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# Block Chain

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***Abstract*** – Blockchain serves as an immutable ledger which allows transaction take place in a decentralized manner.blockchain based applications are springing up, covering numerous fields including tichallenges of blockchain technology such as scalability and security problems waiting to be overcome.There has been a buzz about block chains in the recent years after the breakthought of the bitcoin blockchain in 2008. Subsequently various blockchains have been emerging.However to say that blockchains are ready to over the world would be nothing less than an exaggeration. There are a lot of fumdamental issues yet unresolved including scalability privacy forks ,regulators ,network bootstrapping and evolution.blockchains are immutable append only ,public ledgers.

***Keywords—*** *decentralized, springing up, scability and security and network bootstrapping.*

## I. INTRODUCTION

Blockchain is a distributed database solution that maintains a continuously growing list of data records that are confirmed by the nodes participating in it. The data is recorded in a public ledger, including information of every transaction ever completed. Blockchain is a decentralized solution which does not require any third party organization in the middle. The information about every transaction ever completed in Blockchain is shared and available to all nodes. This attribute makes the system more transparent than centralized transactions involving a third party. In addition, the nodes in Blockchain are all anonymous, which makes it more secure for other nodes to confirm the transactions. Bitcoin was the first application that introduced Blockchain technology. Bitcoin created a decentralized environment for cryptocurrency, where the participants can buy and exchange goods with digital money.

## II. BACKGROUND

Blockchain, mostly known as the technology running the Bitcoin cryptocurrency, is a public ledger system maintaining the integrity of transaction data . Blockchain technology was first used when the Bitcoin cryptocurrency was introduced. To this day, Bitcoin is still the most commonly used application using Blockchain technology . Bitcoin is a decentralized digital currency payment system that consists of a public transaction ledger called Blockchain .

## III. RESEARCH METHODOLOGY

Systematic mapping study was selected as the research methodology for this study. The goal of a systematic mapping study is to provide an overview of a research area, to establish if research evidence exists, and quantify the amount of evidence. In this study we follow the systematic mapping process described by Petersen et al.. We also use guidelines for a systematic literature review described by Kitchenham and Charters to search for relevant papers.

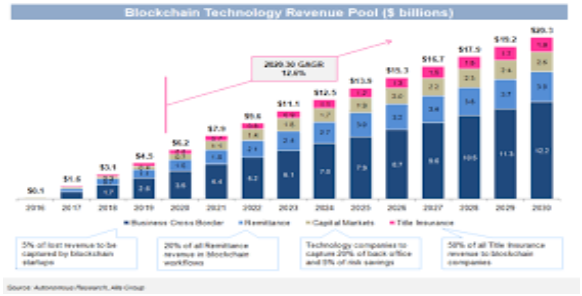


Figure.1 Research Technology Revenue Pool

We chose the systematic mapping process as our research methodology because our goal was to explore the existing studies related to Blockchain technology. The results of the mapping study would help us to identify and map research areas related to Blockchain technology and possible research gaps

## IV. KEYWORDINGS ON THE BASIS OF THE ABSTRACT

The next stage in a mapping study process after finding the relevant papers through abstracts is keywording. Keywording was done in two steps. In the first step we read the abstract and identified keywords and concepts that reflected the contribution of the paper. The second step was to develop a higher level of understanding based on these keywords. We used the keywords to cluster and form categories for the mapping of the studies. After the categories had been clustered, we read all the selected papers. After the reading we also updated the categories or created new ones, if the paper revealed something new. This resulted in a systematic map of clustered categories formed from all the relevant papers on the research topic

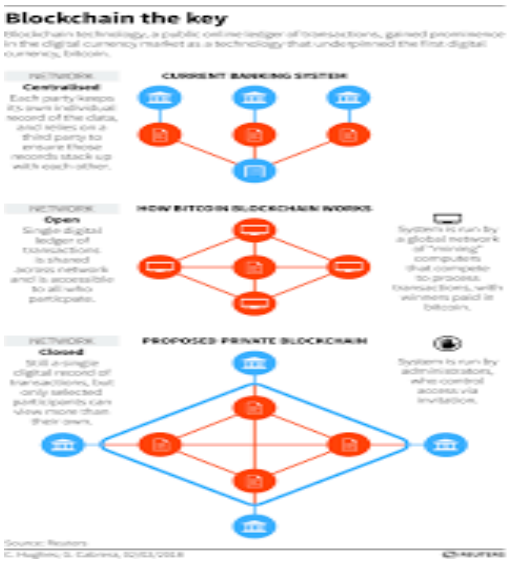


Figure.2 Data extraction and mapping proces

A data extraction form was designed to collect the information needed to address the research questions of this

mapping study. Data items DI0 to DI6 gathered basic information of the papers. These items included e.g. the title of the paper, the name(s) of the author(s), the country of the author(s), and publication type/place. The rest of the data items (DI7-DI10) were gathered after reading the papers. These data items included e.g. study goals and major findings of each paper. We collected the extracted data items to Excel, which helped us to organize and analyze the data.

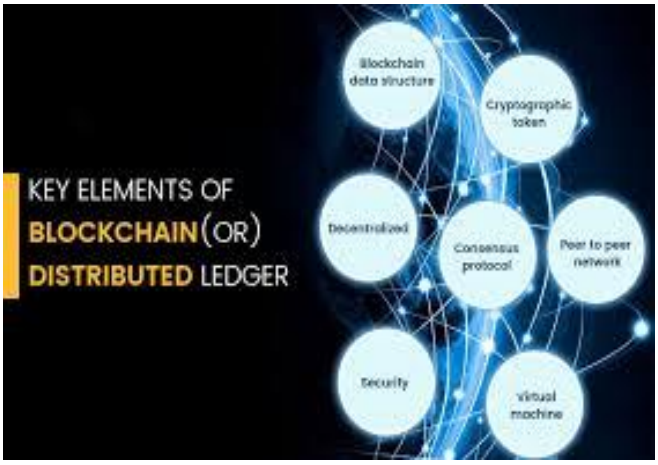


Figure.3 Distributed ledger.

## V. TRENDS & IMPACTS OF SECURITY INCIDE

With the increasing use of Bitcoin as a way to c payments and transfers, security incidents and their im the economic losses of Bitcoin users have increased. Som identified papers presented security incidents that had o in the Bitcoin network, such as economic losses by Bitcoin scams and distributed denial-of-service (DDoS) on exchanges and mining pools. Vasek et al. investigat types of Bitcoin scams (Ponzi scams, mining scams, scam and fraudulent exchanges) by tracking online andvoluntary vigilantes. The authors noted that $11 mill been contributed to scams by 13000 victims in Bitcoi September 2013 to September 2014. Lim et al. analyzed the trend of security breaches in Bitcoin and their countermeasures. According to the authors, all possible types of security breaches had occurred, including DDoS attacks, private account hacking using Trojan horses, or viruses from ads. The authors introduce some security countermeasures for individual users and safe Bitcoin transactions

## VI. USABILITY

An important factor in Blockchain usability from the user's perspective is the ability to analyze Blockchain. In Blockchain, new blocks are created constantly and confirmed by miners, which creates an interesting environment of transaction flows. It is therefore essential to have supporting tools to help users analyze the whole Blockchain network to improve the usability. We found applications that had been developed for this purpose. BitConeView is a system for the visual analysis of Bitcoin flows in Blockchain. BitIodine parses Blockchain, clusters addresses that are likely to belong to the same user or group of users, classifies such users and labels them, and finally visualizes the complex information extracted from the Bitcoin network. Both these systems were tested successfully with experiments and cases, and showed effectiveness in analyzing and detecting patterns in the Bitcoin network. These systems can help also in improving security and privacy -related issues.

## VII. CONDUCTING THE SEARCH

We created a search protocol that we used for scientific databases to gather all the papers relevant for our research topic. The terms used in the search string were chosen after pilot searches, where we tested possible keywords. After the pilot search we decided to use only the term Blockchain as the search string, even though Bitcoin could also have been a possible one. However, in the pilot search we used also Bitcoin as a search term, but we identified a huge number of papers that were related to economic topics in cryptocurrencies, rather than technological aspects of Blockchain technology.

## VIII. Privacy

In a Blockchain network, a distributed consensus network without a trusted party, all the transactions are transparent and announced to the public. Therefore, privacy in Blockchain is maintained by breaking the flow of information. The public can see all transactions, but without information linking the transaction to identities. For this security model, 10 studies out of 41 (24%) proposed privacy issues and countermeasures to increase anonymity in Blockchain.

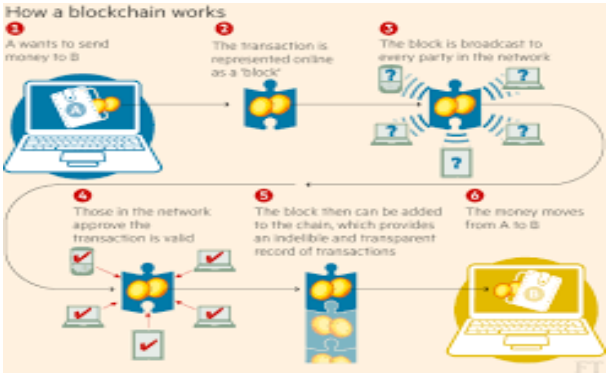


Figure.4 Blockchain Work

Meiklejohn and Orlandi present a definitional framework of anonymity focusing on the ownership of the coin. There are also studies that show experimental evidence on the lack of anonymity in the Bitcoin network. Koshy et al. analyzed a traffic pattern in Bitcoin and conclude that some subset of Bitcoin addresses can be mapped to an IP address simply by observing the transaction relay traffic. Feld et al. introduce a framework to traverse the Bitcoin network and generate statistics based on that. By using the tool, the authors figured out that an average peer-list contains addresses that mostly reside in the own autonomous systems of the peers.

Figure.5 Future Blockchain

Only the term Blockchain. There is a possibility that not all the research related to Blockchain was found due to our search protocol for paper retrieval. Much of the research related to Blockchain concerns economic, legal, or regulation aspects of Bitcoin and its possibilities as a cryptocurrency. how Bitcoin as a cryptocurrency can work in the real-world environment. Based on our pilot search, we believe that we were able to retrieve a majority of the relevant papers by using only Blockchain as the search term.

## CONCLUSION

Blockchain technology runs the Bitcoin cryptocurrency. It is a decentralized environment for transactions, where all the transactions are recorded to a public ledger, visible to everyone. The goal of Blockchain is to provide anonymity, security, privacy, and transparency to all its users. However, these attributes set up a lot of technical challenges and limitations that need to be addressed.

Continue to identify more issues and propose solutions to overcome challenges and limitations of Blockchain technology. The interest on Blockchain technology has been drastically increased since 2013. The cumulative number of papers is increased from 2 in 2013 to 41 in 2015. Majority of the studies has been focused on addressing the challenges and limitations, but there still exist many issues without proper solutions.

Conduct more studies on scalability issues of Blockchain. Most of the current research on the Blockchain technology is focused on security and privacy issues. To be ready for pervasive use of Blockchain technology, scalability issues such as performance and latency have to be addressed.

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