

A MODEL-DRIVEN APPROACH TO SMART CONTRACT IN IRAQI INFORMATION TECHNOLOGY SECTOR, BANKING AND INSURANCE COMPANIES

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Abstract

The study focused on Blockchain because can provide the ease of use of smart contract and the platform for adopt and implementation of smart contracts. Furthermore, it is an agreement under certain conditions implemented between two parties in the purchase is also a safe, easy and time-saving method. Stability, decentralized nature, and consensus mechanisms of blockchain technology make smart contract and its development cycle a new area of study in business, Furthermore, one of the advantages of smart contract decentralization, which helps to build new ways of running a business. furthermore, the study will open the way about traditional contracts in Iraq thus there disadvantages in traditional contracts, for example, the difficulty of preservation, vulnerability to damage, fraud, thefts and the difficulty of access in time. However, there is the need to develop a smart contract and secure contracts. Driven by the need for a new approach to development, this study suggests the application of smart contract technology in the Iraqi financial sector. The alignment between the importance and utilisation of smart contracts and the impact on organisational performance has been an issue of concern for many researchers. Therefore, this study explain the effect of individual factors, environmental factors and organizational factors on implementation of smart contract technology. It also examined the moderating effect of organizational culture on the relationship between these independent variables and of smart contract technology. The study indicate that staff working in information technology sector, banking and insurance companies in Iraq.

Background Of Study

With human daily activities, use of the internet becomes importance grow up with the technology in organizations, Systems for storing and transmitting data safely are increasingly important. While traditional data storage and transmission structures have been effective for a long time, increased exposure to cyber risks requires alternative technological solutions. The cybersecurity market is approaching the total value of nearly \$ 100 billion, and new technologies are being developed at a rapid pace. Having a lot of professionals in hackers and scammers loses \$ 100 million in the market business. Now, information technology is rapidly developing to protect the market. (Tapscott &

Tapscott, 2016), Blockchain an advanced tool to protect the market from cybersecurity market and is a large and fast tool to store a large amount of data and the easy of use of the data. Smart contract technology began as experiments in stamping digital documents. There are many private companies that open up with the possibility to use Blockchain to replace existing systems, as well as create new business possibilities (Kim, Hilton, Pyrex, Reese, 2018). In particular, the area of management technology is the beneficiary of the growing interest in Iraq. Moreover, in terms of related startups, the increase in the use of smart contract technology worldwide, and in Iraq, is a natural starting point for this study. However, the true value of technology is realized first and foremost when it is more widely adopted. Therefore, our aim through this study is to discover the factors that constitute the driving factors for the application of smart contract technology in Iraqi companies. The purpose of the study is to examine factors that influence the implementation of smart contract technology such as individual factors, environmental factors and regulatory factors on the implementation of moderate smart contract technology through an organizational culture (Rabah 2017).

Literature Review

Smart contracts

Blockchain is a great platform to facilitate trade in the form of cryptocurrencies. Through the immutability provided by the hashing of transactions, the linking of the blocks created by a consensus mechanism, and the propagation of the blocks, a central party is deemed unnecessary. A next step in the application of this technology is the subsidizing of more complex agreements. Code that is stored, verified, and executed on a blockchain is called a smart contract Stark, (2016). The idea of a smart contract was proposed by (Marino, & Juels, 2016). The main aim of such a contract is to automatically execute the terms of an agreement once certain conditions are met. Simply stated, it is a computer program which follows an if this happens then that structure Stark, (2016).

Smart contracts arise from traditional contracts, which means they carry legal costs and low transaction costs and can reduce the level of user income. (Delmolino, Arnett, Kosba, Miller and Shi, 2016; Marino, & Juels, 2016).

In the context of this research, smart nodes are software that works on blockchain and is implemented correctly by consensus protocol. Although smart contracts can theoretically serve as fully software applications, most applications fall into the financial category or notary Bartoletti, & Pompianu, (2017). These correspond to the old definition of contracts, where the contract is a legally binding or valid agreement between two or more parties. The main objective of this contract is to achieve a certain goal and protection from unwanted results, collectively referred to as the durability of the contract (Marino, & Juels, 2016). Other applications for a smart contract are for example games, but these contracts are likely to be developed by people with far-reaching knowledge of Solidity compared to financial contracts or authentication contracts Bartoletti and & Pompianu, (2017).

Smart Contracts, internal configuration, storage balance of the contract from the storage state and the contract is updated Between the parties as needed as shown in Figure 2.1. The contract owner can be contacted for he another partner by renew the contract send transactions the "funds" in Figure 2.1 can mean, in this case, any type of currency (encryption) through a transaction. Means dealing with contract transactions in the same way as normal transactions. In the contract code, each time the account receives a message its code is activated, allowing it to read and write to the internal storage and send other messages or create contracts in Iraq.

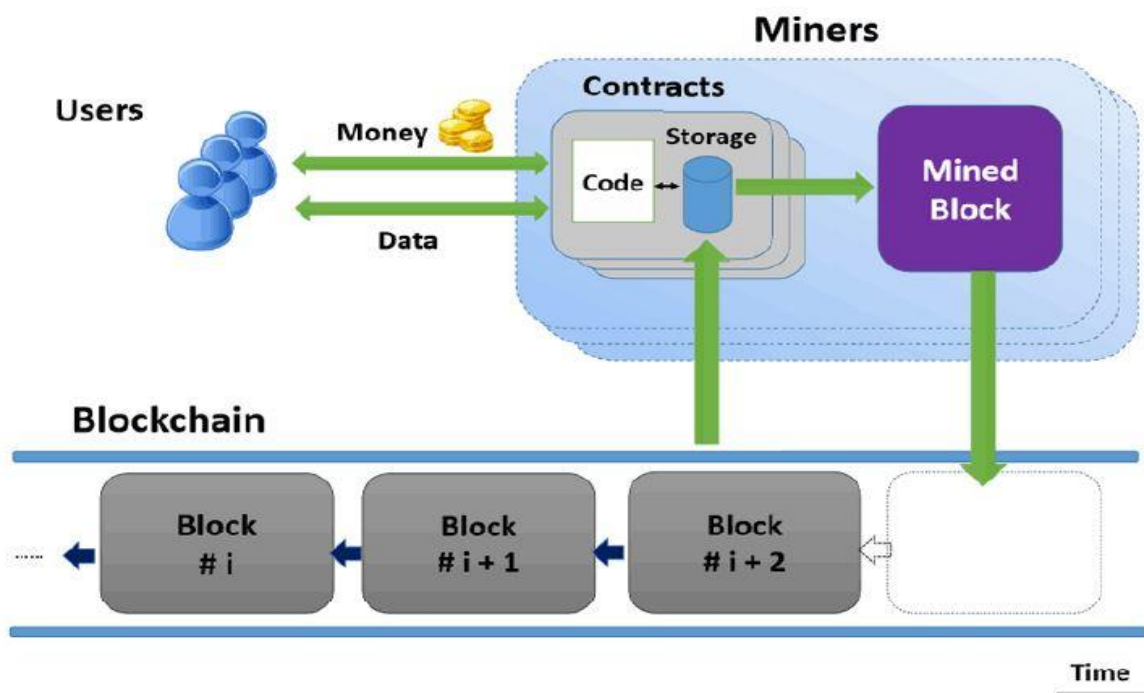


Figure 2.1 Smart Contracts On The Blockchain

The contracts should not be seen as something that will be fulfilled, it occurs and the contract is independent, one of the parties concludes the contract, keeping track of its own balance and their key/value store to keep track of persistent variables.

Study Theories

The theory is an appropriate, rational and testable description of some events that include predictions about how things relate to each other (Zikmund, Babin, Carr, & Griffin, 2012). The theory in quantitative research is a coherent set of variables formed in hypotheses that clearly define the relationship in terms of volume or direction between variables (Vukojević, 2016). The theory may appear in a research study as an argument, discussion, form or logic, and help explain or predict phenomena that occur in any given context. There are numbered of theories that discuss the firm resources which maximize advantages in Smart Contract strategy studies. The theories are for example, Task-Technology Fit Theory (TTF), Unified Theory of Acceptance and the Use of Technology (UTAUT), and resource-based view (RBV) theory.

Nevertheless, the particular factors identified in all of the contexts vary from one research to another; it is noteworthy that not a single factor is universally examined in each innovation research and the examination of included factors hinge on the type of innovation under study. The TTF model assumes the constructs of smart contract and performance; while UTAUT considers organizational factors, social factors, and individual factors. This study extends the two theories by investigating the effect of environmental factors (client's complexity of IT system, competitive pressure, and regulations of professional bodies) on the Smart contracts as well as on the Information Technology sector, Banking and Insurance companies in Iraq.

Study Hypotheses

The following sub-sections expound the development of study hypotheses based on prior literature to examine the relationships in order to achieve the objectives of the study and answer its questions.

Individual factors and the Smart Contracts

Singh, (2017) defined cognitive style as “stable attitudes, preferences or habitual strategies that determine individuals' modes of perceiving, remembering, thinking, and problem-solving”. Results from prior studies

have shown that cognitive style can affect a person's decision-making and behavior significantly (Amsler, Doser, Antonelli, Asner, Babu, Baer, & Bernardi, 2008; Pachur, & Spaar, 2015; Đurišić-Bojanović, 2016).

Thus, the following hypothesis is proposed:

H1a: individual factors has a positive effect on the smart contracts.

Environmental factors and the Smart Contracts

Administrative support is defined as the perceived level of public support provided by senior management (De Clercq, & Bouckennooghe, 2019), in their study on the acceptance of information technology in the internal Iraqi profession. (Curtis & Payne, 2008; Kim et al., 2009). It can be concluded that when Iraqi companies' management supports their companies using new technology, Iraqis will use information technology. It is therefore clear that IT management support increases the importance of information technology; the use of IT increases the level of smart contracts.

Thus, the following hypothesis is proposed:

H2b: Environmental factors has a positive effect on the smart contracts.

Organizational Factors And The Smart Contracts

Internal training is defined as “the amount of training provided by other computer users or computer specialists in the company”; while external training is defined as “the amount of training provided by friends, vendors, consultants or educational institutions, external to the company” (De Clercq, & Bouckennooghe, 2019).

Rainney (2016) states that in small and large companies, Moreover, training was have positive impact with IT (Rainnie, 2016; Bierstaker et al., 2014); and also a positive impact on technology acceptance and utilization.

Rainnie, 2016; Bierstaker et al., 2014). It is estimated, according to the TAM and confirmed by Kim et al. (2009) that IT training affects IT importance through IT utilization. As a result, Janvrin et al. (2008) stressed that Iraqi it firms should improve IT training programs to increase the Iraqi' perception of IT ease of use associated with utilizing IT-Iraqi it. So, IT training increases IT importance and IT utilization, which leads to increasing the synergy of Smart contracts.

Thus, the next hypothesis is proposed as follows:

H3c: organizational factors has a positive effect on the smart contracts.

The Moderating Effect Organizational Culture

Organizational culture was used as a driver or even an obstacle to the implementation of new change practices (Rainnie, 2016; Aparicio, et al., 2016; Aparicio, et al., 2017). It was able to strengthen or weaken the performance within organization in initiating change. In Iraqi context, organizational culture seemed to be an interesting study among researchers. Previous researchers have shown that organizational culture affects the aspects within organizations such as knowledge sharing (Islam et al., 2015), innovation (Asmawi & Mohan, 2010), attitude towards organizational change (Rashid et al., 2004), financial performance (Rainnie, 2016; Aparicio, et al., 2016; Aparicio, et al., 2017), degree of integration and value creation in strategic alliances (Sambasivan & Yen, 2010) and many more (Naqshbandi et al., 2015; Rainnie, 2016; Aparicio, et al., 2016; Aparicio, et al., 2017). Yet, there seems to be a scarcity of research that investigating the phenomena of general culture in Iraqi large companies, specifically that related to employees' commitment to change.

Asrar-ul-Haq and Kuchinke, (2016), stated that organizational culture is correlated directly to employees' attitude and behaviour. Organizational culture has a powerful mechanism in controlling and handling employees' behaviour (Naqshbandi et al., 2015). In addition, organizational culture sticks the employees and the organization's system together that stimulate the performance and commitment of its employees (Peprah, & Ganu, 2018). In this study, organizational culture gives impact on employees' behaviour on commitment to change. According to Pereira, Specht, Silva and Madlener, (2018), organizational culture is noteworthy in intensifying the commitment to change and fulfilling the successful change. Hence, employees are expectedly concern about the needs of their organizations in order to smoothen the change activities in giving more commitment to the new changes within the organization. Hence, the following hypothesis is offered:

H4e: Organizational culture significantly moderates the relationship between individual factors and Smart contract.

H4d: Organizational culture significantly moderates the relationship between environmental factors and Smart contract.

H4f: Organizational culture significantly moderates the relationship between organizational factors and Smart contract.

Conclusion

Based on this study and the previous discussion shows that smart contracts use the Internet to the irreversible agreement between the two partners and the advantages of smart contracts reduce the cost of the time and saving time.

Furthermore, the study also found that there are some questions about smart contracts and their application because there are many difficulties related to the formation of smart contract and the legal aspect and implementation from a technological perspective because the traditional contracts and smart contracts differ in the way of implementation as individual and environmental potential and there is another obstacle that the IT infrastructure in Iraq needs to be Folding can apply smart contracts in Iraq. Consequently, this study recommended the Iraqi companies adopt new IT to use smart contract to development market business.

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