Issues in Information Systems
Volume 24, Issue 2, pp. 93-108, 2023

DOI: https://doi.org/10.48009/2_iis_2023_109

Blockchain for marketing purposes by banking institutions: activity theory perspective

Magdeline Moche, *Cape Peninsula University of Technology, South Africa, mag.moche@gmail.com*
Tiko Iyamu, *Cape Peninsula University of Technology, South Africa, IYAMUT@cput.ac.za*

Abstract

Continually, banking institutions attempt to advance the marketing of products and services by capitalizing on the underlying technology such as blockchain, to promote innovativeness and enhance competitiveness. Retrogressively, there are pushbacks and indecisiveness in the application of blockchain in many banks, especially in the African continent. Towards advancing competitiveness and improving chances of sustainability, this article seeks to examine and identify the factors that can influence the use of blockchain for marketing purposes in banking institutions. From popular academic databases, 77 articles were gathered with specific focuses on marketing, and blockchain for marketing. An in-depth analysis was conducted, using the activity theory as a lens. The analysis revealed technical proficiency, client-network relationship, visibility of information, and interactive scheme as some of the factors that manifest to influence the use of blockchain for marketing of products and services in the banking sector. Through these factors, the study helps to gain fathoming of blockchain and its application for marketing purposes. This helps managers and marketers to gain a better understanding of where some of the challenges and opportunities lie. This article is unique in that it explores how the influencing factors manifest themselves in the process of application and use of blockchain for digitized marketing by banks.

Keywords: Activity theory, Banking institutions, Blockchain technology, Digital marketing.

Introduction

For banks to do well, they must be progressively active in marketing their products and services. Thus, a South African banking institution is increasingly employing social media as a strategic tool for marketing and branding its products and services (Gavaza, Viljoen & Cilliers, 2019). This could be attributed to its benefits from different perspectives, such as cost-effectiveness and ease of information dissemination. According to Potgieter and Naidoo (2017), social media improves the quality of service and enhance client loyalty in South African banking institutions. In addition, through social media, some South African banks educate their clients about certain complex products, including creating transparency and brand awareness (Chikandiwa, Contogiannis & Jembere, 2013).

Based on these benefits, some South African banks subscribe to more than one social media platform. According to Gavaza et al. (2019), the approach seems to be working well primarily because many of their clients value the social media privacy dimension. Despite the successes and benefits, social media as a marketing tool presents different types of unique challenges in the areas of validated scales and variations in some of the platforms (Dwivedi et al., 2020). There have been efforts in trying to address some of the challenges, yet they persist (Parsons & Lepkowska-White, 2018). The challenges seem to increase when some of the banks had to complementarily employ social media and blockchain for marketing purposes.

Blockchain is considered a digital ledger that transacts records chronologically and publicly. Blockchain consists of several blocks, hence the term blockchain (Kshetri, 2017). Every block is referred to as a record of transactions from data, that contain entities of records in various disciplines or fields. Completion of a block to its fullness, adds it to a chain, and formation of a new block begins.

However, some banking institutions particularly in developing countries encounter challenges in using social media as a marketing strategy. One of the challenges is reputational damage to product development (Potgieter & Naidoo, 2017). According to Dwivedi et al. (2020), social media as a marketing tool presents different types of unique challenges for organizations based on the absence of validations and variations in social media platforms. Many organizations are challenged in their quest to develop marketing strategies using social media. This led Parsons and Lepkowska-White (2018) to help organizations use social media as a marketing tool. This has not seemed to work before the emergence of blockchain.

Blockchain is an emerging approach to communication and marketing. Crosby et al., (2016) argue that blockchain cannot be limited to cryptocurrency and that it redefines the meaning and importance of holistic marketing. The use of blockchain brings a different perspective to both the traditional and social media approaches to marketing and communicating with clients (Antoniadis, Kontsas & Spinthiropoulos, 2019). However, little is known about the influence social media and blockchain have on each other from the perspective of marketing as little has been highlighted or revealed in research (Li et al., 2018). Also, little is known about the influence of the complementarity of social media and blockchain in the South African banking sector does not seem to have been much researched.

There is a gradual complementary use of social media and blockchain for marketing purposes by a South African bank. Social media (Yan et al., 2019; Parsons & Lepkowska-White, 2018) and blockchain (Ali, Ally & Dwivedi, 2020) for marking purposes are well documented (Kumar & Devi, 2014), but separately. Complementary use of both tools by a South African bank has not been researched, hence some of the banks are not aware of any empirical evidence of the challenges that they might encounter in the future.

The problem is that many banks do not know how to employ blockchain, for marketing purposes. As a result, some of the banks loses out on the benefits of blockchain, which makes competitiveness more challenging for them. Primarily, this is because little research seems to have been conducted in this area (Choi, Guo & Luo, 2020). Thus, the banks will continue to employ the tools in an unstructured and unguided manner.

Some of the implications are (1) unnecessary overload and duplication of information, which causes confusion and dissatisfaction by the customers (Harris & Wonglimpiyarat, 2019); (2) data compromises and losses, which can be detrimental for the banks; and (3) some of the banks will continue to lose out from the benefits which the complementarity of both social media and blockchain offer from cost reduction and branding perspectives (Osmani et., 2020). These problems can lead to derailment of services and job losses. It is on this basis that this study is of critical relevance to a South African banking institution, employees in the bank, customers, academics, and the general society

Literature review

The review of the literature focuses on the core aspects of the study, which are marketing and blockchain. Additionally, the theory, activity theory that underpins the study is discussed.

Marketing in an institution

Progressively, marketing is viewed as the science and art of exploring, creating, and delivering value, to increase competitiveness and sustainability (Kotler & Keller, 2014**).** Thus, marketing is used to recognize the unfulfilled needs of clients. It is therefore used to "define, measure, and quantify the size of the identified market and the profit potential" (Kotler & Lee, 2015:4*)*. In addition, through marketing, banks promote and distribute their products and services to customers and potential customers (Kotler & Lee, 2015). According to Schiffman (1994), bank marketing is an effort through which people are made aware of offerings that often inspire their engagement.

The traditional marketing approach makes processes, activities, and communication easier with clients, patterners, and the public (Strauss & Frost, 2016). For many decades, traditional marketing was employed by the banks. This approach is also seen as a form of advertisement particularly for adults and the working class (Kotler & Keller, 2014). However, there are challenges with the traditional marking approach. Yuwanda (2016) explains one of the challenges is that the approach is typically forced on the clients by not having options.

This type of marketing approach often results in a low response rate (Kumar et al., 2022; Wongsansukcharoen, 2022). Also, there is often not enough time to update messages (Wsi, 2013). Another critical challenge is cost. Marketing using print media can be cost-prohibitive, with returns. In the last two decades, there has been a significant shift from traditional marketing to more dynamic approaches such as the use of social media.

Marketing of products and services helps to improve business performance through its approaches (Mogaji & Nguyen, 2022). This can be attributed to the ever-intensifying competitiveness in the sectors, such as banking. Al-Dmour et al. (2023) suggest that marketing is a key area where many banks benefit from technological advances, such as blockchain. This is despite the blockchain practice is not fully understood, according to Peres et al. (2022).

Service failure has been linked to less or lack of digitalization of marketing efforts in many organizations (Kumar et al., 2023; Peres et al., 2022). Wongsansukcharoen (2022) shows evidence of how digitalization has revolutionized marketing and business interaction. Crucially, innovation and new ways are constantly relied upon for marking purposes. Significantly, marketing efforts through customer interaction influence the performance of banks (Hafez, 2023). Ho and Chow (2023) explain how digital marketing impact on the relationship with customers and organizational performance.

Blockchain for marketing services

A blockchain is a structural approach, to recording data or information in a strong manner, which is difficult to easily amend and penetrate the system (Ngai, John & Zhou, 2016). Blockchain is considered a system for recording information in a sophisticated manner, which makes it difficult or impossible to amend, cheat or hack the system (Kshetri, 2017). Thus, banking institutions have a lot to gain from blockchain, owing to its potential to reduce costs (Marthews & Tucker, 2023). South African Banking Institutions will reduce interactions with intermediaries and counterparties which will in turn reduce maintenance costs. Ngai et al. (2016) explain how banking Institutions can secure transactional data through shared records as blockchain permits quicker transactions as those are not available on the centralized platforms. The interest in blockchain for marketing is gaining more momentum from banks. Polyviou et al. (2019) suggest that technology can help banks to comply with the requirements, rules, and regulations.

There is prima facie evidence that blockchain brings both opportunities and challenges to the field of marketing (Ertemel, 2018). On the opportunity front, innovation is envisioned to advance interaction between organizations and customers (Kumar et al., 2022), and enable a more comprehensive understanding of customer behaviors concerning products and services (Tan & Saraniemi, 2022). From the perspective of a challenge, security and trust are some of the main concerns of individuals and groups.

Additionally, blockchain helps to strengthen trust, accountability, and transparency for marketing purposes (Marthews & Tucker, 2023). Potentially, some of the challenges of marketing can be addressed through emerging innovations. Some trust matters relate to exclusive parameters, which include a lack of understanding of the counterparty, uncertainties related to the asset's journey throughout the supply chain, reliability of brand promises, and not knowing what happens when things go wrong (Ertemel, 2018).

Even though both social media and blockchain are useful tools for marketing, they have not been complementarily used, specifically, in South African banking institutions. Foreseen substantial problems with blockchain need to be overcome in attempts to complement it with social media as a tool for marketing by banking institutions. One of the main challenges is scalability (Yli-Huumo et al., 2016), which can allow for complementarity with social media. Other challenges are unknown, at least at the empirical level (Grover, Kar & Janssen, 2019).

Activity theory

Activity theory (AT) focuses on activities and episodes including human actions within social systems (Iyamu, 2021). Activity Theory helps to provide detailed and rich holistic comprehension of how individuals and groups collaborate, to execute activities, using tools such as information technology solutions. Mironenko and Sorokin (2022) argue that activity theory can help comprehend the social and scientific aspects of human activities. The theory is significant in examining and describing how humans think and associate meaning with entities around them, in a broad context.

Dolata et al. (2023) suggest that activity theory is appropriate for examining the interaction between humans and agents, to understand the influence of outcomes. This could be attributed to the ontological and epistemological assumptions of human relationships with tools and objects. According to Hurt et al. (2023), activity theory includes assumptions about the nature of relationships among components.

One of the strengths of activity theory is its capability to draw learning from complex situations in which various tools are used to mediate interactions. In some quarters, activity theory is employed as a theoretical framework for conceptualizing and studying innovation ecosystems (Baloutsos, Karagiannaki & Pramatari, 2022). Another strength of the theory is that it can be employed to reveal the implications rationale and actions of humans in executing activities.

According to Adamides (2023), the use of activity theory to view socio-technical entities can change the use of innovation in fulfilling societal needs. Also, the theory brings a fresh significant perspective on how the dissociation between objects motivates human activity and how actions are achieved through various operations. AT provides a theoretical perspective through which collaboration among humans and decision-making are better understood (Turner et al, 2019). In AT, the activity consists of a subject and an object, mediated by a tool (Engeström et al. 1999). As shown in Figure 1, the AT model includes community, rules, and division of labor (Shaanika & Iyamu 2015).

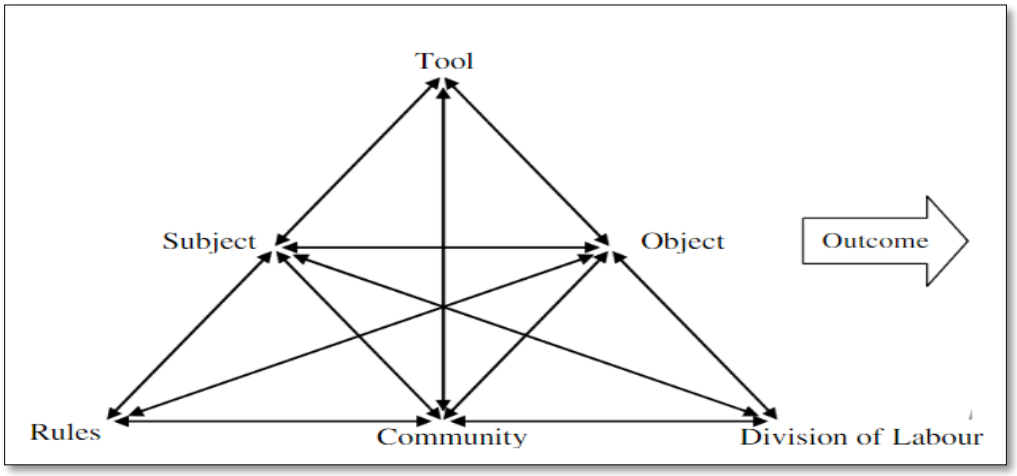

Figure 1: Activity model (Engestrom et al., 1999)

Tools can be any entity, which includes ways of thinking, which Moawad et al. (2003) explain can be procedures, machines, or methods. Tools are used by subjects when performing activities (Iyamu, 2021). A subject is an agent or group of actors that are engaged in activity operations (Hurt et al., 2023), to realize an object. The object can be a tangible or less tangible thing, so far it can be shared by the involved actors (Karanasios et al., 2015), which may be a community.

According to Allen et al. (2011), a community is an interdependent aggregate of individuals who share a common goal in a social set-up. Activities are performed in communities within rules. Yamgata-Lynch (2010) argues that, in AT, various types of rules, laws, norms, and cultural practices are taken into consideration in the community where an activity occurs. Rules govern subjects as they interact and perform activities (Carvalho et al., 2015), which also enable task allocation. Division of labor enables the sharing of activities among community members (Shanika & Iyamu, 2015), and the outcome results from an activity, to which each component of AT significantly contributes (Iyamu, 2021).

The theory is increasingly used in the studies of people that focus on human interaction, organizational and relationships (McMichael, 1999). AT has been applied in many studies in the areas of social media (Kelly, 2018) and blockchain primarily because it helps to examine interactions between people, and the ways activities shape and are shaped by human activities (Mkhomazi & Iyamu, 2013). Daniels et al. (2010) argue that AT is useful in understanding the activities of user groups in the development of models and frameworks about the relationship between actors in an environment.

Treiblmaier and Önder (2019) applied AT in their study about the impact of blockchain on the tourism industry. Forsgren and Byström (2018) employed AT to gain a better understanding of the use of multiple social media in the workplace. Turner et al. (2019) employed AT to identify the marketing practices adopted in an organization. Using AT as a lens, Carlson et al. (2016) empirically investigated mechanisms that simultaneously shape customers' experience in group-oriented events.

Methodology

Based on the research aim and objectives as stated above, the interpretive paradigm will be employed in this study. The interpretive approach is followed primarily because it enables an understanding of the meanings which individuals subjectively assign to things, experiences, and situations (Goldkuhl, 2012).

This is vital for this study, as it seeks to understand the factors that influence the use of blockchain for the marketing of products and services. The interpretive approach is about the study of meanings which humans subjectively bring to things and actions (Saunders, 2016).

The relevant literature is extracted from popular academic databases Scopus and Web of Science using a bibliographic approach with two criteria, keyword, and year of publication. The keywords include blockchain and marking; blockchain and banking; and blockchain and financial institution. Articles published within ten years, between 2012 and 2022 were considered most appropriate. From our search through the databases, 256 peer-reviewed articles were gathered.

The bulk of the papers focuses on bitcoins and blockchain applications in marketing functions. The papers were streamlined, guided by the objective of the study, and a total of 77 of the papers were Blockchain in the banking sector is limited, covered in few articles. The literature that examines applying blockchain in marketing is scarce (Jain et al., 2021; Avital, 2018).

From the interpretive perspective, AT is considered most suitable primarily because of the study's objective. This is if an understanding of the factors that influence the use of blockchain for marketing purposes in the banking sector is the deeper sense of things. Thus, the theory helps to, (1) associate the various relationship between the different types of blockchain and various activities; (2) helps to gain a deeper understanding of actors' roles in carrying out different activities using blockchain for marketing purposes; and (3) understand the connection and relationship between blockchains and marketing activities, such as the tools used, guiding rules, roles of the community, and how tasks can be allocated.

Activity theory view of blockchain for marketing in banks

The activity theory (AT) is applied to examine and gain an understanding of the factors that influence the use of blockchain for marketing purposes by banking institutions. Blockchain is an information technology solution that revolutionizes banking operations through its decentralizing database of digital and unique assets.

Evidence from literature shows that many studies have in recent years, explored, and examined the different types of blockchains, in the categories of private, public, hybrid, and consortium, for various purposes (Shafay et al., 2023; Cui et al., 2020; Desai, Kantarcioglu & Kagal, 2019). Blockchain is diverse, which requires its categorization, to enhance understanding and applicability. The categorization of blockchain into public, private, hybrid, and consortium is based on network management systems and permissions that are allowed (Yang et al., 2020).

The private blockchain operates in a restrictive environment in the form of a closed network, and under the control of a single entity. Shafay et al. (2023) argued that private and consortium types of blockchains preserve data privacy in a much better way than public platforms. Desai et al. (2019) explain how the public blockchain may disclose sensitive information. In the hybrid platform, identity authentication is enabled in the nodes of operations and communication (Cui et al., 2020).

The consortium is also known as a federated blockchain, which is a private blockchain with limited access to a particular group. As shown in Table 1, the activity theory is employed as a lens to discretely examine blockchain for marketing purposes.

Table 1: Activity theory analysis

Activity	Private	Public	Hybrid	Consortium
Tool	Personal computer, mobile device, and internet. Uses a peer-to-peer connection approach, to enable and support transactions.	Personal computer, mobile device, and internet. Uses complex computations approach to verify transactions.	Personal computer, mobile device, and internet. Technology-enabled access control, to improve performance and scalability	Personal computer, mobile device, and internet. Allows organizations to create business models (Rajnak, & Puschmann, 2021).
Subject	Individuals and groups must be associated with legal entities to participate. It enables the creation of networks and interactions.	Individuals or groups may not be associated or affiliated with legal entities to participate. Usually has an impact on actors' relationships (Brinkmann, 2021).	Individuals or groups may or may not be associated or affiliated with legal entities to participate.	Individuals or groups represent legal entities to participate, which facilitates relationships.
Rules	It is a restrictive environment, which means a closed network. Standards are essential to banking operations (Garg et al., 2021)	Flexible regulations; non-restrictive and permissionless. An individual or group can access a blockchain and gain authorization.	Combines both private and public approaches: permission-based with public permissionless systems.	Allows and has private and public blockchain features, from the perspectives of standards and regulations.
Community	Participants are usually small in size. The platform is controlled and managed with accountability.	It is for general use; ownership is open to the users. Creates opportunities for uniformity (Osmani et al., 2021).	The ecosystem is closed. Individuals or entities may be Known or remain anonymous.	Allows individuals and organizations to collaborate.
Division of labor	An entity or organization sets up the platform; defines the users; and determines the sources of the data.	It is open and completely independent of individuals or organizations.	A private entity may own the platform but may not alter transactions. Data storage and retrieval are well-defined.	Data storage, management, and retrieval including source code are shared in the collaboration.
Object	Independently, users cannot audit or confirm the source code; and proprietary and closed.	It supports and enables supply chain and asset ownership.	Information is stored and retrieved from a verifiable network.	It enables access control, Operations' scalability and data security.

Although slow, banking institutions across the world are employing blockchains, to improve services, primarily, because it enables faster, cheaper, more secure, and more inclusive transactions. Studies that focus on the use of blockchain for marketing banking are gradually emerging (Patel, Migliavacca & Oriani, 2022; Peres et al. 2022). Blockchain enables bank institutions to send marketing-related information to a group of clients, in real-time. Garg et al. (2021) explore measuring the benefits of blockchain implementation in the banking sector. It is difficult to measure the benefits without establishing and understanding the influencing factors. Also, blockchain is claimed to be a speedier and more transparent transactions (Jain et al., 2019; Dozier & Montgomery, 2019). Cucari et al. (2022) suggest that the application of blockchain provides greater data transparency, improved visibility, and faster execution of operations for banking processes.

Despite the promises, banking institutions in many parts of the world remain sceptical and cautious, which could be attributed to many reasons, some of which can be unpacked in the Table above. Table 1 helps to reveal limited knowledge about the influencing factors. Many banks are cautious about the challenges, such as lack of governance, lack of scalability, and regulatory compliance risks, which include transparency and permissionless actions. According to Li et al. (2018), blockchain systems challenges are either because of a lack of cost-effectiveness or not near real-time, in providing services to clients and stakeholders.

Factors influencing blockchain for marketing by banks

From the analysis presented in the above section using AT, four factors are found to be of fundamental influence on the use of blockchain for marketing purposes in the banking sector. The factors are technical proficiency, client-network relationship, visibility of information, and interactive scheme. As depicted in Figure 2, the factors are interrelated and depend on each other in some circumstances. The arrows indicate what the factors manifest. The discussion that follows should be read with the Figure to gain a better understanding of how the factors interrelate, to influence the activity of marketing using blockchain.

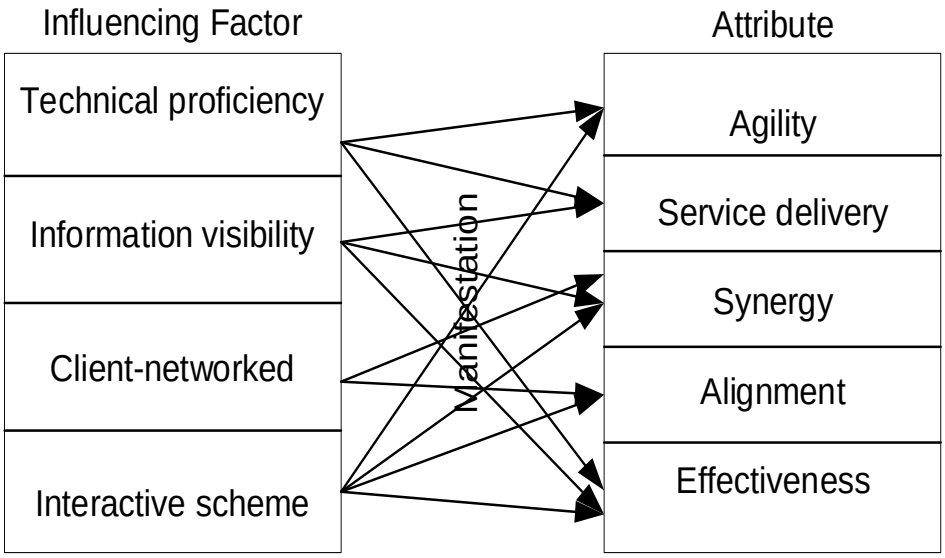

Figure 2: Manifestation of influencing factors

Technical proficiency

Many marketers are not proficient in the use and management of blockchain applications in their activities. Some marketers treat or apply blockchain as one of the social media platforms. A blockchain is decentralized and is distributed for a purpose, in its private, public or consortium approach. An understanding of the decentralization deters retroactive alteration and tracking of information flow within the network requires technical proficiency. Stallone et al. (2021) suggest that the management of marketing content in many environments craves answers on technological innovation and agility. For marketing purposes, Peres et al. (2022) suggest the use of blockchain is not fully understood yet. One of the main challenges comes when a marketer attempts to correct a mistake or modify what is deemed necessary.

Technical proficiency limit disruptions of service and increases mitigation of risks.This is primarily because many employees or marketing team members believe that they can create a blockchain: that is, create a block, add the marketing information (data) to the block, thereafter, hash the block, and chain the blocks together. Dozier and Montgomery (2019) argue that evidence suggests that the value of blockchain comes from an understanding, which helps to create a model that has levels of security. Blockchain technology has many built-in security features that make it difficult for hackers to corrupt, which is one of the areas where technical proficiency makes a difference. Conceptually, blockchain has been impervious to compromise because each block is digitally signed with a 'hash', which results from a mathematical algorithm. According to Yang et al. (2020), the use of public and private blockchain technologies enables transparency and traceability of business processes, which must be taken into cognizance, highly statutorily .

Information Visibility

In the context of blockchain, information visibility entails a value chain enabled by availability and accessibility, which covers information flow, information exchange, and information inventory (Tan et al., 2023; Wamba & Queiroz, 2020). The visibility allows employees and managers to track and have a clear view of activity relating to information flow. Additionally, Ho et al. (2021) explain the cruciality of updating data in real-time, and how it increases the visibility of information and actions arising within a network. Desai, Kantarcioglu and Kagal (2019) explain how private blockchains can be employed to improve efficiency and effectiveness in information sharing among participating individuals and groups. In the blockchain, although the information chain is visible, anonymity or pseudonymity can be maintained by the creator.

Information visibility enables and supports the development of more client-specific needs, as individuals respond to the chains of messages in the various blocks. Strategically, the responses can improve the efficiency and effectiveness of service delivery. Public visibility of information offered by public blockchain affects relationships with clients. Hence, banks avoid such an approach. Also, the auditing of the information value chain is confidential. Wan, Huang and Holtskog (2020) argue that the visibility of information to inappropriate persons compromises competitiveness. The hybrid blockchain approach enables the delivery of information to partners, that is embedded with scalability, privacy, and validity (Li et al., 2018). This is necessary for supporting the increasing demand for visibility and timely delivery of information to stakeholders, clients, and partners.

Client-networked relationship

Blockchain creates relationships between organizations and private or public clients (Rocha & Ducasse, 2018). Various networks are created, which determine the type of relationship that ensued. Collaboration with other banks is engrossed in a network, and so is the interaction with clients, in another network. According to Bedin, Capretz and Mir (2021), blockchain in its permission approach enables organizations to collaborate and uphold a closer relationship. These relationships are based on data, disguised in blocks, and exchanged in chains. Blockchain helps to ignite and sustain the relationship between organizations and clients, which makes it viable as a strategic tool for marking by banking institutions. Synonymously, this can be attributed to Chang's et al. (2020) suggestion that client relationships lead to the establishment of a strong community, which fortifies the division of engagements.

Blockchain is futuristically changing banking operations and processes including relationships and interaction with clients and stakeholders. Private blockchain addresses privacy challenges in that transactions are approved by known users, and cannot be accessed publicly (Desai, Kantarcioglu & Kagal, 2019), which essentially necessitates relationships within a network.

Also, blockchain can be used to influence client behavior through the marketing of services that attract rewards and incentives. In detail, Kowalski, Lee & Chan (2021) explain how blockchain influences relationships among collaborative partners through improved confidence, increased transactions, and predictability of service. Innovatively, blockchain improves interactions with clients through uniformity, transparency, security, and tracking of information. Through the relationships and collaboration enabled by the interactive scheme, alignment and thorough understanding are gained, which accelerates value creation in organizations (Bedin, Capretz & Mir, 2021). The application of blockchain facilitates collaborations between banks and enhances capabilities to gain insights into value from synergy and understand differences in semantics.

Interactive scheme

Human and brand interactions are essential in marketing products and services, towards enhancing sustainability and competitiveness. Thus, digitalization using blockchain is crucial, primarily because it promotes interface among the respective target audience and stakeholders. Both public blockchain and private blockchain are increasingly employed by organizations in various sectors (Yang et al., 2020). If, and when the competition laws permit, banks can employ the consortium approach, to promote synergy and collaborate in providing services to clients. Highly regulated sectors such as banks can profitably employ the hybrid approach, to streamline their processes and interact with clients. Consequently, blockchain helps to create direct channels of communication between an organization and clients including partners (Bedin et al., 2021).

Blockchain offers many benefits to the applications, such as data authenticity assurance, data management, and audit trails, which add value to an organization through automation-enabled processes (Shafay et al., 2023). Enabling or fortifying these benefits is influenced by human interaction, which manifests from the relationship between the subject (actors) or stakeholders. The application of blockchain for marketing in the banking sector is fundamental to increasing the quality of interactions (Krafft et al., 2020), in turn, align and bridges the gap between the marketers and IT personnel and units.

Conclusion

The contributions of this study can be viewed from three angles. First, it awakens significant thought about the impact and benefit of blockchain for the banking institutions in South Africa and the African continent, where this approach has been more challenging. This includes the factors that are highly likely to influence the use of blockchain and social media for marketing purposes. Second, from the factors, the study presents ontological evidence that can enhance marketing outlook and experience in banking institutions. Third, through the influencing factors, it is intended to inscribe confidence in Managers, to be more informed and improve decision-making in the use of blockchain for services in banking institutions.

This article presents a solution that addresses the lack of understanding of the influencing factors and highlights the manifestations of the factors, which clarifies the confusion associated with the value of blockchain for marketing purposes. Additionally, the study paves the way for future research through the influencing factors, which need to be explored further to gain more insights into how they manifest to advance the digitalization of marketing in the banking sector. This is intended to identify research streams and clarify future research agenda for researchers about the application of blockchain in marketing.

References

Adamides, E. D. (2023). Activity theory for understanding and managing system nnovations. *International Journal of Innovation Studies*, *7*(2), 127-141.

Al-Dmour, H., Saad, N., Basheer Amin, E., Al-Dmour, R., & Al-Dmour, A. (2023). The influence of the practices of big data analytics applications on bank performance: filed study. *VINE Journal of Information and Knowledge Management Systems*, *53*(1), 119-141.

Ali, O., Ally, M. & Dwivedi, Y. (2020). The state of play of blockchain technology in the financial services sector: A systematic literature review. *International Journal of Information Management*, 54, 102199.

Allen, D., Karanasios, S., & Slavova, M. (2011). Working with activity theory: Context, technology, and information behaviour. *Journal of the Association for Information Science and Technology*, *62*(4), 776–788.

Antoniadis, I., Kontsas, S., & Spinthiropoulos, K. (2019). Blockchain Applications in Marketing, 5(1), 8-16.

Avital, M. (2018). Peer review: Toward a blockchain-enabled market-based ecosystem. *Communications of the Association for Information Systems*, *42*(1), 28.

Baloutsos, S., Karagiannaki, A., & Pramatari, K. (2022). Identifying contradictions in an incumbent–startup ecosystem–an activity theory approach. *European Journal of Innovation Management*, *25*(6), 527-548.

Bedin, A. R., Capretz, M., & Mir, S. (2021). Blockchain for collaborative businesses. *Mobile Networks and Applications*, *26*, 277-284.

Brinkmann, M. (2021). The realities of blockchain-based new public governance: an explorative analysis of blockchain implementations in Europe. *Digital Government: Research and Practice*, *2*(3), 1-14.

Carlson, J., Rahman, M. M., Rosenberger III, P. J., & Holzmüller, H. H. (2016). Understanding communal and individual customer experiences in group-oriented event tourism: an activity theory perspective. *Journal of Marketing Management*, *32*(9-10), 900-925.

Carvalho, M. B., Bellotti, F., Berta, R., De Gloria, A., Sedano, C. I., Hauge, J. B., & Rauterberg, M. (2015). An activity theory-based model for serious games analysis and conceptual design. *Computers & Education*, *87*, 166–181.

Chang, V., Baudier, P., Zhang, H., Xu, Q., Zhang, J., & Arami, M. (2020). How Blockchain can impact financial services–The overview, challenges and recommendations from expert interviewees. *Technological forecasting and social change*, *158*, 120166.

Chikandiwa, S. T., Contogiannis, E. & Jembere, E. (2013). The adoption of social media marketing in South African banks. European business review, 25(4), 365-381.

Choi, T. M., Guo, S. & Luo, S. (2020). When blockchain meets social media: Will the result benefit social media analytics for supply chain operations management? Transportation Research Part E: Logistics and Transportation Review, 135, 101860.

Cucari, N., Lagasio, V., Lia, G., & Torriero, C. (2022). The impact of blockchain in banking processes: The Interbank Spunta case study. *Technology Analysis & Strategic Management*, *34*(2), 138-150.

Cui, Z., Fei, X. U. E., Zhang, S., Cai, X., Cao, Y., Zhang, W., & Chen, J. (2020). A hybrid blockchain-based identity authentication scheme for multi-WSN. *IEEE Transactions on Services Computing*, *13*(2), 241-251.

Daniels, H., Edwards, A., Engeström, Y., Gallagher, T., & Ludvigsen, S. (2010). Activity theory in practice. *Oxon: Routledge*.

Desai, H., Kantarcioglu, M., & Kagal, L. (2019, July). A hybrid blockchain architecture for privacy-enabled and accountable auctions. In *2019 IEEE International Conference on Blockchain (Blockchain)* (pp. 34-43). IEEE.

Dolata, M., Katsiuba, D., Wellnhammer, N., & Schwabe, G. (2023). Learning with Digital Agents: An Analysis based on the Activity Theory. *Journal of Management Information Systems*, *40*(1), 56-95.

Dozier, P. D., & Montgomery, T. A. (2019). Banking on blockchain: An evaluation of innovation decision making. *IEEE Transactions on Engineering Management*, *67*(4), 1129-1141.

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J. & Wang, Y. 2021. Setting the future of digital and social media marketing research: Perspectives and research propositions. International Journal of Information Management, 59: 102168.

Engeström, Y., Miettinen, R. & Punamäki, R. L. (1999). Perspectives on Activity Theory. New York.: Cambridge.

Ertemel, A. (2018). Implications of Blockchain Technology on Marketing. *Journal of International Trade, Logistics and Law*, 4(2), 35–44

Forsgren, E., & Byström, K. (2018). Multiple social media in the workplace: Contradictions and congruencies. *Information Systems Journal*, *28*(3), 442-464.

Garg, P., Gupta, B., Chauhan, A. K., Sivarajah, U., Gupta, S., & Modgil, S. (2021). Measuring the perceived benefits of implementing blockchain technology in the banking sector. *Technological Forecasting and Social Change*, *163*, 120407.

Gavaza, B. K., Viljoen, K. L. & Cilliers, L. (2019). The influence of social media service quality on client loyalty in the South African banking industry. *Acta Commercial*, 19(1), 1-10.

Grover, P., Kar, A. K. & Janssen, M. (2019). Diffusion of blockchain technology. *Journal of Enterprise Information Management*, 32(5), 735-757.

Hafez, M. (2023). The nexus between social media marketing efforts and overall brand equity in the banking sector in Bangladesh: testing a moderated mediation model. *Journal of Internet Commerce*, *22*(2), 293-320.

Harris, W. L. & Wonglimpiyarat, J. (2019). Blockchain platform and future bank competition. *Foresight*, 21(6), 625-639.

Ho, S. P. S., & Chow, M. Y. C. (2023). The role of artificial intelligence in consumers' brand preference for retail banks in Hong Kong. *Journal of Financial Services Marketing*, 1-14.

Ho, G. T., Tang, Y. M., Tsang, K. Y., Tang, V., & Chau, K. Y. (2021). A blockchain-based system to enhance aircraft parts traceability and trackability for inventory management. *Expert Systems with Applications*, *179*, 115101.

Hurt, T., Greenwald, E., Allan, S., Cannady, M. A., Krakowski, A., Brodsky, L., ... & Dorph, R. (2023). The computational thinking for science (CT-S) framework: operationalizing CT-S for K–12 science education researchers and educators. *International Journal of STEM Education*, *10*(1), 1-16.

Iyamu, T. (2021). *Applying theories for information systems research*. London: Routledge.

Iyamu, T. (2018). Collecting qualitative data for information systems studies: The reality in practice. *Education and Information Technologies*, 23(5), 2249-2264.

Jain, D., Dash, M. K., Kumar, A., & Luthra, S. (2021). How is blockchain used in marketing: a review and research agenda. *International Journal of Information Management Data Insights*, *1*(2), 100044.

Karanasios, S., Allen, D., & Finnegan, P. (2015). Information systems journal special issue on: Activity theory in information systems research. *Information Systems Journal*, *25*(3), 309–313.

Kelly, P. R. (2018). An activity theory study of data, knowledge, and power in the design of an international development NGO impact evaluation. *Information Systems Journal*, *28*(3), 465-488

Kotler, P. & Keller, K. (2014). Marketing Management., Prentice Hall, Saddle River.

Kotler, P. & Keller, K. L. (2014). Marketing Management: Principle of marketing. 15th Edition. Sandton: Pearson.

Kowalski, M., Lee, Z. W., & Chan, T. K. (2021). Blockchain technology and trust relationships in trade finance. *Technological Forecasting and Social Change*, *166*, 120641.

Kumar, S., Xiao, J. J., Pattnaik, D., Lim, W. M., & Rasul, T. (2022). Past, present and future of bank marketing: a bibliometric analysis of International Journal of Bank Marketing (1983–2020). *International Journal of Bank Marketing*, *40*(2), 341-383.

Krafft, M., Sajtos, L., & Haenlein, M. (2020). Challenges and opportunities for marketing scholars in times of the fourth industrial revolution. *Journal of Interactive Marketing*, *51*(1), 1-8.

Kshetri, N. (2017). Will blockchain emerge as a tool to break the poverty chain in the Global South?. Third World Quarterly, 38(8), 1710-1732

Kumar, K. V. & Devi, V. R. (2014). Social media in financial services–a theoretical perspective. Procedia Economics and Finance, 11: 306-313.

Lee, D., Hosanagar, K. & Nair, H.S. (2018). Advertising content and consumer engagement on social media: evidence from Facebook., 64 (11), 5105–5131.

Li, Z., Wu, H., King, B., Miled, Z. B., Wassick, J., & Tazelaar, J. (2018). A hybrid blockchain ledger for supply chain visibility. In *2018 17th International Symposium on Parallel and Distributed Computing (ISPDC)* (pp. 118-125). IEEE.

Mark, N.K., Saunders, P. L. & Thornhill, A. (2015). Research Methods for Business Students. 7th Edition. Sandton: Pearson.

Marthews, A., & Tucker, C. (2023). What blockchain can and can't do: Applications to marketing and privacy. *International Journal of Research in Marketing*, *40*(1), 49-53.

Mironenko, I. A., & Sorokin, P. S. (2022). Activity Theory for the de-structuralized modernity. *Integrative Psychological and Behavioural Science*, *56*(4), 1055-1071.

Moawad, N., Liu, K., & El-Helly, M. (2003). Integrating activity theory and semiotics as knowledge elicitation technique. *14 ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing.* IEEE Computer Society.

Mogaji, E., & Nguyen, N. P. (2022). Managers' understanding of artificial intelligence in relation to marketing financial services: insights from a cross-country study. *International Journal of Bank Marketing*, *40*(6), 1272-1298.

Ngai, J.L., John, Q. & Zhou, N. (2016). Blockchain. Disrupting the Rules of the Banking Industry. McKinsey publishers.

Osmani, M., El-Haddadeh, R., Hindi, N., Janssen, M. & Weerakkody, V. (2020). Blockchain for next generation services in banking and finance: cost, benefit, risk, and opportunity analysis. Journal of Enterprise Information Management, 34(3), 884-899.

Osmani, M., El-Haddadeh, R., Hindi, N., Janssen, M., & Weerakkody, V. (2021). Blockchain for next generation services in banking and finance: cost, benefit, risk and opportunity analysis. *Journal of Enterprise Information Management*, *34*(3), 884-899.

Parsons, A. L. & Lepkowska-White, E. (2018). Social media marketing management: A conceptual framework. Journal of Internet Commerce, 17(2), 81-95.

Patel, R., Migliavacca, M., & Oriani, M. (2022). Blockchain in Banking and Finance: is the best yet to come? A bibliometric review. *Research in International Business and Finance*, 101718.

Peres, R., Schreier, M., Schweidel, D. A., & Sorescu, A. (2022). Blockchain meets marketing: Opportunities, threats, and avenues for future research. *International Journal of Research in Marketing, 40(1), 1-11*.

Potgieter, L. M. & Naidoo, R. (2017). Factors explaining user loyalty in a social media-based brand community. *South African Journal of Information Management*, 19(1), 1-9.

Rajnak, V., & Puschmann, T. (2021). The impact of blockchain on business models in banking. *Information Systems and e-Business Management*, *19*, 809-861.

Rocha, H., & Ducasse, S. (2018). Preliminary steps towards modeling blockchain oriented software. In *Proceedings of the 1st International Workshop on Emerging Trends in Software Engineering for Blockchain* (pp. 52-57).

Schiffman, Leon G. & Kanuk, L.L. (1994). Consumer Behaviour. Fifth edition. London: Prentice-Hall.

Shaanika, I. & Iyamu, T. (2015). Deployment of enterprise architecture in the Namibian government: the use of activity theory to examine the influencing factors. *The Electronic Journal of Information Systems in Developing Countries*, 71(1), 1-21.

Shafay, M., Ahmad, R. W., Salah, K., Yaqoob, I., Jayaraman, R., & Omar, M. (2023). Blockchain for deep learning: review and open challenges. *Cluster Computing*, *26*(1), 197-221.

Stallone, V., Wetzels, M., & Klaas, M. (2021). Applications of Blockchain Technology in marketing—A systematic review of marketing technology companies. *Blockchain: Research and Applications*, *2*(3), 100023.

Strauss, J. & Frost R. (2016). E-Marketing. 7th Edition. London: Routledge

Tan, T. M., & Saraniemi, S. (2022). Trust in blockchain-enabled exchanges: Future directions in blockchain marketing. *Journal of the Academy of Marketing Science*, 1-26.

Tan, C. L., Tei, Z., Yeo, S. F., Lai, K. H., Kumar, A., & Chung, L. (2023). Nexus among blockchain visibility, supply chain integration and supply chain performance in the digital transformation era. *Industrial Management & Data Systems*, *123*(1), 229-252.

Treiblmaier, H., & Önder, I. (2019). The impact of blockchain on the tourism industry: A theory-based research framework. In *Business Transformation through blockchain* (pp. 3-21). Palgrave Macmillan, Cham.

Turner, J. R., Lecoeuvre, L., Sankaran, S., & Er, M. (2019). Marketing for the project: project marketing by the contractor. *International Journal of Managing Projects in Business*, *12*(1), 211-227.

Uden, L., (2007). Activity theory for designing mobile learning. *International Journal Mobile Learning and Organizations*, 1(1), 81–102.

Wamba, S. F., & Queiroz, M. M. (2020). Blockchain in the operations and supply chain management: Benefits, challenges and future research opportunities. *International Journal of Information Management*, *52*, 102064.

Wan, P. K., Huang, L., & Holtskog, H. (2020). Blockchain-enabled information sharing within a supply chain: A systematic literature review. *IEEE access*, *8*, 49645-49656.

Wongsansukcharoen, J. (2022). Effect of community relationship management, relationship marketing orientation, customer engagement, and brand trust on brand loyalty: The case of a commercial bank in Thailand. *Journal of Retailing and Consumer Services*, *64*, 102826.

Wsi, R. 2013. Digital Minds: 12 Things Every Business Needs to Know about Digital. 2nd Edition. Canada.: Friesen.

Yamgata-Lynch, L.C. (2010). *Activity systems analysis methods: Understanding complex learning environments.* London: Springer Science.

Yan, L., Yan, X., Tan, Y. & Sun, S.X., (2019). Shared minds: How patients use collaborative information sharing via social media platforms. Production and Operations Management, Forthcoming. 28 (1), 9–26.

Yang, R., Wakefield, R., Lyu, S., Jayasuriya, S., Han, F., Yi, X., ... & Chen, S. (2020). Public and private blockchain in construction business process and information integration. *Automation in construction*, *118*, 103276.

Yuwanda, B. (2016). Social Marketing. UK: Pearson Prentice-Hall