# Decentralization Of Information Using Blockchain Technology On Mobile Apps E-Journal

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## *Abstract*

*Decentralization is the division of centralized power processes as a whole into separate ones. Blockchain technology is a basic technology that enables decentralization and gives all users the opportunity to become part of the validator or node for future transactions. The purpose of this research is to develop and develop a tamper-resistant E-Journal Mobile Application system using Blockchain Technology, which supports reliable and auditable computing using a decentralized network, not only that, this research can also develop and develop an E-Journal Application System. Cellular that is resistant to interference from hackers or system crashes. By using Blockchain technology, it can solve problems that are reliable and can be done and controlled using a decentralized network. with great hope that choosing this type of decentralized blockchain technology will be useful in preventing errors and errors in the system. This is one of the main strengths of Blockchain Technology. With this decentralized transaction log, it will not be easy and it is impossible for a database consisting of hundreds to thousands of computers to be hacked or tampered with easily. This research is a model that can be implemented as a Blockchain technology development on Mobile Apps E-journals. In this study will be made using 3 methods, namely the data analysis method, the analysis method using SWOT and the development method using a waterfall with a combination of the three methods will make this research more effective and efficient.*

**Keywords:** Decentralization, Blockchain Technology, Altitude of Security

## 1. Introduction

The e-journal mobile application is part of scientific research work in digital form, the purpose of this e-journal mobile application is to become an alternative to facilitate e-journal access by using a mobile application anywhere and anytime[1], because by using Mobile applications in the era of the 4.0 revolution are more familiar with smartphones, which are certainly more effective in accessing and easy to use in any condition compared to using a PC / laptop that has to be in a certain place[2].

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One of the objectives of this research is to develop and study the E-Journal Mobile Application system using Blockchain technology that is resistant to several disruptions that result in damage to the system. That supports reliable and controllable problem solving. using a decentralized network[3]. A strategy is needed that makes it possible to extract and analyze permissions present in Android applications through a decentralized and distributed system. This framework is based on a new Blockchain technology that has the potential to be approved in terms of transparency, limitations, security and data without using untrusted units[4].

Background, the past application of Decentralized Blockchain Technology or the influence of centralized power has become well known. The underlying technology is Blockchain which supports decentralization and provides an opportunity for all users to become part of a validator or node to process transactions[5][6].

## 2. Research Method

This research was conducted with the Likert scale data collection method, the benefits of blockchain technology are real and are still being tested and even understood by many people who don't know about it, especially in our country, the mighty red and white (Indonesia), this information system needs to be studied further in subsector where technology does not yet have an important role in the implementation or process of its development. the results of the benefits of blockchain technology may still be developed in some information systems[7][8].
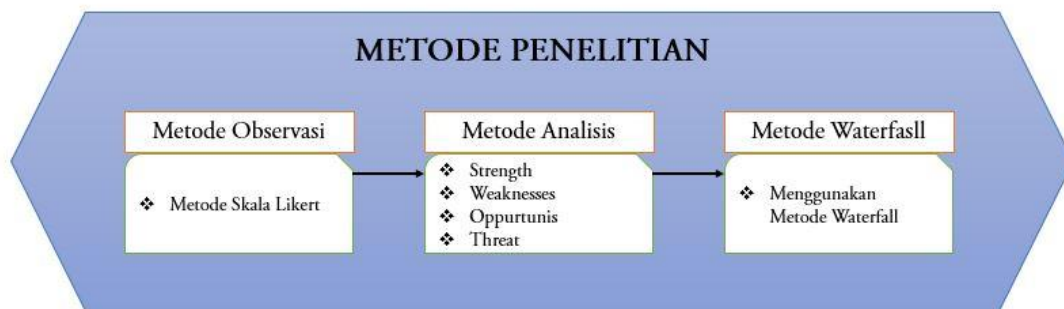


Figure 1. Research Method

This research will be made using data collection methods, analysis methods and systems development methods. In this data collection method will use the Likert scale method, which functions to infer the questionnaire from the data which can be in the form of a measurement of a person's perception, attitude or opinion about an event. The Likert scale technique can be used how the general public responds to this research whether it will have a positive or negative impact on them.

Here the researcher will conduct a survey first among the students and the dosens of any information that can be managed professionally as possible by using a formula rather than the Likert scale technique.

| No | Question | SS | S | N | TS | STS |
|----|----------|----|----|----|----|-----|
| 1 | Do you agree if this decentralized blockchain technology research is applied in the Mobile Apps E-journal? | ☑ | ☑ | ☑ | ☑ | ☑ |
| 2 | What do you think if this research is published will have a positive impact on researchers, especially for a group of other people? | ☑ | ☑ | ☑ | ☑ | ☑ |

| 3 | Blockchain technology is not only about virtual currencies, but there are many benefits, one of which is this research? | ☑ | ☑ | ☑ | ☑ | ☑ |
|---|---|---|---|---|---|---|
| 4 | With the decentralization of blockchain technology a system will be very safe and transparent, do you agree? | ☑ | ☑ | ☑ | ☑ | ☑ |
| 5 | The application of the mobile apps applied in this study is very easy to access anywhere | ☑ | ☑ | ☑ | ☑ | ☑ |

Figure 2. Questionnaire table

This table is a questionnaire that is used to provide questions to the wider community, whose contents are in the form of the feasibility of this research, where we can know and can provide conclusions, whether this research wants and provides benefits or vice versa.

**A. Positive Value (+)**

Value 1. Strongly (Disagree)
Value 2. No (Agree)
3.Neutral Value (Fair / Average)
Value 4. Agree (Good)
Value 5. Very (Agree / Good)

**B. Negative Value (-)**

Value 1. Very (Agree / Good)
Value 2. Agree (Good)
3.Neutral Value (Fair / Average)
Value 4. No (Agree)
Value 5. Strongly (Disagree)

**Sample case**

Here the researcher will give a case example, the researcher conducts a survey to students and lecturers regarding the decentralized research of blockchain technology on mobile apps using a Likert scale. The aspect being measured is how useful the research is and can it be accepted by the wider community. Of the 50 students and lecturers he surveyed, the following is a summary of the student and lecturer assessments.

Students and lecturers who answered really like (5) totaled 15 people, students and lecturers who answered like (4) totaled 20 people, the number of students and lecturers who answered neutral (3) was 8 people, students and lecturers who answered did not like (2) ) totaled 5 people, students and lecturers who answered very dislike (1) totaled 2 people.

**FORMULATION: T X Pn**

T = Total number of students and lecturers who voted
Pn = Choice of Likert value number

Students and lecturers who answered very much like (5) = 15 x 5 = 75
Students and lecturers who answered like (4) = 20 x 4 = 80
Students and lecturers who answered Neutral (3) = 8 x 3 = 24
Students and lecturers who answered they did not like (2) = 5 x 2 = 10
Students and lecturers who answered strongly disliked (1) = 1 x 2 = 2
All results add up, the total score = 191

**INTERPRESTATION OF CALCULATION SCORE**

To get an interpretation value, you must first know the highest score (X) and lowest number (Y) for the assessment item with the following formula:

**Y = Highest Likert score (X) The number of students and lecturers**
**X = lowest Likert score (Y) The number of students and lecturers**

The highest number of scores for the VERY LIKE item is 5 x 50 = 250, while the VERY DON'T LIKE item is 1 x 50 = 50.So, if the total score of students and lecturers is 191, then the student and lecturer interpretation assessment of how useful is it. research and can be accepted by the wider community is the result of the value generated using the% index formula[9].

**RUMUS INDEX% = TOTAL VALUE / Y x 100**

**The settlement**

Before solving it, we must know the interval (distance) and percent interpretation in order to know the assessment by finding the percent interval score (I).

**INTERVAL FORMULATION**

I = 100 / Total Value (Likert)
Then = 100/5 = 20
(This is the interval from the lowest 0% to the highest 100%)

The following are the criteria for interpretation of values based on intervals:
Figures 0% - 19.99% = Strong (Disagree)
Figures 20% - 39.99% = Disagree
Figures 40% - 59.99% = Enough / Net
Figures 60% - 79.99% = Agree
Figures 80% - 100% = Strongly Agree

**FINAL COMPLETION**

= Total / Y x 100
= 191/250 x 100
= 76.4%, Category AGREE

The system analysis method used is a SWOT analysis[10]. SWOT is a state analysis method that explains the condition of objects in 4 (four) categories of Strength, Weakness, Opportunity and Threat to the Blockchain Technology information system on this e-journal mobile app so that it can analyze anything that includes into the SWOT[7][11]. And the last is the system development method, to analyze the system that was running long before the existence of the Blockchain Technology information system on the new e-journal mobile apps, the information certification process is not yet clear how the procedure is running[12]. The information obtained is then applied in Waterfall, this method allows for departmentalization and control. the process of developing a one by one phase model, so as to minimize errors that might occur in the Blockchain Technology information system on the e-journal mobile apps[13][14][15].
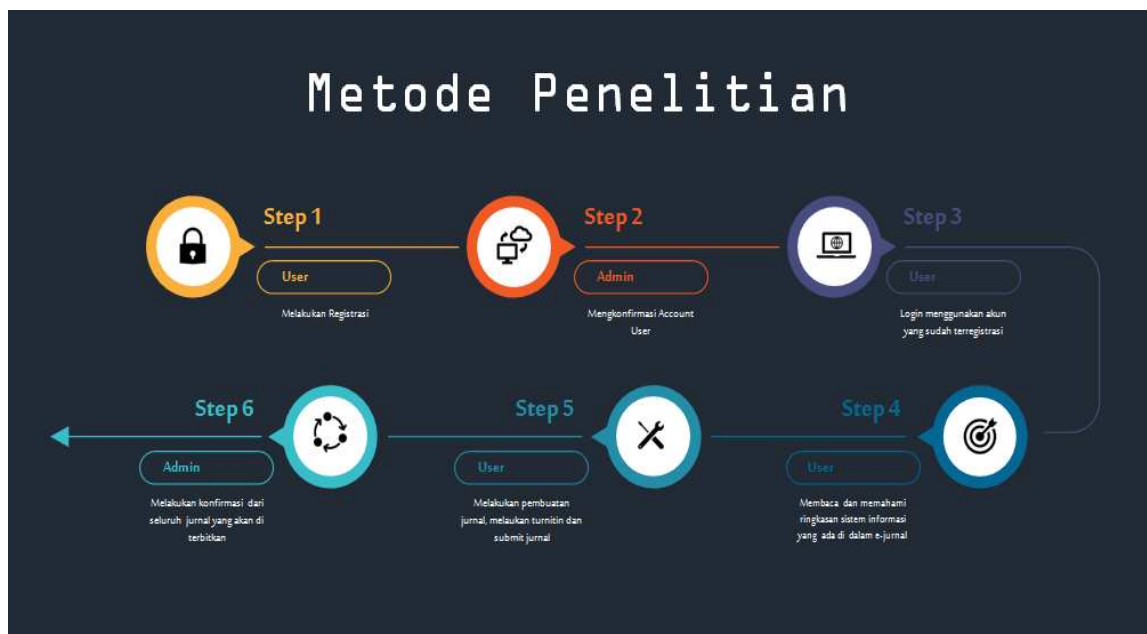
Figure 2. A Walking Waterfall System Diagram

## 3. RESULTS AND DISCUSSION

Basic research that has lasted for three (3) years has progressed and the technology readiness level has increased from level 1 to level 3. In detail, the stages of each TKT will be explained further. Then the plans from 2020 to 2022 are outlined, in the form of long-term research, namely continuing to the study and development stage.
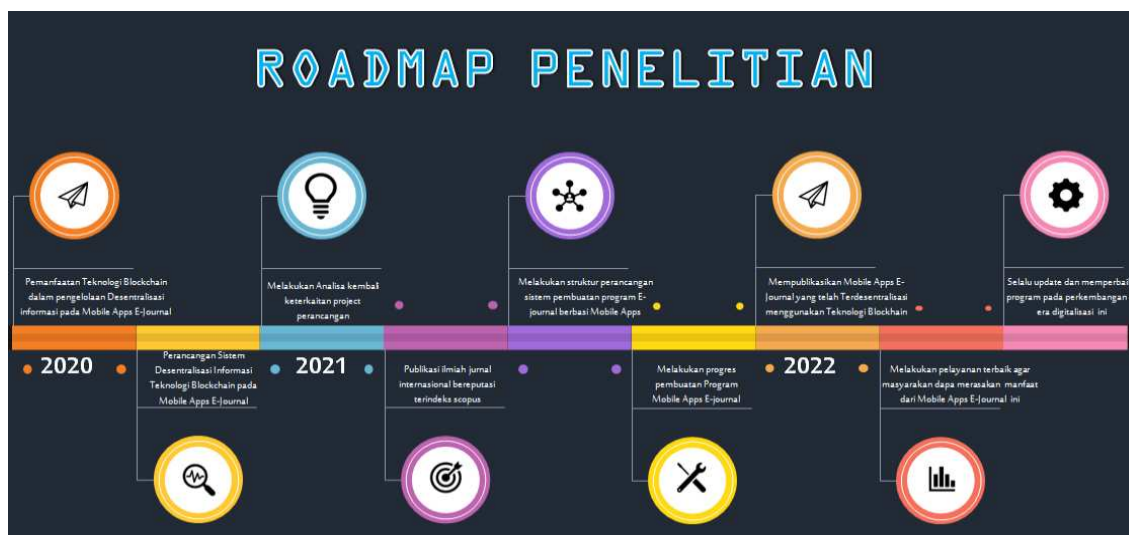


Figure 4. The research road map from the discussion results

### Research Year 1

In the 1st year of research, the design and development of an information system based on blockchain technology will be carried out on the e-journal mobile application, a mobile e-

journal application registration service provider to improve public services and make it easier for the public to get fast information using the mobile platform. e-journal apps[16].

**Research Year 2**

In the second year of research, there will be publication of international journals indexed by Scopus blockchain application and implementation, in addition to the design framework for implementing the blockchain application system.

The results of this second year research are expected to produce a reputable international paper with Scopus index and at the end of this second year research it is hoped that it can be registered as a proposed model to become a Decentralized Information System using Blockchain Technology on the Mobile Apps E-Journal.

**4. CONCLUSIONS**

The decentralization of information blockchain technology in the mobile e-journal application is part of scientific research in digital form, the purpose of this mobile e-journal application is as an alternative to make it easier to access e-journals using mobile applications anywhere and anytime, because the mobile application in The era of revolution 4.0 is more familiar with smartphones, of course, it is more effective in accessing and easier to use in any condition compared to using a PC / laptop that has to be in certain places. In this research will be made using 3 methods, namely the Likert scale data collection method, the analysis method using SWOT and the development method using Waterfall with a combination of these three methods will make this research more effective and efficient [13][17].

By using Blockchain technology, we no longer need a third intermediary that makes application developers spend more money to promote their applications through advertising, blockchain offers a fee per installation (CPI)[18][19]. This method eliminates the role of third parties and the benefits felt by developers and application users, in the absence of a third role in Blockchain technology, it is almost impossible for databases of hundreds or computers to be hacked or damaged easily, this is the virtue of using Decentralized Blockchain Technology in Applications Mobile E-Journal[20].

**THANK-YOU NOTE**

In the words of Bismillah, with great enthusiasm to work on a journal entitled DECENTRALIZATION OF INFORMATION USING BLOCKCHAIN TECHNOLOGY ON MOBILE E-JOURNAL APPLICATION, I hope the contribution of this journal can add to me personally and the wider community, in the world. digitization. thank you

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