

Challenges and Opportunities of Using Blockchain in Supply Chain Management

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Abstract

Purpose. This paper proposes to provide possible research opportunities of utilizing blockchain in SCM. This paper will discuss some crucial challenges in terms of data retrieval, tracking of products, information sharing, etc. Moreover, opportunities will also be presented to provide more details on how to handle challenges in practice particularly in integrating blockchain to ERP systems and the opportunities that will benefit the whole supply chain. Finally, this paper targets to inspire and contribute to further studies of blockchain technology and its applications to supply chain management, identifying its potential for advance study and agenda of future researches.

Design/methodology/approach. The authors performed a thorough literature search about blockchain technology, supply chain management and enterprise resource planning systems. They used secondary data to come up with the investigation of the challenges and opportunities of using blockchain technology in Supply Chain Management. Since blockchain technology is considered as a new topic, the authors found difficulty in looking for many related literature and studies. The articles, journal papers and other references that were found on the Internet were reviewed properly regarding the relevance to this study. It enabled the authors to investigate the concepts and relate it with each other to come up with a research that tackles the challenges and opportunities in using blockchain in SCM.

Findings. This paper presents the challenges of using blockchain technology and ERP systems in supply chain management. It also presents possible opportunities that the whole supply chain will benefit from such technology. The beneficiaries of this research may include companies or organizations that have existing ERP systems or for companies that are planning to implement directly blockchain without existing ERP systems. The technology is still at an early stage but the potential benefits are enormous, once it is fully implemented in various areas of the supply chain, a lot of industries may benefit with the functionalities that the blockchain technology will provide.

Originality/value. The paper provides a new interpretation of existing sources on challenges and

opportunities of using blockchain in supply chain management. It offers new insights about blockchain and its potentials upon implementation in supply chain management by emphasizing its relevance in improving current digital systems.

Keywords: Blockchain Technology, Supply Chain Management, Enterprise Resource Planning Systems, Logistics

Category: Literature Review

1. Introduction

There is a stiff competition between companies of all sizes and one of the important aspects that directed to the intensity of this rivalry is the large and accelerating development in the information technology age, these are the increase in the use of the Internet, and the spread of the use of smart-enabled devices from smart phones to digital panels, and the rapid development of these devices. Performance, attracting new customers, and retaining old customers. Currently, right and timely decision making, and other success factors are vital to a company or organization (Totla, et al, 2016) to reach this, there must be extremely accurate and fast information and easy access to it. Applying electronic commerce and logistics into one interconnected system through a widespread database in a way leads to raising the efficiency of the organization's performance in adjusting its resources and management of its business operations (Beheshti et al, 2014).

Enterprise Resource Planning (ERP) system is a significant tool for businesses. Supply Chain Management (SCM) practices are ways of the companies or organizations so as to guarantee preferences in their own procedures. Successfully put in action and coordinated ERP System and SCM practices give advantages in arranging, execution and builds the performance of firms (Adade-Boafo, 2018). This study analyzes the elements of SCM practices and ERP systems and tests the connection between advantage and performance of SMEs. Organizational leaders executing ERP systems should build up a task wherein the business will benefit from it. The system should save time, add cash and important assets to the company. This paper will investigate on the challenges and opportunities in implementing blockchain technology and ERP systems in SCM.

Blockchain is getting well known these days on different applications in worldwide business sectors (Lansiti and Lakhani, 2017). However, it needs further comprehension on its more extensive extent of improvement regarding activity and profitability considering the expense of speculation that may happen to the business undertaking. Some worldwide organizations or ventures are as yet in uncertainty on its pertinence and value that may cause a colossal or wild disappointment. In this research study, it assembles applicable data that help the setting developing the utilization of blockchain explicitly in inventory network the executives. The difficulties and openings are to be elucidated which will help acquire more elevated level of comprehension to concoct clear thoughts and get conceivable better solutions.

The rest of the paper is divided into different sections. Section 2 is about the review of related literature. Section 3 discusses the methodology that was used in this paper. Section 4 is about the role of supply chain management. Section 5 discusses about Blockchain Technology with the following subsections: challenges of using blockchain in SCM and opportunities of using blockchain in supply chain management, and finally, section 6, the conclusion.

2. Review of Related Literature

In the research article of Hanqing Wu, et al., (H. Wu et al., 2019) on their synopsis and discussion that the four critical specialized difficulties as far as versatility, throughput, access control, information recovery and audit the promising arrangements. The thought was communicated on the huge number of partners lead to versatility issue of the blockchain network. The gigantic measure of the information created from the store network the throughput of the general framework and the reaction season of each and every exchange ought to be ensured to make the framework easy to use. The issue on access control in the blockchain framework to keep some information from being presented to the contenders. In conclusion, the productivity and dependability of information recovery to follow the set of experiences data in the store network were examined. It was concocted clear thought as a component of their commitment that the understanding of the expected chances to apply blockchain innovation in SCM and present a thorough review of existing blockchain-based SCM frameworks, the torment spots of existing SCM frameworks and four specialized difficulties in the plan of blockchain SCM framework practically speaking lastly, the execution of food following framework dependent on permissioned blockchain for the food supply situation.

In the investigation of Joon-Seok Kim and Nina Shin (Kim et al, 2019) exactly approved an estimation and primary condition model for the 306 production network specialists from various organizations. It was discovered that the blockchain innovation attributes – data straightforwardness, changelessness, and savvy contracts have huge constructive outcomes on association development and minimal impacts on organization productivity. It implies that organization development had beneficial outcome on firm execution, though association effectiveness showed negative impact. To expound further, the organization development portrayed as foreseen level of a development in a social legally binding and operational organization relationship with the related store network accomplice. Concerning the organization productivity might have the expense seriousness among essential rivals as far as the association building measure. In this way, organization relationship building measure comprises of sharing significant, convenient, exact, total, and secret data with accomplice firms through monetary and non-monetary speculation dedicated to the relationship. In this manner, it was presumed that data changelessness has negative impact and considered as an extraordinary test to its store network association effectiveness.

In the investigation of Meng and Qian, (Meng et al, 2018) distinguished not many difficulties that these days blockchain application couldn't successfully dominate, and the possible alleviation to those difficulties. It displayed the DelivChain usefulness as a component of the execution to catch all the information identified with the most recent status of the inventory network and in the end change that unprocessed information into examination reports and will become beneficial business insight. In their investigation, it had the option to decide and examine the difficulties that the business is presently looking to for the coordination of blockchain into the current inventory network the board framework. It was considered initially - the similar low presentation is probably the greatest test in the blockchain mix. Furthermore—adaptability, the complete number of exchanges will incredibly develop and that, because of the changeless component of the disseminated record, every member in the organization needs to keep an autonomous duplicate of the record to check exchanges and mine new squares, which won't be evaded bring about information repetition and data set over-burdening. What's more, thirdly—protection, in this condition members in blockchain framework are distinguished by their key

sets. The blockchain couldn't consummately save clients' security in light of the fact that there is as yet a likelihood to uncover the character by noticing at least one fixed exchange designs from the record. The specialists expressed that, the worldwide store network is loaded up with business rivalry so the security issue is more common and genuine. The secret information of a specific business association assembled by its adversary might actually prompt misfortune in center seriousness. As far as promising circumstances - information security, trust and straightforwardness and business insight are far more prominent on its expected advantages of DelivChain can achieve. The researchers had the option to summarize that the likely chances and advantages of DelivChain could bring to these days foundations store network from alternate points of view, and furthermore would be recognized as the main difficulties the business countenances to during the appropriation of blockchain innovation into their current frameworks. In the master's thesis presented by Sarah Perpete (Perpete, 2020) in her research, she investigated the difficulties and chances of an information stockpiling innovation, in its blockchain, to improve the sharing of data between the various administrators of an inventory network with an emphasis on natural food inventory network. She discovered that among the chances of made model, straightforwardness of the information permitting a superior discernibility, that could have an improvement of the cooperation between the entertainers just as the security of the sent data. Those recognized conditions which are vital for the usage of the venture can be felt testing in its turn of events. That those conditions need for a decent premise of cooperation and trust between the actors would have appropriate consent to share the said data.

The base degree of digitization is considered as such right now, innovation isn't yet adequately famous by the operators of the food inventory network. There ought to be more arrangement of conversations with partners to display the increase parts of the required innovation. As indicated by the expert share experiences of Sam Mire (Mire, 2019) it is the place where the inventory network chiefs will embrace spearheading mindset if there is aim to utilize blockchain innovation to free enterprises of item misfortune and confusion.

Various of thoughts and assumptions on how the experts on inventory network or business heads would have consider the different difficulties looked by blockchain in production network the board. Bhagat Nainani, group VP of IoT and blockchain application advancement--Oracle referenced that the greatest test with blockchain is on-boarding providers and persuading them the advantages of straightforward tasks. Kelly Marchese, head of store network and organization tasks at Deloitte consulting communicated that blockchain selection has been inconsistent, best case scenario, that there is a lot discovering that requirements to occur. It is additionally communicated that, in view of the profoundly modified nature of blockchain innovation, understanding its specialized construction, information diagrams, and security conventions is a test across all ventures. As such with beginning phases of getting the hang of causing private blockchains to arise as leaders in big business use cases. Ken Evans, CEO of Konexial brought up the main test for conveying blockchain in the production network is absence of big business or ERP devices and backing inside existing frameworks. It was recognized that most organizations are still work unbending construction ERP frameworks that don't uphold blockchain innovation. Steve Treagust, worldwide industry chief at IFS expressed that the main test to blockchain selection is trust while Grant Blaisdell, co-founder of Coinfirm for any organization embracing blockchain is the advanced presence the main test. For Scott Carlson, head of blockchain in security at Kudelski security the test is the normal profit from venture. All the more in this way, the enormous test for both blockchain just as existing advances is the

equivalent for the amount of their secret information do various individuals from the inventory network truly need to impart to one another (Mire, 2019).

Dennis Turpitka (Turpitka, 2020) referred to conditions while getting ready for building a blockchain controlled store network the board arrangement, the main difficulties that would be mulled over are as per the following: (a) deciding the degree to which you will utilize blockchain innovation; (b) guaranteeing information quality; (c) allowing information admittance to the opportune individuals; (d) picking the correct improvement approach through – utilize a current worldwide structure, utilize a public blockchain with keen agreements, and fabricate a custom organization; and (e) guaranteeing smooth joining of a blockchain-fueled arrangement. Pieter Vandavelde of Supply Chain Dive (Robinson, n.d.) said that blockchain innovation contains permanent and straightforward ascribes. Be that as it may, inventory network pioneers may have utilized the obsolete frameworks to record data. This may cause the framework sensors and information pools inconsistent, making information access troublesome. This will be additionally blockchain defenseless to the issue of a lot of information. What's more, that helpless information inputted into the chain will bring about not exact information supposition in ensuing chains. With these sorts of circumstances, production network heads should accept better open doors for proficient answers for defeat difficulties later on. What's more, for this, coming up next are recorded as: (1) lead a business audit; (2) mechanize advancements; (3) coordinate frameworks; (4) use information examination; and (5) stay instructed.

Tackling store network, the executive's challenges with blockchain (Oodles Blockchain, n. d.) various settings were communicated to get adequate data and prove the coherent cycles certify gratefully and stick to adjust its variation. The thoughts of difficulties and openings in inventory network the executives are fairly communicated underneath: 1.) Data combination and perceivability--- *Difficulties*: Manual, paper-based record-keeping and announcing frameworks regularly lead to dispersed, deficient, and unauthentic shows, installments of replenishing, confirmations, and so on; *Openings*: With blockchain record-keeping arrangements, all give chain partners can store and share these realities safely and at the same time; 2.) Recognizability, straightforwardness, and trust---*Difficulties*: It is typically hard to follow the inventory of unacceptable segments and clue the provenance of as of not long-ago transported items. *Openings*: Blockchain SCM can have an item's entire geographic stream. It permits clients to tune items' source and ill-advised parts, take a gander at big business affirmations, find stockpiling condition irregularities, and so on; and 3.) Ongoing issue goal---*Difficulties*: Natural catastrophes and spontaneous interest and award consistently lead to wrong or postponed conveyance, which impacts the whole creation. *Openings*: The deferrals including climate or work questions are almost unavoidable. Nonetheless, blockchain-based award chain organization can allow choices to resolve these issues progressively. According to the occurred for issue, it can in a flash set off moves like provider replacements or expense changes.

3. Methodology

The authors performed a systematic literature search in SpringerOpen, about challenges and opportunities of blockchain technology, supply chain management and enterprise resource planning systems. Secondary data was obtained to come up with the investigation of the challenges and opportunities of using blockchain technology in Supply Chain Management. Since blockchain technology is considered as a new topic, the authors found difficulty in looking for many related literature and studies. Additional literature and studies were searched using

Google Scholar. The articles that were found on the Internet with the words “challenges and opportunities of blockchain technology”, “supply chain management” and “enterprise resource planning” in the title or abstract were reviewed properly regarding the relevance to this study. It enabled the authors to investigate the concepts and relate it with each other to come up with a research that tackles the challenges and opportunities in using blockchain in SCM.

4. The Role of Supply Chain Management

In the course of recent years, innovation took place and globalization have changed the arena of organizations and new financial and political conditions have risen. Globalization has expanded the need to coordinate providers and clients. Survival relates straightforwardly to the execution of a productive and impacts data innovation framework. Data innovation is one of the empowering agents. Leaders of organizations are trying to come on top of data innovation using blockchains and ERP systems. To meet the challenges of the worldwide changes, organizational leaders need to support and improve their internal and external capacities. These can be done by consistently interfacing their trade data with their respective ERP systems integrated with blockchain technology.

Hwang and Min (Hwang et al., 2013) noticed an immediate connection between ERP frameworks and SCM. Senior executives that actualize SCM can be comfortable in realizing that their ERP usage will prompt operational execution. The importance of ERP on operational execution is perceptible at various degrees of an association by the commitments of the SCM business forms SCM and ERP systems thusly business pioneers use to improve the general execution of the association or organization.

The logistics business (Georgiou, 2019) is enormous and complex as well. It is not a simple job to deal with the distribution and flow of products at various levels. The Supply Chain can go through a few phases and locations depending upon the transfer. A lot of paperwork is what makes it more complicated. It is on paperwork that the logistic business relies on. If that paperwork disappears or lost, it could delay the delivery of the item. For decades, the logistic business is being burdened by lack of transparency, complexity and disputes.

The logistics business relies greatly on paperwork, if a single piece of paper disappears, it can delay the item delivery. Lack of transparency, complexity and disputes are some of the problems that are hunting the logistics business for decades. The response to these issues as speculated is the blockchain. The supply chain market (H.Wu et al., 2019) continues to grow and is expected to be on an uptrend position. Although, it is a growing market, it still suffers from a lot of challenges which are delays in data retrieval, unreliable tracking of products and deficiency of information sharing to name a few. The SCM revolution relies on efficient data management similar with other industry. Data collected from supply chains are supposedly stored, integrated and retrieved with high efficiency. Confronted with the said issues, business people are geared toward the application of blockchain technology on SCM.

5. Blockchain Technology

Ultimately, with the coming of middleware innovations and the idea of Service Oriented Architecture (SOA), presently like never before, it is simpler to incorporate these different frameworks together to think of a total enterprise framework arrangement. In this manner, it very well may be normal that later on, Blockchain technology, ERP and SCM frameworks will keep on

cooperating to assist associations with enhancing their procedures and better monitor every one of their exercises, exchanges and stock.

Blockchain (H.Wu et al., 2019) was invented for Bitcoin to serve as its public transaction ledger. It stores immutable and fully traceable records which can be utilized in supply chain with the product and sales information in it. Blockchain facilitates the authenticity of the digitized data in the supply chain. It can be used also as a global system to integrate all the steps in the supply chain along with data flow for efficient data management. Blockchain technology (Conway, 2020) is an append only list of blocks which means that anything that you have done in the blockchain cannot be changed, it can only be appended. Blockchain is somewhat a database. It is different from a common database and the way it stores data, blockchain saves data in blocks that are connected or chained with each other.

As new data arrives, it is stored in a new block. When that block is retrieved together with the information on it, it is connected to the past block which makes the information attached with each other and cannot be altered. Blockchains that are decentralized are permanent, this means that the data entered and stored is irreversible. Nowadays, blockchain is gaining a lot of attention particularly on its application in the supply chain. The researchers want to examine in detail the challenges and opportunities of using blockchain in SCM. There are also a limited amount of studies related to using blockchain in SCM.

There is no global technology that is present today in the field of SCM. It will be beneficial to all both large and small companies if there will be a common technology that will be used in SCM, it will promote a healthy and shared competition while maintaining the security and confidentiality of the transactions of a particular company. Supply chain is where all the events and information are gathered to move products or services from the seller to the buyer. Supply chain management can bring a lot of benefits to the industry which includes reduced cycle time from order to delivery, proper resource utilization and early problem detection.

Blockchain technology (EOS Costa Rica, 2019) appears to be a convincing choice to track this information. A blockchain comprises of a permanent record of information that goes about as a decentralized record shared by a group of PCs or "hubs" that safely enlists exchanges in "blocks" of information. Once the blockchain is running, a typical layer to coordinate exchanges is sent and will turn out to be important for the center of any project running an enterprise block chain. In addition, the capacities of blockchain to save permanent blocks of information can turn into a safe, straightforward, and dependable origin to enlist applicable data of any enterprise or business. The records may incorporate business information, for example, invoices, organizational structure, accounting journal entries and supply chain traceability.

Blockchain was created as an open-source and a public platform. Nevertheless, a blockchain can be private and incorporated with any organization's own digital systems. This makes a manipulation-proof and immutable platform to register an organization or a company's information. However, there are some obstacles to look upon when incorporating blockchain into an ERP system, a good example of this is a wide range of ERP systems available nowadays. Additionally, there is a likelihood that more than one of these frameworks may coexist inside an organization's computerized environment. Effectively interfacing and incorporating every one of these systems may turn out to be challenging. Table 1 presents a summary of the challenges and opportunities of using blockchain in supply chain management.

A. Challenges of Using Blockchain in Supply Chain Management

Globalisation has pushed the local players of the domestic markets to compete with international companies to cope up with the current trend. To survive, these local players who are mostly SMEs have to adopt ERP and integrate it with their current strategic management policies and build capabilities and stay with the tight competition. The global enterprise resource planning market covers a lot of regions. ERP is a promising business process management that helps SMEs use systems of integrated applications for managing and automating business functions. ERP technology is increasingly used by SMEs to simplify and reorganize data that are available in some departments into a single platform where it increases productivity and better decisions.

Table 1: Summary of the challenges and opportunities of using blockchain in supply chain management.

Challenges	Opportunities
Globalisation	Blockchain may add auditability and transparency to an association's or organization's records
Adjustment to Change	Security of information records
Data Innovation	Speed and enhancement to the association's or organization's processes
Human Factors Related Issues	Blockchain supports visibility and traceability to the system
Implementation	Blockchain could before long turn into a widespread "supply operating system"
Testing	Supply chain organisations must/can accomplish critical advantages from blockchain in center territories of supply chain operations

Using ERP frameworks arranging objectives can work as a guide for improving the association's dynamic procedures to help and make up the undertaking (May et al., 2013). ERP framework configuration can be specially designed to oblige the requirements of planned clients and sufficiently versatile to future necessities of associations. In any case, through structure to arrange plans compared to different standards, executing an ERP towards quality administration and viability to the association execution can be attainable. Executing ERP frameworks expands efficiencies, lessens working expense, improves day by day flexibly calculated tasks, what's more, expands access to information in the gracefully chain (Simon et al., 2012). Building up an unequivocal linkage between the association objectives and desires for ERP framework can be huge and may help address key enterprise or business destinations (Lee et al., 2012). Organizational pioneers actualizing ERP frameworks ought to urge and persuade representatives to take an interest in the usage procedure also, gain proficiency with the ERP framework to build the odds of an effective task. Guo et al. (Guo et al., 2014) reasoned that organizational executives should manage end clients figuring out how to exploit the advantages of the ERP framework and the improvements actualizing ERP frameworks will give the organizational culture.

Permitting involvement and reconciliation with the procedures, target clients may distinguish the value and obtain recognition with the ERP framework's functionalities. Hierarchical pioneers putting resources into ERP neglect to comprehend the effect representative's conduct adds to

executing the venture. Hierarchical pioneers from business and private enterprises may not see how to manage supportability challenge and change. Executing hierarchical change requires an adjustment in conduct; an adjustment in intuition; a change indisposition; a change in key objectives; and an adjustment in authority (Millar et al, 2012). The fundamental downside to executing new innovation, for example, ERP as per Sykes et al. (Sykes et al., 2014) is workers adjusting to the change. Organizational pioneers ought to give preparing to workers to amplify the advantages of utilizing the framework and backing up representatives learning the procedure during the post-execution stage.

Worker inclusion with the ERP usage procedure could encourage the information the board procedure and diffuse protection from the new framework. For hierarchical pioneers, making viable techniques, it might be important to change the programming or change the hierarchical frameworks to line up with ERP conventions. Incorporating ERP is a suitable procedure for moving information and data to the associations' clients and providers of the gracefully chain. Albeit an ERP framework can be alluring and sufficient, the execution stage isn't constantly fruitful for hierarchical pioneers to progress and continue in a worldwide commercial center. Numerous hierarchical pioneers neglect to comprehend key basic elements essential for executing ERP frameworks effectively. Actualizing ERP frameworks in the 21st century engages senior executives to utilize innovation plan and answer for impact their business forms (Maditinos et al., 2011).

Data innovation progresses: especially ERP programming is an incorporated programming framework bundled for use by a large number of associations all inclusive. Senior executives of both huge and little associations acknowledge the danger of actualizing the product. The goal is to expand their upper hand in the commercial center and improve their business forms (Sykes et al., 2014). Putting resources into ERP is certifiably not a basic errand and could require senior executives to create and stick to an ERP vital arrangement combined with blockchain technology to help an effective usage process. Here are some of the specific issues that were identified when implementing new systems or technology in a company or organization.

1. Interface problems. The test along interface problems (Yen et al., 2004) was raised by some business clients. One commented, "There were some framework interfaces that didn't fill in true to form much after all that testing. There were a few interfaces that simply didn't do what we expected of them."
2. Lack of proper testing (Udokwu, 2018). No legitimate testing during execution was another much of the time referenced basic test. There was not the adaptability in incorporating extra test phases or extra test contents however nothing happened as could be expected.
3. Limitations in time zone (Möser et al, 2020). One more basic test was restrictions on time zone. A particular administrator focused on that: "time was another particular test which we hadn't experienced in past nations truly, there are six distinctive time zones in Canada, so you are going live multiple times in essence, and that was new for Canada the case organization." These restrictions could be a basic test in ERP usage happening in a zone incorporating areas with different timings.
4. Implementation causes stress (Tarafdar, 2007). Another test raised is that usage can cause weight on each person. One colleague stated: "Yet I feel there was something lacking where individuals didn't, I don't have any acquaintance with, it was pressure, was certainly pressure related, individuals were worried, you realize we were to put it plainly, you know, time span

we needed to complete it." Another colleague clarified: I think there was there was an excessive amount of strain to appear that the objectives are being met, terrible issues are being addressed, individuals are being cautioned, and individuals are aware to show that alright there's an issue here we have to manage.

5. Delays due to offshoring (Zhou et al, 2020). How a particular work was dealt with seaward and related postponements is another basic test referenced with a few members. One anticipate administrator expressed: "we needed to rearrange hand-offs to seaward, was a test." One of the business clients clarified: at the outset, it was surprisingly more terrible in light of the fact that we needed to perform a section send it to another country, and they forward it again to a different country back to the original country would consume at least a few days.
6. Individuals are resistant to change. People opposing transformation is another featured basic. One senior executive clarified "starting obstruction to change, for what reason would we like to do this, for what reason would we like to permit ourselves to get diverted with, you know, with this sort of action the business is ordering, in light of the fact that you realize how individuals are, they oppose change". Some business clients, which are moreover venture partners, felt that laborers opposed change. Individuals are impervious to change. They are acceptable at their employments and it's awkward to explore a new territory (Yen et al., 2004).

B. Opportunities of Using Blockchain in Supply Chain Management

Blockchain innovation (EOS Costa Rica, 2019) has many things to contribute to ERP systems and to the company or organization that already implemented digital platforms. The following are just some of the opportunities that a block might contribute in an ERP system.

1. Blockchain may add auditability and transparency to an association's or organization's records (Setyowati et al, 2020). One of the upsides of blockchain is the capacity to make agreements or what we call smart contracts. These smart contracts are computer agreements or protocols that can check and uphold contracts automatically by utilizing codes that are digital in nature without the need of outsiders or third parties. The smart contracts put immutability and transparency to every transactions, subsequently encouraging the automation of the processes of an organization or company. Blockchain can contribute to SCM by adding trust and transparency to the whole process. In SC, individuals need to trust one another and blockchain can tackle the issues with trust between organizations.
2. Security of information records (Tanwar et al, 2020). Blockchain can create an immutable record of data and validate transactions which are shared in the network. This implies that if somebody modifies something in the registry or any agreement, it may be noticeable and detectable. This is especially relevant while overseeing ERP systems since records that are broken may bring about accounting issues or audit. Additionally, blockchain could be utilized in confirming and verifying identities. By validating staff, an organization can build safety in overseeing the one who approaches delicate data. Blockchain-based validation frameworks utilize computerized marks dependent on open key cryptography and a programmed verification of the right private key, implying that any person who access the private key is the proprietor. By integrating blockchain to ERP systems, it very well may eliminate or minimize information leakage, identify dubious endeavours of hackers or malicious software and other security threats in real time. Blockchain can address these on

the grounds that this technology allows decentralization, encryption and validation. Blockchain is practically difficult to penetrate and hack since the records are distributed and are not contained in a central area.

3. Speed and enhancement to the association's or organization's processes (Wong et al, 2020). Once blockchain is incorporated into an association's or organization's ERP systems, it empowers the streamlining of its processes, internal information control, and business processes, for example, intercompany exchanges. As an example, smart contracts could help naturally check transactions between organizations or companies that agree with what is required in the agreement. When incorporating blockchain in an association's or organization's ERP system, it should preferably be finished with insignificant interruption to the usual business processes and try not to add steps to individuals in control. We should consider adding blockchain technology to the system eliminating the need to know that blockchain is being utilized.
4. Blockchain supports visibility and traceability to the system (Akyuz et al, 2020). Blockchain enables organizations to include different sorts of data inside a similar chain that additionally allows simple access to appropriate partners to more explicit data. For instance, manufacturing includes numerous participants or partners engaged with the process of supply chain to effectively observe the delivery of a product until it is received by customers. A blockchain integration would give constant updates and tracking of the products or items.
5. Blockchain could before long turn into a widespread "supply operating system" (Matters, 2015). Such Blockchain innovation could improve the accompanying inventory network tasks:[1] Recording the amount and move of resources - like beds, trailers, compartments, and so on - as they move between store network hubs (Gonzalez, 2016); [2] Tracking buy orders, change orders, receipts, shipment warnings, or other exchange related reports; [3]Assigning or confirming affirmations or certain properties of actual items; for instance, deciding whether a food item is natural or reasonable exchange (Herzberg, 2015); [4] Linking actual merchandise to chronic numbers, standardized identifications, advanced labels like RFID, and so on; and [5]Sharing data about assembling measure, gathering, conveyance, and support of items with providers and sellers (Stefanovic, N., 2021).
6. Supply chain organisations must/can accomplish critical advantages from blockchain in center territories of supply chain operations (Francis, 2018). This could be as per the following: [a]removing desk work - by utilizing blockchain to make a sealed "master ledgers" between exchanging parties; [b]creating "shrewd agreements" - that check when new records are composed, guarantee there are no out of equilibrium conditions, and eliminate the presence of 'awful' solicitations; and [c] having a solitary arrangement of record - imitated across all accomplices to an exchange, which empowers the unprejudiced implementation of agreement terms (Stefanovic, N., 2021).

6. Conclusion

This paper presents the challenges of using blockchain technology and ERP systems in supply chain management. It also presents possible opportunities that the whole supply chain will benefit from such technology. It may include companies or organizations that have existing ERP systems or for companies that are planning to implement directly blockchain without existing ERP systems. The technology is still at an early stage but the potential benefits are enormous, once it is

fully implemented in various areas of the supply chain, a lot of industries may benefit with the functionalities that the blockchain technology will provide. The blockchain technology is rapidly expanding and a lot of companies are doing their best to take advantage of this new technology. These companies have high hopes that by using blockchain, it will enable their companies or organizations to have efficient business process that may open the doors to facilitate effective system models and innovative business processes. For future work, the authors will try to work on real-world examples where blockchain technology is being implemented. Successful use cases will be investigated to have a clearer picture of how blockchain is being utilized by companies or enterprises for the improvement of their current digital systems.

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