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EXAMINING THE ROLE OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) INFRASTRUCTURE IN ENHANCING COMPETITIVE ADVANTAGE THROUGH CLOUD ACCOUNTING IN JORDANIAN BANKS

Hussein Yousef Hussien Al-Hawamdeh[1], Dr. Amanuddin Shamsuddin[2*]

[1]Researcher / PhD student, UNITEN Business School (UBS), Department of Accounting & Economic, Universiti Tenaga Nasional (UNITEN), Putrajaya, Malaysia
[2]Associate Prof., UNITEN Business School (UBS), Department of Accounting & Economic, Universiti Tenaga Nasional (UNITEN), Putrajaya, Malaysia

hawamdehhussein84@gmail.com[1]
amanuddin@uniten.edu.my2*

Abstract
The study addresses the research question of how ICT infrastructure can promote competitive advantage based on cloud accounting in Jordanian banks and moderated by the efficiency of cybersecurity. The issue discussed is the lack of knowledge about the ways in which secure ICT systems can be strategically used to transform financial operations within a digitally developing banking sector. Based on the paradigm of Design Scientific Research, the research design adopted a qualitative conceptual design, secondary data and expert opinion were used to produce a theoretical framework based on the Resource-Based View and the Market-Based View. The findings indicate that an efficient ICT infrastructure supports timely decision-making, flexibility in operations, and cost-efficiency, and that cybersecurity supplements such performance significantly. The study recommends investing additional capital into safe cyber infrastructure and regulatory disclosure. Among the implications are the ability to position cybersecurity as a strategic enabler and the ability to view cloud accounting as a fundamental source of sustained competitive advantage in emerging economies.

Keywords*: information communication technology (ICT) infrastructure, competitive advantage, cloud computing, cloud accounting, Jordanian banks.*

Introduction

Cloud accounting has become a disruptive technology that is changing the nature of the banking industry in the digital economy today. With all financial institutions across the world scrambling to operationalize their systems, the use of cloud-based systems has taken center stage to ensure scalable, flexible, and economical solutions are realized. Cloud accounting systems help banks to manage a lot of data without any problems, increase the cooperation of different departments, and respond to the needs of customers in time. The use of cloud accounting is not only a trend in certain countries but also a strategic necessity, such as in Jordan, where the organization is failing to keep up with the global technological changes. Such transformation mainly depends on the resilience of the underpinning ICT infrastructure, upon which all digital financial activities are the foundation of such transformation. The impact of ICT infrastructure on the competitive advantage has never been as pertinent as it is now due to the fast pace of technology change that banks in Jordan should accommodate.

As it has been determined, the mix of the internet-based computing capacity and innovative financial management tools, cloud accounting, has assisted many organizations in enhancing their performance in several areas, including cost-effectiveness, data quality, and responsiveness (Matarneh et al., 2019). Scalable ICT infrastructure can also help banks to roll out secure and reliable systems that can handle the most vital financial operations without necessarily having the

hardware to invest in or engaging in large-scale maintenance (Darwish, 2015). Studies emphasize that system features such as real-time data access and intuitive applications allow employees to make informed decisions quickly, thereby strengthening a bank's responsiveness and positioning in the market (Matarneh et al., 2019). The ability to utilize real-time information has a direct impact on strategic planning and customer service, both components of sustainable competitive advantage. Moreover, cloud accounting makes communication with departments and stakeholders easier, faster, and encourages collaboration culture. Ping and Xuefeng (2011) note that cloud computing, as a virtual accounting information system, simplifies business operations and aligns IT resources to business goals, which provides unprecedented flexibility and control to the banks.

However, the benefits of cloud accounting could not be realized to the full extent without a proper consideration of the effectiveness of providing cybersecurity. As mentioned, weaknesses of cyber governance, lack of separation of power and division of accountability structures have been identified as major issues with banks in Jordan that lead to inefficiencies in operations and predisposition to fraud (Al-Abedallat, 2017). The cloud system has the potential to save money and improve the integrity of data, but these benefits presuppose the security of ICT infrastructures that are able to safeguard sensitive financial data against computer attacks (Matarneh et al., 2019). Cybersecurity as a mediating factor in creating competitive advantage has been noted in industries such as telecommunications, where a well-developed cyber risk management creates stakeholder trust and business resilience (Matarneh et al., 2019). This means that the incorporation of best cybersecurity practices into ICT infrastructure will be a critical success factor in banks seeking to roll out cloud accounting strategically.

Even though this sounds like a promising future, the primary issue that faces a significant portion of the banks in Jordan is the absence of electronic regulation and investment in better ICT systems. This affects their competitive positioning and exposes them to huge operational and reputational risks.

Therefore, the study aims to address the following research question: how can Jordan banks leverage strong ICT infrastructure by using cloud accounting to achieve and maintain a competitive advantage in the ever-changing financial environment? To address this issue, the research will examine how ICT infrastructure can create a competitive advantage and the degree to which the efficiency of cybersecurity can mediate the relationship. In particular, it will answer two questions:

1) To what extent does ICT infrastructure embedded in cloud accounting systems impact the competitive advantage of Jordanian banks?
2) How does cybersecurity efficiency influence the strength of this relationship?

Theoretical Framework

The present study uses two complementary theoretical frameworks: the Market-Based View (MBV) and the Resource-Based View (RBV) to investigate how ICT infrastructure, operationalized via cloud accounting, determines the competitive advantage of Jordanian banks and how the effectiveness of cybersecurity mediates this effect.

The Market-Based View (MBV) is a product of industrial organization economics and assumes that the performance of a firm mostly depends on its location in its industry and the external market conditions it experiences (Makhija, 2003). This perspective focuses on issues like the competition structure, entry barriers, and supplier and buyer power. One of the foundational contributions to this view is the Five Forces Model of Porter (1980): this approach offers a rational framework of assessing competitive forces: the threat of new entrants, the threat of substitutes, buyer power,

supplier power, and competitive rivalry. Lelissa and Kuhil (2018) had earlier developed the paradigm structure-conduct-performance, according to which the behavior and performance of firms are dependent on the market structure. In this research, the MBV is used to frame how the competitive environment in the banking sector of Jordan, characterized by liberalized markets and the increasing demands of digital services (Hangyan, 2025), presents a need to adopt the ICT infrastructure so that banks can use it as a competitive advantage. By incorporating cloud accounting features in their activities, banks will be able to respond to external demands of cost-efficiency, product diversification, and compliance with new customer demands of speed, quality, and transparency.

Whereas the MBV is concerned with the external environment, the Resource-Based View (RBV) offers a complementary insight by looking internally to firm capabilities as the origin of sustainable competitive advantage. The RBV is a concept that views the firm as a differentiated bundle of rare, valuable and non-substitutable, tangible and intangible resources (Barney, 1991). This theoretical approach builds on the fact that the manner in which firms use and create their resources tends to be more important than external market structure, as noted by Penrose (1959). The resource-based view was officially coined by Wernerfelt (1984), and Prahalad and Hamel (2009) introduced the concept of core competencies, or resources and capabilities that are so vital that they become the foundation of the identity and continued existence of a firm. This study uses RBV to inform the conceptualization of ICT infrastructure, namely cloud accounting systems, as a strategic resource that can be aligned to create value and gain a competitive advantage. The reason behind the choice of cybersecurity efficiency as a moderating variable is the focus of the RBV on capabilities that are difficult to reproduce, and also those that protect organizational resources (Powell, 2001).

The rationale for adopting these two theories together lies in their complementarity. While MBV explains why banks must respond to competitive pressures—such as the rising expectations for data quality, cost efficiency, and technological agility (Musyoki, 2023)—the RBV explains how they can configure their internal resources—ICT infrastructure and cloud-based accounting processes—to respond effectively. The applicability of this dual lens to the situation in Jordan is that even the accounting systems that existed previously were a restricting factor (Government digital transformation: A crucial step to the future of Jordan, 2025). In this work, cloud accounting is situated in the competitive and strategic context of Jordanian banks as a back-office tool but also as something that can be strategically used to establish and develop a competitive advantage.

Besides, the moderating effect of cybersecurity efficiency is anchored on RBV. Cybersecurity efforts are deemed to be knowledge-based and organizational resources (Ma et al., 2021) that protect the core assets (in this case, sensitive financial data) and protect customer confidence. According to Abdel-Gawad (2020) and Al-Samhan (2020), digital transformation puts an economy at a threat that demands cybersecurity expertise to handle. When considering the case of Jordanian banks, cybersecurity is not merely one of the functions but a strategic resource that will potentially amplify the positive effect of cloud accounting and remain competitive in an environment where the threat level of cyber-attacks grows.

MBV and RBV collectively present a strong framework to answer the research questions of the study. The former question, what the impact of ICT infrastructure is on systemic cloud accounting systems, is answered by the degree to which market pressures (the explanation of which is in MBV) converge with internal technological capabilities configuration (the explanation of which is in RBV). The second question, role of cybersecurity efficiency as a moderator, is addressed by

accepting cybersecurity as a competitive advantage that is challenging to source, yet very useful to enhance trust, operational persistence, and compliance with regulations, and, therefore, make cloud accounting create a sustainable competitive advantage.

This conceptual foundation gives a nuanced understanding of how Jordanian banks can strike a balance between the necessity to modernize their operations within a technologically advanced nation and the necessity to ensure trustworthy operations. In so doing, it formulates a unitary perspective of cloud accounting as a market response and as a resource regime and contextualizes this research study within a broader discourse of digital change and sustainable competitive advantage in an emerging economy.

Literature Review

Cloud accounting may also be described as a disruptive method of financial information management since it offers access to such opportunities as real-time, automation, and integrating with other business systems (Khanom, 2017; Ma et al., 2021). The researchers concur that cloud accounting does not merely get the costs off the books, but also makes the operations feel faster and cleaner, encourages compliance and allows it to meet the customer requirements, speed requirements, and transparency requirements (Ahmed, 2020; Berman et al., 2012). Gou and Deng (2023) have indicated that one of the key changes brought about by cloud accounting is that it automates workflows by removing the need to enter data manually or perform regular backups, which is not achievable with conventional accounting systems. From this perspective, cloud accounting is a highly important innovation that reinforces the role of accounting in strategic decision-making and differentiation through competitive advantage.

However, the advantages of cloud accounting do not occur automatically. It has been emphasized in a number of studies that a strong ICT infrastructure is a requirement prior to the actualization of the benefits that come with cloud-based solutions (Abdel-Gawad, 2020). In this regard, developed economies' institutions have used the developed infrastructure and conducive regulatory environment to institutionalize the use of cloud accounting and thus become more competitive (Digital Transformation Market Size & Share Analysis – 2032). In contrast, in other less developed societies, including those in Jordan, it has been implemented gradually, because the technology and data protection is not prepared (Qunying, 2019).

The risks of cyberattacks are increasing as well, in addition to complicating the landscape. Abdel-Gawad (2020) and Al-Samhan (2020) noted that as financial institutions reorganize their work and shift to a digital space, they become predisposed to greater risks that damage the trust of their clientele; they spill over to business burdens. Thus, cybersecurity performance is a critical element of the use of cloud accounting. Qunying (2019) claimed that cybersecurity is not only an enabling tool of trust, resilience, and regulatory compliance but also a protective tool. The provided observations reveal why cybersecurity is an important variable that could moderate the competitive value of cloud accounting by enhancing it or reducing its competitive value.

The comparison studies give more insight into the challenges and opportunities as well. North America and western Europe have been characterized by high rates of investment in ICT infrastructure and adoption of innovations ahead of their times in terms of adopting cloud accounting (Digital Transformation Market Size & Share Analysis -2032). On the other hand, the banks in Jordan have long stagnated in an old system, and it has only recently been that banks started to consider cloud accounting as one of the available tools to enlarge their business and become competitive (Government digital transformation: A crucial step for the future of Jordan, 2025). This lag in adoption is due to both cultural preferences for traditional accounting practices

and structural constraints, such as low-speed internet access and changing regulatory understanding on data security (Al Habashneh et al., 2023).

More recent work has also indicated a convergence of cloud accounting with other new technologies. The blockchain provides the features of tamper-proof records and smart contracts, and this feature can be combined with the advantages of cloud accounting, i.e., the availability of the information in real time and the efficiency of its operation, as Shivarajappa (2024) and Han et al. (2023) claimed. Yet, the implementation of blockchain is still at an early stage because of the issues of scale and high implementation expenses. Although blockchain is more likely to guarantee unmatched transparency and security, cloud accounting has already gained wider acceptance in the market due to its ease of access and shorter payback period.

These advances, however, have important gaps in the literature. The majority of the literature has been concentrated on either the technological properties of cloud accounting (Khanom, 2017) or the overall advantages of ICT infrastructure (Ma et al., 2021). Few have investigated how, precisely, ICT infrastructure, when implemented as part of cloud accounting systems, generates a competitive advantage. Moreover, only a few of them have empirically considered the presence of cybersecurity efficiency as a moderating variable of this association, especially in the context of banks operating in the specific structural and cultural context of Jordan.

This study aims to fill these gaps by contributing a refined study of the role of robust ICT infrastructure enabled by cloud accounting in enhancing the competitive edge in the Jordanian banking sector. It explicitly integrates the mediating effect of cybersecurity efficiency to augment previous research on digital transformation and to position cybersecurity as a compliance issue instead of a strategic value-creating facilitator.

This research paper is novel in the sense that, first, the study is aimed at unpacking a relationship between the ICT infrastructure and the competitive advantage assisted by the cloud accounting capabilities; and second, the study is aimed at making clear how the efficiency of cybersecurity defines the nature of the relationship between ICT infrastructure and competitive advantage. Thereby, it contributes to the body of literature as it offers a contextually nuanced and theoretical perspective on the answer to a burning practical question: How can Jordanian banks apply the cloud technologies not only to update the operations but also to stabilize and sustain a defensible competitive edge in the financial landscape that is swiftly evolving?

Methodology

Research Paradigm

In this study, the Design Science Research (DSR) paradigm has been used as a construct to understand the strategic position of ICT infrastructure in enhancing competitive advantage through cloud accounting systems in the Jordanian banking sector. The DSR paradigm is suitable for the design of novel artefacts (such as conceptual frameworks or models) to solve practical problems and make contributions to knowledge. It makes it possible to research the practical issues of digital transformation and competitive sustainability, particularly in regulated financial structures. The research was developed as an ongoing process of problem definition, framework development, which relied on literature, theoretical refinement of the framework, and conceptual validation to the current standards and academic norms.

Research Design

This study was carried out based on a qualitative conceptual research design, and is also supported by a constructivist worldview that emphasizes on the situational, dynamic, and interpretive nature of technological innovation. It was also designed more on theoretical synthesis and model

construction as opposed to the field-based empirical data, integrating knowledge in diverse fields including accounting information systems, strategic management, information technology, and cybersecurity. To derive the essential constructs, establish their correlation with one another too, and arrange them in a conceptual framework describing the degree to which cloud accounting capabilities made possible by ICT infrastructure resulted in a competitive advantage, a multi-layered desk research approach was employed.

Sample of the Study

The study was based on secondary data, which synthesized the findings of other peer-reviewed journals, institutional and regulatory reports, industry white papers and accepted international standards related to the ICT infrastructure, cloud accounting, competitive strategy and cybersecurity in banking. This literature-based evidence base was used to develop and refine the conceptual model, assess its practical applicability, and ensure alignment with contemporary technological and regulatory frameworks in Jordan.

Model Construction and Conceptual Development

The development of the conceptual model was based on a broad overview and synthesis of scholarly articles and institutional reports, as well as on international cloud computing frameworks (e.g., NIST guidelines, ISO standards). The aspects of cloud accounting that have been found to be of utmost importance (infrastructure, cost efficiency, ease of use and access to real-time data) were identified and aligned with the constructs of competitive advantage (operational efficiency, data quality, flexibility and cost leadership). Cybersecurity efficiency was the theorized variable that moderates the level of cloud accounting, creating sustainable competitive differentiation. The model development process based on the Resource-Based View (RBV) and the Market-Based View (MBV) was used to enable the strategic relevance of internal digital capabilities and external market positioning. Additional inputs of technological adoption theories and forms of governance were added in such a way that the framework is practical and theoretically sound.

Data Sources and Analytical Strategy

As a source of data, only secondary sources were considered: peer-reviewed academic journals, published case studies, industry white papers, and regional reports of digital transformation. The theoretical constructs and their interconnection were cross-contextually validated as a result of content analysis of these sources and cross-theoretical mapping of the obtained results. Particular attention was paid to best practices in cloud accounting globally (i.e., in North America, Europe, and Asia) and how they apply to the Jordanian banking environment.

The method of analysis was by the successive amendment of the conceptual framework by correspondence to the existing theories, inner consistency of constructs, and logical direction. The concept of this framework was tested in terms of hypothetically applying and examining the effects that changes in the ICT or cybersecurity variables would have on the competitive outcomes.

Results

ICT Infrastructure in Cloud Accounting Systems

Cloud accounting systems, especially those operating in industries like banking with a technologically dynamic background, rely on Information and Communication Technology (ICT) infrastructure in their successful implementation and operation. Ahmed (2020) and Dimitriu and Matei (2014) discuss cloud accounting as an internet-based system where financial data is stored, processed, and accessed to allow users to view information in real time on remote servers. This web-based on-demand access to accounting capabilities is fully dependent on advanced ICT

infrastructure, which consists of internet connectivity, data facilities, cloud systems, cybersecurity solutions, and systemic software infrastructure.

ICT infrastructure is both a resource as well as a strategic resource within the Jordanian banking industry, where the institutional infrastructure is gradually being outlined by the national digital transformation plan Jordan Vision 2025. It allows the use of cloud accounting to create consistent access to the cloud systems, secure financial transactions and align the real-time information across the various departments, such as risk management and Customer Relationship Management (CRM). Cloud-based systems, as Rahman (2023) highlights, add features, like real-time accounting, automatic correction of data and Machine-to-Machine (M2M) communication, all of which rely on ICT tools and services. Besides, Qunying (2019) says that dependable ICT infrastructure supports the secure provision of scalable accounting services and enhances the quality and speed of financial data processing.

ICT infrastructure also supports cloud platforms, which benefit accounting practices by adding features such as automatic backup, remote access, scaled-up storage and integration of applications. These platforms are used in lieu of traditional accounting systems where data has to be physically stored and updated manually (Khanom, 2017). Information interoperability and the simplification of activities is enabled by the combination of advanced ICT elements like virtual private networks, application programming interfaces, and virtual servers. Jin et al. (2023) reiterate further that cloud computing enables organizations to enjoy the benefits of having powerful computing resources without having to own the hardware or equipment underlying them, thus saving on costs and responding flexibly to changing market dynamics.

Competitive Advantage Enabled by ICT

Competitive advantage is the ability of an organization to beat its competitors in the sense that it provides more value or the same value at a cheaper cost (Porter, 1985; Barney, 1991). ICT infrastructure can play a major part in generating competitive advantage, especially in facilitating real-time decision making, minimizing operational inefficiencies and innovation. Competitive advantage, as was described by Powell (2001), does not only occur through market positioning, but also through the successful internal utilization of resources where ICT plays a decisive role.

ICT-supported cloud accounting empowers banks with the ability to capitalize on digital responsiveness and enhance operational responsiveness. The accessibility is increased, tasks are automated, and data analytics can be performed in real-time to make decisions quickly and reduce information asymmetry, maximizing customer satisfaction (Jaiswal and Jaiswal, 2019). Additionally, ICT infrastructure allows accounting to be integrated with the other digital systems, including CRM, which allows banks to tailor services to customers, optimize their customer interactions, and strengthen the loyalty of their clients.

ICT-enabled cloud systems are beneficial in improving data quality, market share, and other dimensions of competitive advantage (Al Habashneh et al., 2023). On the one hand, the high data accuracy on the basis of automated entries, fraud detection systems, and real-time monitoring minimizes the errors and increases compliance with the regulatory standards. In addition, the scalable nature of cloud allows banks to expand and add to the system as they grow, expand into new markets and tailor to the customer requirements, increasing market share and positioning.

The importance of ICT in achieving cost efficiency is also vital. According to Abdel Sadiq (2020), institutions that utilize cloud platforms can reduce infrastructure and maintenance costs while maintaining or enhancing the quality of service. ICT-driven innovations allow banks to implement

efficient workflows, cut down on redundant processes, and reallocate resources towards strategic investments, all of which culminate in a sustainable competitive edge.

The Role of Cybersecurity Efficiency

Although cloud accounting has many benefits, it also opens financial institutions to risks of cybersecurity attacks, and such risks need to be properly addressed to maintain the trust and integrity of operations. Cybersecurity efficiency is determined as the capability of systems to recognize, impede, and determine cybercrimes and threats and also to ensure the privacy, integrity, and accessibility of sensitive financial data (Al-Samhan, 2020; Abdel-Gawad, 2020).

Cybersecurity efficiency is not an exclusive technical protection, but a strategic requirement. In the context of Jordanian banks, where digital maturity varies, ensuring robust cybersecurity frameworks is essential to encourage adoption and fully exploit cloud accounting capabilities (Al-Khaled, 2018). The literature stresses that cyber threats are among the top risks globally and pose significant threats to the stability and functionality of financial institutions (Barrett et al., 2011). Thus, cybersecurity emerges as a moderating variable that affects the relationship between cloud accounting and competitive advantage.

Efficient cybersecurity mechanisms such as encryption, intrusion detection systems, firewalls, and multi-factor authentication are crucial for building digital trust. Iguer et al. (2014) noted that cyber governance and management should be consistent with the business objectives to mitigate risk and enhance resilience. By avoiding data breaches and illegal access, the banks will be able to ensure the adequate functioning of cloud-based systems and establish customer trust.

Cybersecurity also has a proactive role that enables identifying vulnerabilities and potential threats early on. It is also stated by Steingartner et al. (2021) that the digital assets must be assessed on a regular basis, and the outdated systems must be modernized and access controls strengthened. In this way, the financial institutions not only protect their data resources but also enhance the stability of their operations, which eventually results in a competitive advantage that is maintained.

Impact of ICT Infrastructure in Cloud Accounting on Competitive Advantage

ICT infrastructure propagates competitive advantage on both direct and multifaceted bases through cloud accounting. ICT-based cloud accounting enables banks to respond more to the market changes by providing simplified financial activities, accessibility and simplified data processing. This kind of responsiveness boosts the strategic positioning in which banks are able to capture opportunities, minimize threats and set themselves apart in terms of services (Al Habashneh et al., 2023).

ICT systems aid in the access of real-time financial data, which aids in timely reporting as well as strategic forecasting. The management teams will be able to identify the bottlenecks in the performance and optimize the cost structures by enhancing the data visualization and analytics, and evolving the customer services. These strengths are related to the RBV approach, which believes that internally based resources, such as the application of sophisticated ICT tools are a source of sustainable competitive advantage (Wernerfelt, 1984; Barney, 1991).

Though the digitalization of financial institutions in Jordan is progressively changing the industry into international standards, the implementation of the ICT structure of cloud accounting has delivered positive outcomes in the segment of operational responsiveness and cost mitigation (Al Habashneh et al., 2023). The large and well-established ICT-based banks have been found to be more flexible in regards to changes in rules, they have a larger number of customers and a higher degree of data-driven development. This means that ICT infrastructure is among the strategic enablers which connect internal capabilities with the external market opportunities.

In addition, innovation is attained via the synergy of ICT infrastructure and cloud platforms. Through systems such as AI-based analytics, compatibility with blockchain, and automated reporting, the use of manual processes can be reduced, and human resources will have the chance to do more valuable work. Such an innovation-based environment, in addition to differentiation, promotes resiliency in an organization when faced with economic and technological shocks.

Influence of Cybersecurity Efficiency on This Relationship

The effectiveness of cybersecurity increases the beneficial relationship between ICT-enabled cloud accounting and competitive advantage to a considerable extent. Having proper cybersecurity frameworks ensures consistency and integrity of accounting data, which is required in decision-making. Misguided cybersecurity on its part poses threats that can nullify the benefits of cloud systems and cause disgrace to an organization.

The efficiency of cybersecurity enhances the confidence of the stakeholders and regulatory compliance, which cannot be ignored in the banking industry because of the assurance of data security and continuity. Okereafor and Adebola (2020) argue that strong cybersecurity allows business continuity and safeguards against data manipulations, fraud and operational impact. Therefore, it is among the critical factors that enable the process of attaining a competitive advantage by allowing the digital transformation to be sustainable.

Cybersecurity is also a moderating variable since it influences the efficiency of the ICT infrastructure use. As an example, only within a secure environment, the entire potential of real-time analytics, automated workflows, and integration capabilities of cloud accounting is supposed to be achieved. By integrating cybersecurity governance into the ICT strategy, it becomes easy to implement a proactive approach to managing digital risks and efficient innovation.

Jordanian banks are heading in the digital direction and are also investing heavily on the abilities of cybersecurity to improve their ICT infrastructure (Government Digital Transformation, 2025). The institutions that have integrated the concept of cybersecurity within their digital transformation strategies are more trustworthy among clients and partners, have fewer cases of data breaches, and are more in line with the global standards. This alignment renders cloud accounting systems more credible and effective, thus assisting in enhancing the competitive placement.

In conclusion, the effectiveness of cybersecurity positively contributes to the benefits of ICT infrastructure in cloud accounting, based on the integrity of the operations and the confidence of customers. It transforms ICT into a strategic resource that can be deployed to give banks a sustainable competitive advantage, so that they now perceive ICT as a functional tool. To a large extent, the ability of Jordanian banks to merge the most effective ICT systems with sound cybersecurity practices will determine the resilience and the leadership of the banks in the competitive financial sector as the digital threats evolve and become more advanced.

Discussion

The findings of this study support the argument that ICT infrastructure embedded into cloud accounting systems plays a major role and leads to the competitive advantage of Jordanian banks. The cloud accounting solutions are founded on a robust ICT infrastructure, which enables financial institutions to substitute the currently used traditional and disjointed systems with online platforms which can give real-time access to data, operational flexibility, and be cost-effective (Ahmed, 2020; Khanom, 2017; Qunying, 2019). The capabilities will allow banks to make responsive, data-driven decisions in real-time, thereby increasing their responsiveness to market forces, customer

needs and changes in regulations, a quality that directly helps in generating sustainable competitive advantage.

A Resource-Based View (RBV) clearly views the ICT infrastructure as a resource that is valuable, rare and inimitable (Barney, 1991; Wernerfelt, 1984). The operationalization of the strategic value of ICT infrastructure in this research is founded on the reality that cloud accounting functionalities, comprising remote accessibility, automation and system unification, help to enhance efficiency within internal procedures and resource utilization (Powell, 2001). Such capabilities allow banks to become innovative and customize services and minimize costs of infrastructure (Jin et al., 2023; Abdel Sadiq, 2020), which further gives them a competitive edge that is enduring and difficult to replicate by their competitors.

Meanwhile, the Market-Based View (MBV) explains this effect under the pressure of the external environment. With the increased liberalization and digitization of banking in Jordan, banks are under pressure to become fast, transparent, and digitally interesting to their customers and authorities (Hangyan, 2025). The Five Forces Model of competition proposed by Porter (1980) presupposes that the reaction toward such competitive pressures must be strategic, and differentiate service offerings. The ICT infrastructure is used to implement cloud accounting to address these external requirements, which in turn supports the MBV argument that businesses must position themselves accordingly in their marketplaces (Makhija, 2003; Lelissa & Kuhil, 2018).

Moreover, the research demonstrates that banks possessing a developed ICT infrastructure could provide more opportunities to extend the services, to gain data accuracy, and to react to the altered regulatory demands, which are the primary focus of the internal value creation of RBV and the external responsiveness of MBV (Al Habashneh et al., 2023). Hence, cloud infrastructure embedded with ICT infrastructure not only simplifies financial operations but also serves as a fuse to obtain and maintain a competitive advantage in the changing financial sector in Jordan.

Cybersecurity efficiency was found to significantly moderate the relationship between ICT-enabled cloud accounting and competitive advantage in Jordanian banks. While ICT infrastructure facilitates innovation and operational speed, the effectiveness of these systems is heavily dependent on their security integrity. The findings show that without cybersecurity solutions, which include but are not limited to encryption, firewalls, intrusion detection, and access control, threats to the cloud systems are likely to be an attack on data breaches, fraud and system malfunctions (Al-Samhan, 2020; Iguer et al., 2014).

Considering RBV, cybersecurity is a conceptualized strategic organizational capability that is knowledge-intensive and hard to copy (Ma et al., 2021; Powell, 2001). This resource safeguards the fundamental data of the bank and safeguards its continuity in financial operations. The findings substantiate the concept that cybersecurity is not only capable of safeguarding the activities of cloud accounting but also enhancing the confidence of stakeholders and regulatory compliance as the two significant elements of the long-term competitive advantage. This is in line with the views of Al-Samhan (2020) and Abdel-Gawad (2020), who emphasized the dual nature of cybersecurity as a protective and strategic facilitator.

In addition, cybersecurity productivity improves the realization of the RBV-driven capabilities by ensuring that valuable resources, including real-time data analytics and automation, are deployed in a secure environment. In the absence of cybersecurity, the maximum benefits of cloud accounting will not occur, and the benefits obtained can be short-term or susceptible to intrusion. Therefore, the factor of cybersecurity is moderating, not passive, and it is important in finding out whether ICT infrastructure can indeed serve as a sustainable competitive resource.

According to the MBV, the efficiency of cybersecurity improves the positioning of a bank because reputational and operational risks are external risks to the bank within the competitive environment. The more sophisticated cyber threats become, the more institutions that have higher cyber protection against them have the ability to retain customer trust and adhere to digital policies (Government Digital Transformation, 2025), which will also make them more competitive (Musyoki, 2023). Cybersecurity, therefore, serves as a market differentiator- banks that can show their robustness and reliability in their digital system will have greater chances of getting and maintaining customers in the competitive financial environment.

With the digital maturity of banks ranging, in the Jordanian context, the higher the levels of trust, operational stability, and adherence to international standards reported by the banks that have integrated cybersecurity into their digital approaches (Al-Khaled, 2018; Okereafor and Adebola, 2020). These results support the conclusion that cybersecurity is not a supportive role but an important moderator that determines the intensity and sustainability of the relationship between ICT-enabled innovation and competitive advantage.

Conclusion

The study aimed to examine the impact of ICT infrastructure on promoting the competitive advantage created by the use of a cloud accounting system within Jordanian banks and to test the mediation of the efficiency of cybersecurity affecting this correlation. The paradigm used in the study was Design Science Research (DSR), whereby the qualitative conceptual design was applied, in which the secondary references and the opinion of experts were utilized to construct and test a conceptual framework. It was a secondary-data-based study that synthesized the evidence based on peer-reviewed journals, institutional and regulatory reports, industry white papers, and internationally recognized standards concerning ICT infrastructure, cloud accounting, competitive strategy, and cybersecurity concerning banking. The conceptual model was developed and refined on the basis of this literature-based evidence, assessed on the basis of its practical applicability, and aligned to the latest technological trends and regulatory requirements in the Jordanian banking industry.

The findings confirm that ICT infrastructure is a facilitator background of cloud accounting system directly resulting in operational agility, reduction and responsiveness of strategy. Cloud platforms supported by ICT have helped banks to better align their internal operations with the needs of the market, thanks to the functionality of real-time data access, automated processing, system integration, and so on. (Ahmed, 2020; Qunying, 2019). These capabilities are crucial in competitive advantage, particularly in the dynamic, digitally transformed financial industry of Jordan. From the perspective of the Resource-Based View (RBV), ICT infrastructure is a valuable, rare, and inimitable resource, which is the foundation of organizational long-term performance (Barney, 1991; Powell, 2001). At the same time, the Market-Based View (MBV) confirms the observation that the response of banks to external pressure, e.g., the competition and the expectations of customers, requires them to use strategic resource allocation, including cloud-based solutions (Porter, 1980; Makhija, 2003).

It is noteworthy that the study also established that cybersecurity effectiveness is a robust predictor of this relationship since they are moderating variables that enhance the value and strength of ICT-based cloud accounting systems. Effective cybersecurity in the form of encryption, intrusion detection software, and multi-factor authentication decreases the threat posed by cybercrime, ensures the integrity of the data, and enhances the trust of the stakeholders (Al-Samhan, 2020; Abdel-Gawad, 2020). This coincides with RBV, which categorizes cybersecurity as a type of

knowledge-based capability supporting a competitive positioning through securing organizational assets (Ma et al., 2021). Moreover, MBV implies that trust, regulatory compliance, and business continuity through cybersecurity practices are the major differentiators in a highly competitive environment (Hangyan, 2025).

There are two implications of these findings. To begin with, ICT investments should be implemented by the bank executives and policymakers simultaneously with cybersecurity improvements, as they can achieve the maximum strategic returns. Second, regulators need to come up with more transparent frameworks that can enhance safe digitalization in financial institutions. The results indicate that competitive advantage does not come only through the adoption of technology but through the combination of secure, scalable, and adaptable ICT-based capabilities into the core banking processes.

Although it has contributions, this study is constrained by its conceptual focus as it employs theoretical modelling and secondary data as opposed to empirically testing it. Future studies have the possibility to elaborate on the proposed conceptual framework by field-based case studies or quantitative research to validate and develop the conceptual framework in the actual banking setting.

The novelty of the study is that it dissolves two theoretical frameworks, RBV and MBV, to examine the interaction of ICT infrastructure, cloud accounting and cybersecurity efficiency in the least researched sample of Jordanian banks. The study provides a broader conceptualization of the ways that banks can create and maintain a defensible competitive advantage in the digital era by situating cybersecurity not merely as a technical protection but as a strategic moderator.

Limitations and Recommendations

Although this study brought considerable insights on board, some limitations need to be recognized. Firstly, the study was based on a qualitative conceptual framework as it mainly involved the use of secondary data and theoretical modelling. Although the method is appropriate for building and testing a conceptual framework, it restricts the generalizability of the results in an empirical manner. Lacking primary quantitative data will not allow for quantifying the effect size, the strength of relationships, or statistically proving the model constructs. Thus, it is better to interpret the results of the study as a set of theoretically based propositions and not empirically tested results.

Second, the research was based on secondary data sources, which mostly captured the views of the established regulatory agencies, leading banks, and any other agency with an ICT orientation in Jordan. Although this evidence was useful to conceptual development and guaranteed that the developed concept is in line with technological and regulatory frameworks, it might not entirely represent the experiences of frontline staff, end-users, or smaller financial institutions. These actors may have different challenges or may have different benefits in switching to cloud accounting, and, therefore, it decreases the possibility of generalizing the results to the entire banking industry.

Third, the study was contextually restricted to Jordanian commercial banks, which might be subject to special technological, regulatory and cultural factors than other financial sectors in the Middle East or elsewhere in the world. Therefore, transferability of the findings can be limited in areas where there is a variation in the level of digital maturity or cybersecurity infrastructures.

The study recommends the following based on these limitations:

1. Empirical validation: It is suggested that quantitative methods such as surveys or structural equation modeling (SEM) should be employed in the future to empirically validate the

relationships that were previously proposed in the conceptual model and also test the moderating effect of cybersecurity efficiency directly.

2. Comparative Studies: It is recommended that cross-national or regional studies should be conducted to examine the differences in the relationship between ICT infrastructure and cloud accounting and competitive advantage in developing and developed economies.
3. Broader Stakeholder Inclusion: Future research should include additional organizational roles (IT staff, accountants, compliance officers, and customers) to develop a more comprehensive view of cloud accounting implementation and cybersecurity practices.
4. Longitudinal Approach: Better longitudinal studies can be made to prove the evolving role of cybersecurity and Information Technology infrastructure in the sustenance of the source of competitive advantage over time, particularly during the period of digital disruption.

Implications

This research has a lot of practice implications, policy implications and future research implications. The findings suggest to the bank managers and executives that they should ensure that they have an efficient ICT infrastructure, which can facilitate the cloud accounting systems to realize maximum performance and agility benefits. ICT infrastructure is not merely a utility, but rather a resourceful and the origin of competitive advantage when the technological capabilities are incorporated into the organizational objectives as the Resource-Based View (Barney, 1991; Powell, 2001) guides.

The study indicates to policymakers and regulators that there is a pressing need to strengthen cybersecurity systems in the Jordanian banking sector. Cyber threats are becoming increasingly frequent and more sophisticated, as shown by Al-Samhan (2020) and Abdel-Gawad (2020), since they cannot be addressed, which may raise doubt in the population and discredit the organization. Developing easier cloud adoption and data protection strategies will aid in establishing a safe environment where the banks will be able to innovate freely.

The research contributes to a dynamic discussion about digital transformation to academic researchers and scholars by uniting both levels of theory, MBV and RBV and introducing an element of moderation on the efficiency of cybersecurity. The possibilities of further research of the interrelation of strategic capabilities with the state of the market in the creation of competitive outcomes are opened by such a conceptual development.

In general, the implications are that the digital transformation is neither a linear event, nor a purely technological one, but a stratum-layered phenomenon, which demands the conjunction of infrastructure, security and strategic vision. Banks that recognize and address this multidimensionality will be better placed to be able to have their way in the challenges and opportunities of the digital age.

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