 Introduction**

The study's objective was to establish how Blockchain technology as an innovation strategy provides a competitive advantage for Kenya Red-Cross Society. Based on the interview guide taken from KRCS's Cash and Voucher Assistance focal point that included Disaster Operations; innovation manager and innovation officers from (ICHA); ICT officer software and a Research consultant.

The researcher focuses on content analysis of the primary data collected because the primary focus is on the case study of Kenyaredcross as an innovation strategy and competitive advantage. The section critically contextualized the data analysis, the results of findings, and discussions.

This chapter was objectively aided in analyzing and relating the findings that were presented in various classifications namely; response rate; blockchain technology implementation as an innovation strategy; blockchain as a center of innovation; blockchain conveyance to donors; vital reason for blockchain; pros and cons on blockchain development; blockchain effectiveness and its difficulties; and finally discussion.

## **4.2 Response Rate**

The researcher-administered interviews to six participants, with one interview guide sent to Disaster Operations; ICT officer software; and research officer respectively; while one interview guide was sent to innovation manager and two interview guides were sent to innovation officers from (ICHA) respectively. Out of the six participants, only four returned the interviews, forming a response rate of 66.6%.

The two that did not return the interview guide was the innovation manager and officer (ICHA); they cited busy schedules to answer the interview guide. According to Mugenda, Mugenda, (2003), a 50 percent response rate is adequate, 60 percent response rate is good and 70 percent and above response rate is very good, hence, this study's return rate was good and represents the actual study of the topic.

Due to the Covid\_19 pandemic, the face-to-face interview scheduled with the respondents could not take place. The researcher, therefore, opted to do a call interview, but due to the busy schedule of respondents, they requested questionnaires be sent to them via email which worked out well for the researcher as four out of six replied.

## **4.3 Blockchain Technology Implementation as an Innovation Strategy**

Based on the results of how KRCS goes about implementing an innovation strategy on blockchain technology. It was established that they had done several pilot projects that are based on blockchain technology and had ascertained good results and further remarked that the best way is to test new technologies. In-collaboration with KRCS and IFRC implemented the first multi-chain open-loop Blockchain in the world.

The idea is proof of concept (POC) that came from the need to have an efficient and fast Cash Transfer program, especially in times of disaster. The various departments came together and a task team was formed. The idea went through senior management who bought approved the use of Blockchain and the task team. Staff training was conducted and beneficiaries were randomly selected for the POC, volunteer training was done in the field and the POC was conducted.

Based on the research interview it was established that use of blockchain in cash and voucher assistance is implemented by various departments each having a role ie.; DM operations handle beneficiary identification, registration, and cash transfers; IT department handles technology interface of the system; Finance department processes cash transfer requests from DM operations; MEAL department supports the M&E indicators and data for the project implementation.

Legal department reviews agreements with the service providers involved in the implementation; and finally PR manages communication with the public regarding the work KRCS is doing around blockchain and cash transfers. Senior leadership and other employees are drawn from different areas and departments in the organization developed KRCS blockchain. ICHA supports the documentation on the innovations and learning drawn.

They used a series of conferences and workshops and the strategy development teams led the process by articulating the organization's policy guidance. The team articulated strategic elements including committing resources, establishing schedules, developing the corporate balanced scorecard, approving all scorecards work, taking into consideration the performance measures, and strategic initiatives. Program champions coordinated these processes and all its aspects.

### **4.3.1 Innovation Strategies**

The participants were asked who were responsible for innovative strategies at KRCS and they responded that they have a fully-fledged innovations department/unit that helps in innovation strategies that work in conjunction with the ICT and project management departments for it to be implemented. This was a revolutionary move for KRCS from its current way to a new and better way of doing things.

The innovation department is designed to conduct various roles at KRCS including; ensuring business and determining supporting strategies on innovative solutions; designing and experiencing customer innovation in similar initiative variants. It conducts insights, innovation developments as well as outputs; assisting in strategic decision making and go to the market process by managing as well as evaluating portfolio data. It also suggests new market strategies, research development, and analyzes them as well as managing strategic direction activities and prime team functions. It develops an atmosphere of high performance directing and leading various programs of cross-functional influencing change and a new process of performing strategic partner to head innovation.

Innovation strategy plans results in a long term or sustainable long-term success of blockchain technology. Through innovation strategy practices, KRCS has found means of communicating to stakeholders its results in sustainable competitive advantage and it encourages organizations to come up with new advancements in technology to better compete in the market. A creative course of action and new programs is also part of the strategic management. Innovation and creative strategies can also help organizations analyze their external and internal environment, allocate resources effectively, and achieve their set goals within timeline and budget.

### **4.3.2 Blockchain Technology and Competitive Advantage**

It was established that blockchain technology creates an environment of trust between the donor, organization, and recipient. Not many humanitarian organizations in Kenya are using blockchain technology hence making it competitive in the field. KRCS is operating in a system that requires a lot of trust and one that is bound by the “Do No Harm” rule.

Donors and recipients all hold an equal place in the ecosystem and humanitarian organization's roles are to ensure that the services they offer understand the clear needs of the two, and these services need to have a great impact without being financially overbearing. After the proof concept, Blockchain proved to be transparent and risk-averse because it was tamper-proof and time-stamped. Efficient in terms of reducing the amount of time they would take to do beneficiaries validation and verification, disbursements, and post-distribution monitoring.

The study also ascertained that GOK has not embraced blockchain for the fear of unknown and lack of proper understanding of cryptocurrency. Even at KRCS, it was done as a pilot project but the organization has not moved into full use of blockchain. It was also established that blockchain is a relatively young technology that has not been implemented by many organizations, so people are skeptical about it, hence an innovative strategy for KRCS competitive advantage with other organizations.

Blockchain is of much importance and more so in the growing nature of innovation that brings a competitive edge between organizations with highly secured and effective systems. The third-party is not required in this arrangement as all processes are automatically controlled. Only after all parties have accomplished their duties. Blockchain technology ensures transparency of reports between departments in state agencies thus; it gives institutions a competitive advantage in terms of quality service.

#### **4.4 Blockchain as Center of Innovation**

As to why the blockchain was established by KRCS, it is because in the quest to alleviate human suffering they needed to look for ways to get aid quickly to the affected communities. It is also faster and tamper-proof in its efforts to use modern technologies to improve humanitarian work and because of its capability to provide the transparency that can prove their accountability, build departmental relations, and stakeholder trust and confidence.

On system inclusion, it established that there were several systems included in the data management system for the management of cash transfer programs. It was ascertained that Red Rose was the main data management system that operationalized Blockchain and Mpesa was integrated into the Blockchain. Currently, KRCS is developing a system that is a pilot project to assist in developing the digital identity of vulnerable communities.

The main people associated with the procedure in the blockchain includes various departments and organizations that is ICT department, Innovations department, Red Rose, Safaricom Limited, Disaster operations and management, Finance, the partner/donor, national, county and sub-county government of Kenya as stakeholders, the community members, program departments and branch teams. Safaricom Limited provides internet connectivity at KRCS since blockchain works on internet connectivity.

Qualities of blockchain were ascertained to be Immutable and Transparent. Currently, fraud has increased and the transparency of aid funds is very important to aid agencies and donors. Hence blockchain has qualities like; better security features, transparency, information is encrypted, time-stamped, decentralized, un-auditable without authorization, improves accountability, eliminates duplication, improves beneficiary, and data management.

The study ascertained that KRCS has various innovation strategies that provide analytical understanding for decisions that prioritized projects according to strategy impact. The study established that blockchain technology was their basic answer since the technology assists in transparency; saves time and money; beneficiary data management; captures biometrics; market data; assessments; post-distribution and surveys; distribution planning & tracking; monitoring & reporting; audit trails; payment administration; payment scheduling (individual, bulk); identify validation & security; inventory management and reconciliation. Hence, Blockchain has many pros than its cons.

#### **4.5 Blockchain Conveyance to Donors**

Blockchain conveyance to KRCS donors was due to the transparency and security of their funds. This would in return increase their confidence in our interventions. Donors can be part of the chain and they can easily audit accounts. It also does data analysis, which is used to make faster and better-informed decisions at the click of a button. A complete blockchain innovation permits the association among agreements and exchanges.

Consequently, innovation can be utilized to track agreements of resources and going of the property notwithstanding the real exchange. In this way, agreements are straightforward and connected to installment exchanges, which is alluded to as shrewd agreements. Subsequently, blockchain innovation can be utilized as a “proof of ownership” just as a proof of installment. The improvement of brilliant agreements will permit the “automated execution of transactions”.

Henceforth, shrewd agreements end up being a foundation in the present headways around the web of things. Finally, the association among agreements and exchanges permits ‘programmable’ cash streams and mechanization of exchanges, which prompts decentralized independent associations, where business rules are coded in the KRCS and executed naturally under specific conditions.

The participants’ were asked if they considered an answer not founded on the blockchain, they stated that blockchain is a young technology that has not been implemented by many organizations, so people are skeptical about it. The biggest issue experienced is the fact that it is internet-based, which makes it difficult to use in areas that lack coverage of the internet.



#### **4.6 Vital Reason for BlockChain**

The respondents were asked the values that were vital on picking blockchain and they responded that any organization should be able to innovate and make work easier as they automate their work. In the case of automation of the KRCS system, they stumbled upon blockchain and hence the reason for their work on blockchain. On the values blockchain carries is to reduce data tempering and manipulation; but also to earn the trust and show data as it is, as opposed to manually prepare reports that take up more time and energy to produce.

Other vital reasons for blockchain it helps in beneficiary data management; captures biometrics; market data; assessments; post-distribution; surveys; distribution planning & tracking; monitoring and reporting; audit trails; payment administration (FSP integration); payment scheduling (individual, bulk); identify validation and security; reconciliation; and inventory management. It also gets rid of redundancy and ensures data is protected and secured

Blockchain transparency is hailed as a good fix for the supply chain. The key relevant data in the management of a supply chain can be identified by registering the product transfer on the digital ledger. In this case, the nodes cryptographically validate all transactions and ignore invalid transactions on the blockchain network.

Blockchain features could be instrumental for supply chain application, including the ability of all parties to participate in the supply chain by the decentralized structure; ability to trace products to the end customer from the place of origin by the public availability feature; as well as an assurance of security by its immutable and cryptography-based nature.

#### **4.7. Focused Pros of BlockChain Technology**

The study established that the automation of various departments and processes has made a positive impact on the performance of its operations. There was a positive impact on operations and performance by automating various departments and processes. The organization had incorporated blockchain technology to a single focal point that was automated to perform different functions; therefore the innovative strategy helped in unethical behavior for instance manipulation of reports from donors among others.

Blockchain technology enabled the participants at KRCS to gain knowledge of various activities at the Organization. The innovation of blockchain technology had also enabled the organization to improve the speed of service delivery and has led to the provision of high-quality service. Blockchain technology is also used to enhance efficiency in human resources and financial management.

It was ascertained that the participants do what they are required to do based on their profession and knowledge to innovate and capacity building on new technologies, resource allocation (funds) to support the implementation of new technologies, documenting lessons learned and reviews for improvement in using new technologies, provide feedback and propose adjustments in the technology applications to customize and interface with already existing systems.

It was also established that KRCS analyzed Cash Transfer Programming to ensure that the program was ready to scale up. In the process, it was evident that there was a need to use new disruptive technologies to help with the scalability, and from that Blockchain technology was most viable. Blockchain technology helped reduce the amount of time that was used to implement CTP and at the same time, there was an audit trail that was time-stamped and encrypted. This was very beneficial because KRCS is trying to be financially feasible without compromising on aid delivery.

#### **4.8. Cons of Blockchain Development**

Limitation for development was ascertained by hindered and lack of fully funding on blockchain technology at KRCS that is why it is on the pilot stage in the organization. This is because it gets very expensive to develop these systems and needs a lot of technical expertise to be able to fully deploy. Other participants stated that time could be an impact on development due to government interference in data capturing, but minimal funding achievement is limited, as well as development speed reduces.

In terms of execution, time is affected due to government interference in data capturing. Donors and other strategic partners aid financial constraint challenges through funding. The sourcing process was noted to be slow therefore impeding the achievement of the departmental objectives. During the study, it was established that resource allocation was not sufficient to drive the process thus a major setback to the process.

Based on the limitations to development at KRCS the respondents stated that funding and development were their cons. This was because it gets very expensive to develop these systems and needs a lot of technical expertise to be able to fully deploy. It was ascertained that blockchain technology helped in their daily tasks, without the blockchain, they would be doing their tasks manually.

The respondents stated that blockchain helps them in their daily reports and information at the workplace to their bosses. The study established that blockchain technology is difficult to create many admin accounts, this helps in reducing duplication; however, when the admin is unavailable, data storing and collection can get difficult, including disbursement of cash.

It was ascertained that blockchain technology helped make their daily tasks efficiently, without blockchain, they would be doing their tasks manually. The respondents stated that blockchain helps them in their daily reporting and information sharing at the workplace to their bosses. The study established that blockchain technology is difficult to create many admin accounts, this helps in reducing duplication; however, when the admin is unavailable, data storing and collection can get difficult, including disbursement of cash.

#### **4.9 Discussion**

The specific objective of the study was to establish how Blockchain technology as an innovation strategy provides a competitive advantage for Kenya Red-Cross Society. The objective of the research was accomplished since it established that blockchain is a young technology that has not been implemented by many organizations, so people are skeptical about it hence an innovative strategy for KRCS's competitive advantage. This concurs with a study by Porter (1980) who observed that competitive advantage recommends that a firm's situation inside an industry was a factor in achieving competitive advantage.

KRCS blockchain technology using a series of workshops, conferences, and meetings was developed using a series of meetings and workshops made up of senior leadership and other employees drawn from different areas of the organization. The process was led by the strategic team which was led by the articulation of the policy guidance of the organization, committing resources, defining strategic elements, developing and approving all scorecard works, establishing resources and performance measures, and strategic initiatives.

This confirms (Bondarouk and Olivás-Lujan, 2013) that innovation strategic plans involve identifying and defining the organization's long-range direction, business domain, key result areas, broad objectives, and supporting shared values. This confirms (Nicholson, 2017) observation that innovative and creative strategies can also help organizations analyze their external and internal environment, allocate resources effectively, and achieve their set goals within timeline and budget.

The study also confirms to Knowledge-Based Theory through the claim that the information based hypothesis of the organization emphasizes on learning as the biggest asset of a firm. This contended that learning-based assets are difficult to emulate since they are socially perplexing and also heterogeneous (Curado, 2006). Through blockchain technology, it enabled the participants at KRCS to gain knowledge on various activities at the Organization. The innovation of blockchain technology has led to efficiency and speed of service delivery hence the provision of high-quality services.

Qualities in blockchain technology were ascertained to be immutable and transparent. This confirms Bisoux (2018) that applying blockchain technology to manage organizations improves corporate governance in terms of transparency. The qualities of the blockchain were; better security features, transparency, information is encrypted, time-stamped, decentralized, un-auditable without authorization, improves accountability, eliminates duplication, improves beneficiary, and data management.

Contracts and transactions are connected to blockchain technology, therefore the actual transaction such as the passing of property and contract purchase is reflected, non-manipulated, and keeps a record. Hence contracts of purchase are directly linked to payment transactions also known as smart contracts. Proof of ownership and proof of payment can be seen in the blockchain technology. The smart contracts that are developed allow automated execution of transactions. This confirms with (Swan, 2015) that blockchain was initially founded to develop cryptocurrencies, but entrepreneurs came up with new ways of using blockchain, referred to as “smart contract”.

They made an agreement among parties, which is uploaded and coded to the blockchain. Third-party authorities are not required in this arrangement as all processes are automatically controlled. Only after all parties have accomplished their duties, is the contract executed. Finally, the automation of transactions allows the link between contracts and transactions where programmable money flows that’s led to decentralized organizations, where business rules/policies are outlined and execution is done automatically through certain conditions. This confirms with (Kakavand et al., 2016) that the process of negotiation is made easier and more efficient by smart contracts as the function eliminates all possible uncertainties concerning the implementation of the contract conditions.

## **CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter documents the summary of the study findings based on the main objective to establish how Blockchain technology as an innovation strategy provides a competitive advantage for Kenya Red-Cross Society. The summary of the findings was also discussed based on the data analysis, results, and discussions in chapter four.

The conclusion was also discussed based on the study findings as well the recommendation of the study was also explained. Further, the study sought to discuss the potential weaknesses and threat that were impossible to minimize or avoid under the limitation of the study and lastly the study discussed the gaps that needed to be filled and suggestions for further research was discussed.

Reinforcing transparency in daily activities can improve operations among humanitarian organizations and enhance their competitive advantage by enabling evidence-based management and interventions, accurate and effective decision making, and increasing accountability. Blockchain technology, through the provision of a publicly visible ledger, enhances transparency between humanitarian tasks and donors. It is also used as an information platform for tracing the use, origins, and humanitarian supplies' destination.

## **5.2 Summary of Findings**

The research findings on blockchain technology were engaged by the management of the Kenya Red Cross Society. The society has well documented on how to go about implementing of innovative strategy on blockchain technology. Various departments came together and a task team was formed. The idea went through senior management who approved the use of Blockchain and the task team. Staff training was conducted and beneficiaries were randomly selected for the POC, volunteer training was done in the field and the POC was conducted.

This implies that KRCS had Innovative strategic plans that might result in the long term or sustainable long term success of blockchain technology. Through innovative strategy practices, KRCS has found means of communicating to stakeholders its which results in sustainable competitive advantage. The findings implied the importance of innovative strategy and it encourages organizations to come up with new advancements in technology to better compete in the market.

The study found out that KRCS had done several pilot projects that are based on blockchain technology and had found good results and further remarked that the best way is to test new technologies. The process of articulation of KRCS policies and guidance was brought by the strategic development team. Each strategic theme had strategic objectives and a strategy map. Performance measures and initiatives helped in the process of improvement and other scorecards ideas, all these aspects were coordinated by program champions.



The study found out that blockchain technology creates an environment of trust between the donor, organization, and recipient. Not many humanitarian organizations in Kenya are using blockchain technology hence making it competitive in the field. Humanitarian organizations are operating in a system that requires a lot of trust and one that is bound by the “Do No Harm” rule. Blockchain technology proved to be transparent and risk-averse because it was tamper-proof and time-stamped.

The study noted that GOK has not embraced blockchain for the fear of unknown and lack of proper understanding of cryptocurrency. Even at KRCS, it was done as a pilot project but the organization has not moved into full use of blockchain. It was also established that blockchain is a young technology that has not been implemented by many organizations, so people are skeptical about it hence an innovative strategy for KRCS competitive advantage with other organizations.

The findings implied that the adoption of innovative and creative course of action and new programs is also part of strategic management. Innovative and creative strategies can also help organizations analyze their external and internal environment, allocate resources effectively, and achieve their set goals within timeline and budget.

The study found out that the blockchain is a young technology that has not been implemented by many humanitarian organizations, so people are skeptical about it. The biggest issue experienced is the fact that it is internet-based, which makes it difficult to use in areas that lack coverage of the internet. Development was hindered by a lack of fully funding blockchain technology at KRCS that’s why it’s on the pilot stage in the organization. This is because it gets very expensive to develop these systems and needs a lot of technical expertise to be able to fully deploy.

Various departments at KRCS have automated blockchain technology and have had a positive impact which influences the general operational performance. The automation and incorporation of blockchain technology enhance reports in the society from a single information focal point, therefore manipulation of donor reports as an unethical behavior is recessed and eliminated. Staff at KRCS through various activities helps them gain more knowledge. This implies that third-party is not required in this arrangement as all processes are automatically controlled. Only after all parties have accomplished their duties.

The innovation of blockchain technology enabled the society to improve efficiency and high quality of service delivery. Blockchain technology was also used to enhance efficiency in human resources and financial management. It was found that the participants do what they are required to do based on their profession, knowledge to innovate, and capacity building on new technologies. Resource allocation (funds) to support the implementation of new technologies, documenting lessons learned and reviews for improvement in using new technologies, provide feedback, and propose adjustments in the technology applications to customize and interface with already existing systems. This shows that blockchain is of much importance and more so in the growing nature of innovation that brings a competitive edge between organizations with highly secured and effective systems.

It was also established that KRCS analyzed Cash Transfer Programming to ensure that the program was ready to scale up. In the process, it was evident that there was a need to use new disruptive technologies to help with the scalability and from that, Blockchain technology was most viable. Blockchain technology helped reduce the amount of time that was used to implement CTP and at the same time, there was an audit trail that was time-stamped and encrypted.

This was very beneficial because KRCS is trying to be financially feasible without compromising on aid delivery. The findings show blockchain technology ensures transparency of reports between departments in state agencies thus it gives institutions a competitive advantage in terms of quality service.

### **5.3 Conclusion**

The study concludes that blockchain technology was engaged by the management of the Kenya Redcross Society. The Society is well documented on how to go about implementing innovative strategy whereby various departments came together and a task team was formed and the idea went through senior management; there is a need for the management to engage the employees on new ideas and plan to appreciate its full achievement. The study established that KRCS had done several pilot projects that are based on blockchain technology and found good results and the strategic development team articulated and led the process in the society's policies and guidance but lack of funding for it to fully operate creates the gap.

The team developed strategic maps and objectives for every strategic team, as well as identified process improvement and other core card ideas such as performance measures and initiatives; but lack of funding affected the costly process to be fully implemented in the Society. The researcher further noted that blockchain technology creates an environment of trust between the donor, organization, and recipient. Not many humanitarian organizations in Kenya are using blockchain technology hence making it competitive in the field. This creates a gap whereby after doing pilot testing on the blockchain that proved to be transparent and risk-averse was not implemented this shows that the organization that depends fully from donors didn't account on the strategies that will be used in the implementation period of the organization.

The study noted that GOK and some humanitarian organizations have not embraced blockchain for the fear of unknown and lack of proper understanding of cryptocurrency. Even at KRCS, it was done as a pilot but the organization has not moved into full use of blockchain this creates a gap. There is a need for the Society through pilot testing the blockchain and found it effective to be fully implemented by all parties involved.

KRCS has automated various departments and the processes have made a positive impact on the performance of its operations. The automation and incorporation of blockchain technology enhance the operations of the organization to a single information focal point. The blockchain technology is an internet-based making a gap with KRCS branches that are in areas that lack internet coverage considering Kenya as third world country and it gets very expensive to develop these systems and therefore the need for technical expertise to be able to fully deploy. The innovation of blockchain technology had also enabled the Society to improve the speed of service delivery and has led to the provision of high-quality service. Blockchain technology was also used to enhance efficiency in human resources and financial management.

Though there is a gap in limitation for development that was ascertained it's hindered by lack of fully funding on blockchain technology at KRCS and time that impacts development due to government interference in data capturing hence the development pace reduces. KRCS analyzed Cash Transfer Programming to ensure that the program was ready to scale up. In the process, it was evident that there was a need to use new disruptive technologies to help with the scalability and from that, Blockchain technology was most viable. There was a slow achievement in the departmental objectives due to the sourcing process, which was slow.

#### **5.4 Implications of the Study**

The results of the study in regards to the objective imply that KRCS is well engaged by the management of blockchain technology innovation. A considerable proportion of managers do not communicate policies and decisions with their staff or partners. Some senior managers have a lot of power and influence and therefore can easily overturn some decisions made if they are not supportive of them.

It will be important for these managers to communicate with staff or partners about the policies and decisions they make in the innovation strategy hence this will ensure the successful realization of objectives in the organizations' innovation strategy. They will have buy-in from the employees and this will improve synergy and output.

Application and use of blockchain technology assist KRCS in its mandate of alleviating human suffering. This implies that this technology allows the organization to provide digitized, decentralized financial transactions competitively. By less funding, humanitarian organizations are sourcing funds in other ways than to rely on the traditional means of donor funding to remain competitive. This will assist to reduce corruption cases in the KRCS financial transactions that may occur, keeping track of digital currency transactions without central recordkeeping, and remain competitive among other humanitarian organizations.

KRCS being a humanitarian organization should be able to develop strategic objectives and strategic maps for each strategic theme for easy implementation. After doing pilot testing on the blockchain that proved to be transparent and risk-averse but it was not implemented. This implied that the organization depends fully on donors and did not account for the strategies that will be used in the implementation period of the organization.

Funding of the innovation technology should have been strategized first before taken to the pilot stage this will help effective implementation of the project after being approved by departments involved. This will, therefore, help the Society maximize the blockchain technology without any challenges in funding and will hence improve their output. KRCS should have technical expert advice to fully automate the blockchain technology to all the branches in Kenya specifically areas that lack internet coverage and this process will enable the Society to improve the speed of service delivery and will lead to the provision of high-quality service.

### **5.5 Recommendations**

The results of the study in regards to the objective reveal that KRCS was engaged by the management of blockchain technology and innovation. A considerable proportion of managers do not communicate policies and decisions with their staff or partners. Some senior managers have a lot of power and influence and therefore can easily overturn some decisions made if they are not supportive of them. It will be important for these managers to communicate with staff or partners about the policies and decisions they make in their innovation strategy, this will ensure a successful realization of objectives in the organizations' innovation strategy. They will have buy-in from the employees and this will improve synergy and output.

KRCS being a humanitarian organization should be able to develop strategic objectives and strategic maps for each strategic theme for easy implementation. After doing, pilot testing on the blockchain that proved to be transparent and risk-averse it was not implemented and this shows that the organization depends fully from donors didn't account on the strategies that will be used in the implementation period of the organization. Funding of the innovative technology should have been strategized first before taken to the pilot stage this will help effective implementation of the project after being approved by departments involved.

This will, therefore, help the Society maximize the blockchain technology without any challenges in funding and will hence improve their output. KRCS should have technical expert advice to fully automate the blockchain technology to all the branches in Kenya specifically areas that lack internet coverage and this process will enable the Society to improve the speed of service delivery and will lead to the provision of high-quality service.

### **5.6 Limitations of the Study**

The limitation of the study emanated from the fact that currently there is a global pandemic of Covid-19 and most organizations are working from home or either going to work in shifts. Data collection on the primary mode through an interview guide was difficult and the need to keep postponing interview dates was observed. Calling the participants to ask them for an interview was not that easy most of them suggested sending the interview guide through emails or either WhatsApp based application hence making one-on-one interview difficult.

The other push back was that the researcher had preferred to do a call interview but was not to the researchers' achievement as most of the participants stated busy schedules as they are handling junior staffs' tasks that had been urged to stay home till further notice. Due to this pandemic issue, it made some of the participants not give adequate information required by the researcher than if done a face-to-face interview.

The study searched for contradictions on the information given by KRCS management and minimal discrepancies were discovered. It is known that an organization exists for stakeholders and partners but the way to achieve this may not necessarily be the same for all. Some of KRCS senior staff didn't seem to have innovation strategy focus ideas on their minds.

Either they had not been trained or inducted to strategy management classes or they had different field careers other than strategy management or they lack the experience needed. Knowledge of innovation strategy seems to be only well known by the innovation team other than collective thinking of the middle-level management, hence the strategy management practice was not well synchronized.

### **5.7 Suggestions for Further Research**

The study recommends further research in-depth analysis of planning, design, and implementation as innovation strategies to their competitive advantage. The management should study more theories and literature on innovation strategies to enhance the strategic management used at KRCS. This will enable the identification of key performance indicators that can help in improving innovation strategies at KRCS.



The lower cadre staff and some of the middle level are not involved in the innovation strategy of KRCS whereby they should be involved to support the innovations in the future if it prospers. The democratization of the management should be done so that it can allow more workers in the best ways possible in innovations strategy to enable competitive advantage. This will bring new ideas and more information that might help in closing a loophole that might be forgotten.

The study also suggests further research be done on the effectiveness of blockchain technology on strategic management this means that more study is required on blockchain technology since this study researched on blockchain technology as an innovation strategy for competitive strategy. This will provide information on the importance of blockchain on strategic management performance; hence, the pros and cons of the technology will be brought out systematically.

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## **APPENDICES**

### **APPENDIX I: INTERVIEW GUIDE**

1. What is your department?
  
2. How does your organization go about implementing blockchain technology as an innovative strategy?
  
3. Who is responsible for innovative strategies in your organization?
  
4. How does blockchain technology give KRCS a competitive advantage over other organizations?
  
5. Would you be able to take us through the way towards picking the blockchain as your center innovation?
  - i. Why blockchain?
  - ii. Was there a system included?
  - iii. Who is associated with the procedure?
  - iv. What qualities of a blockchain makes it important?  
  
Decentralized? /Immutable? /Transparent?
  
6. How is blockchain a basic piece of your answer?
  
7. Is blockchain a piece of your association show? How?
  
8. What incentives does it convey to your clients?
  
9. Have you considered an answer not founded on the blockchain?

Why not?

10. What reasons are vital for you in picking a blockchain-based technology?

What value(s) does it convey your organization?

11. What do you consider as your limitations for development?

Time? /Funding? /Development? /Execution time?

12. What do you consider your focused advantage(s)?

Innovation? /Know-how? /Market information?

13. What is required to do what you do?

14. What is "effectively" done and what is difficult to duplicate/emulate?

## APPENDIX II: DATA COLLECTION LETTER OF REFERENCE



**All correspondence to be addressed to: -  
The Secretary General**  
South "C" (Bellevue)  
Red Cross Road, Off Popo Road  
P.O. Box 40712, 00100-GPO, Nairobi, Kenya.  
Tel: (+254-20) 6003593/6002465/3950000  
Mobile: (+254) 703 037000/722 206958/733 333040  
email: info@redcross.or.ke  
Website: www.redcross.or.ke

29<sup>th</sup> April, 2020

Department of Business Administration  
University of Nairobi  
School of Business  
Lower Kabete  
**NAIROBI**

Dear Sir/Madam,

**RE: DATA COLLECTION BY ABDULNASSIR MOHAMUD ALI**

This is to confirm that Abdunnassir Mohamud Ali collected data at Kenya Redcross Society as required for his research at the University of Nairobi.

The data was collected from various departments being; ICT department, ICHA and Disaster Management Operations, to enable him complete his research project.

Any assistance accorded to him will be highly appreciated.

In case of any clarification, do not hesitate to contact the undersigned.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Asha Mohammed', written over a horizontal line.

**Dr. Asha Mohammed,  
Secretary General.**

**Patron:** H.E. Hon. Uhuru Kenyatta CGH, President of the Republic of Kenya

**Governor:** Mr. Francis Manthia Masika