

Blockchain-Driven Digital Transformation in Coffee Industry: Business Model Canvas Implementation

Transformasi Digital Berbasis Blockchain dalam Industri Kopi: Implementasi Business Model Canvas

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Article Info	Abstract
<i>Article History :</i> Received: 15 June 2025 Accepted: 21 June 2025 Published: January 2026 <i>DOI Number :</i> 10.33059/jseb.v17i1.12128 <i>How to Cite :</i> Gumay, W. Z., Cahyadi, E. R., & Muflikh, Y. N. (2026). Blockchain-driven digital transformation in coffee industry: Business model canvas implementation. <i>Jurnal Samudra Ekonomi dan Bisnis</i>, 17(1), 107-119. DOI: 10.33059/jseb.v17i1.12128.	PT. Alko Sumatra Kopi pioneered blockchain adoption in Indonesia to enhance supply chain traceability. This study analyzes the company's business model transformation using the Business Model Canvas (BMC) framework. Data were collected through in-depth interviews, internal documents, and field observations. The analysis compares the nine BMC elements before and after blockchain implementation. Results show a shift in core activities toward digital recording, enhanced value propositions through traceability features, and strengthened customer trust. Customer segmentation transitioned from volume-based to value-based, targeting premium markets prioritizing ethics. Key resources evolved with digital infrastructure integration and trained personnel. This transformation improved operational efficiency and international competitiveness. The study proves strategically implemented blockchain can drive traditional agribusiness toward transparent, sustainable, and digitally integrated models. Keywords: Coffee Supply Chain, Sustainability, Technology, Traceability.

Info Artikel	Abstrak
<i>Riwayat Artikel :</i> Diterima: 15 Juni 2025 Disetujui: 21 Juni 2025 Dipublikasikan: Januari 2026 <i>Nomor DOI :</i> 10.33059/jseb.v17i1.12128 <i>Cara Mensitasi :</i> Gumay, W. Z., Cahyadi, E. R., & Muflikh, Y. N. (2026). Blockchain-driven digital transformation in coffee industry: Business model canvas implementation. <i>Jurnal Samudra Ekonomi dan Bisnis</i>, 17(1), 107-119. DOI: 10.33059/jseb.v17i1.12128.	PT. Alko Sumatra Kopi adalah perintis adopsi blockchain di Indonesia guna meningkatkan ketertelusuran rantai pasok. Penelitian ini menganalisis transformasi model bisnis perusahaan menggunakan kerangka Business Model Canvas (BMC). Data dikumpulkan melalui wawancara mendalam, dokumen internal, dan observasi lapangan. Analisis membandingkan sembilan elemen BMC sebelum dan sesudah implementasi blockchain. Hasil menunjukkan pergeseran aktivitas utama ke pencatatan digital, peningkatan proposisi nilai melalui fitur ketertelusuran, serta penguatan kepercayaan pelanggan. Segmentasi pelanggan beralih dari berbasis volume ke berbasis nilai, menargetkan pasar premium yang mengutamakan etika. Sumber daya kunci berevolusi dengan integrasi infrastruktur digital dan SDM terlatih. Transformasi ini meningkatkan efisiensi operasional dan daya saing internasional. Studi membuktikan blockchain yang diimplementasikan secara strategis mampu mendorong agribisnis tradisional menuju model transparan, berkelanjutan, dan terintegrasi digital. Kata kunci: Rantai Pasok Kopi, Keberlanjutan, Teknologi, Ketertelusuran.

INTRODUCTION

Coffee transcends being merely a beverage — it is a global commodity sustaining millions of livelihoods, particularly smallholder farmers in tropical regions. As a top coffee producer, Indonesia leverages unique biodiversity, microclimates, and traditional processing methods. Regions like Kayu Aro in Jambi have emerged as specialty coffee hubs, producing Arabica beans with distinctive cupping profiles coveted by premium markets (International Coffee Organization, 2023; Rahardjo *et al.*, 2020). However, Indonesia's coffee sector faces critical challenges in traceability and supply chain transparency. Conventional manual record-keeping impedes verification of origin, sustainability practices, and quality — attributes increasingly demanded by global consumers (Casino *et al.*, 2020; Pollard *et al.*, 2023).

This transparency deficit erodes trust and restricts market access. Digital transformation, particularly blockchain technology, offers a solution. Blockchain enables immutable, timestamped data recording across decentralized systems, creating tamper-proof supply chains (Braun *et al.*, 2021; Tian, 2016). Although previous studies have recognized the potential of blockchain to empower smallholder farmers, empirical analysis of its impact on business model transformation in the coffee sector has been identified as still scarce (Abelenda *et al.*, 2023).

While the technical potential of blockchain is well established (Casino *et al.*, 2020), several critical gaps remain in current research. First, there is limited analysis of how blockchain impacts all nine elements of the Business Model Canvas (BMC) in real-world agribusiness settings. Second, existing studies often lack comprehensive frameworks that explicitly link blockchain's capabilities to holistic business model transformation. Third, empirical evidence from the Indonesian coffee sector — an industry characterized by high value and complexity — remains scarce. This study addresses these gaps by examining the adoption of blockchain technology by PT. Alko Sumatera Kopi through the analytical lens of the BMC.

PT. Alko Sumatra Kopi in Kayu Aro, Jambi — a pioneer in blockchain adoption since 2019 — serves as this study's focal point. This research examines the company's business model evolution using the BMC framework addresses three objectives, namely analyzing pre- and post-blockchain changes in the nine BMC elements, identify blockchain's contribution to value creation via traceability and efficiency, and formulate strategic recommendations for digital transformation in traditional agribusiness (Osterwalder & Pigneur, 2017).

LITERATURE REVIEW

Business Model Innovation in Agriculture

The agribusiness sector faces mounting pressure to adopt sustainable and transparent practices (Braun *et al.*, 2021). Coffee supply chains, characterized by fragmented stakeholders and complex logistics, require innovative business models to meet global demands for ethical sourcing (International Coffee Organization, 2023). The Business Model Canvas or BMC, a strategic framework by Osterwalder & Pigneur (2017), enables a systematic analysis of value creation through nine interdependent blocks that represent the core structure of an organization.

Value Propositions, Customer Segments, and Revenue Streams define the company's market positioning and how it generates income. Key Activities, Key Resources, and Key Partnerships translate strategic goals into operational actions that deliver value. Channels, Customer Relationships, and Cost Structure focus on optimizing interactions with stakeholders and managing financial efficiency. This integrative framework has proven effective in diagnosing the impacts of digital

transformation, particularly by highlighting shifts from physical operations to digital resource allocation and process automation (Moshood *et al.*, 2022).

Blockchain as a Supply Chain Transformer

Blockchain, a decentralized and immutable digital ledger, offers a transformative solution to traceability challenges in agricultural supply chains (Tian, 2016). Its core functionalities include provenance verification through time-stamped data recording from farm to consumer (Casino *et al.*, 2019), the establishment of a trust architecture that enables buyers to transparently validate sustainability claims (Markos *et al.*, 2023), and efficiency optimization by automating documentation processes, which can reduce operational costs by over 30 percent (Casino *et al.*, 2020).

Within coffee value chains, blockchain plays a critical role in mitigating fraud risks and enhancing transactional equity, particularly by empowering smallholder farmers through the digitization of production and trade data (Abelenda *et al.*, 2023).

Convergence of Blockchain and Business Models

Emerging research highlights the synergistic relationship between blockchain technology and various components of the BMC. In terms of value propositions, blockchain enables the integration of traceability as a premium differentiator that enhances product credibility and market appeal (Pollard *et al.*, 2023). Within key activities, it transforms traditional manual record-keeping into streamlined, AI-audited data workflows, thereby increasing operational efficiency and accuracy (Braun *et al.*, 2021). For customer relationships, blockchain fosters deeper trust by providing verifiable ethical credentials and transparency in sourcing practices (Tian, 2016).

Despite these advancements, empirical studies examining the restructuring of business models driven by blockchain — particularly in the context of commodity-based agriculture — remain limited and underexplored (Rahardjo *et al.*, 2020).

METHOD

This study employed a qualitative case study approach to investigate how PT. Alko Sumatra Kopi transformed its business operations through blockchain technology. We chose this methodology because it allows for deep examination of complex organizational changes in real-world settings — particularly valuable when studying how digital innovations reshape business models (Eisenhardt, 1989; Patton, 2002; Yin, 2018). Our fieldwork took place at the company's coffee processing facility in Kayu Aro, Jambi, where we traced developments from the pre-blockchain era (2019-2021) through its full implementation (2022-2024).

To ensure a comprehensive understanding of the transformation process, we collected insights through multiple perspectives and data sources. We conducted in-depth interviews with 12 key participants — including company executives, blockchain technicians, coffee farmers, and international buyers — each lasting approximately one hour to capture a wide range of experiences and viewpoints. Additionally, we carried out direct observations of 15 critical operational activities, such as farmers recording harvest data and quality control teams verifying blockchain entries. These observations allowed us to contextualize technical processes within daily practices, supporting the notion that technology should be understood not merely as a tool but as something embedded in social routines and everyday interactions (Eisenhardt, 1989; Patton, 2002; Yin, 2018). To complement the primary data, we also reviewed five years of internal documents, including production reports and

digital transaction records, providing a longitudinal view of the company's digital transition (Yin, 2018). Participants were carefully selected based on their direct involvement in the digital transformation journey (Patton, 2002; Yin, 2018). All interviews were recorded and transcribed, while field notes and documents were systematically organized using Atlas.ti software to identify patterns and connections.

At the heart of our analysis lies the BMC framework, which enabled us to map the company's evolution across two distinct phases of transformation (Osterwalder & Pigneur, 2017). First, we reconstructed the original business model as it existed in 2019 by analyzing historical documents and gathering retrospective accounts from key organizational stakeholders. Then, we documented the transformed operations in 2024 by systematically identifying changes across all nine components of BMC, reflecting shifts in strategy, operations, and customer engagement. To address each research objective, we applied tailored analytical techniques: business model changes were tracked through comparative matrices that visually captured structural shifts between the two timeframes; blockchain's value contribution was measured by examining how its technical features — such as traceability, automation, and data integrity — translated into operational improvements; and final recommendations were developed by synthesizing empirical findings with established theories on agribusiness digitization and sustainable innovation.

RESULTS

The identification results of the nine elements of the current Business Model Canvas are as follows. The first result is the transformation of customer segments. Before the adoption of blockchain, PT. Alko categorized its customer segments primarily by volume — targeting large-scale buyers in local and export markets. After digital transformation, customer segmentation shifted toward a value-based model. This aligns with trends observed in Moshood *et al.* (2022) and Abelenda *et al.* (2023), who noted a global rise in value-conscious buyers demanding traceable commodities. The new segments consist of specialty coffee roasteries, ethical importers, and discerning consumers who prioritize traceability and transparency over price. Export clients from Japan, the UK, and the US have become dominant due to their preference for ethically sourced and verifiable products.

Second result is the enhancement of value proposition. The most significant innovation lies in the value proposition. This digital feature becomes a trust-building mechanism and a market differentiator, consistent with findings by Casino *et al.* (2019) who emphasized traceability as a core competitive advantage in digital agri-systems. Initially limited to coffee grading and flavor, PT. Alko now offers a blockchain-based traceability system that provides end-to-end transparency. Through QR-code access, customers can trace the coffee's origin, farming practices, processing techniques, and shipment history.

The third element concerns distribution channels, in the form of efforts to integrate physical and digital interfaces. This dual-channel strategy echoes Braun *et al.* (2021), who reported similar enhancements in user engagement via digital transparency. Distribution mechanisms remain hybrid — direct delivery for domestic clients and broker-mediated exports. However, blockchain has introduced a digital interface that complements the physical supply chain. QR-codes on packaging lead to interactive data platforms that enrich the customer experience and reinforce brand authenticity.

Evolution of customer relationships is the fourth result. Customer interactions previously depended on personal communication and transactional exchanges. This shift supports the findings of Chen *et al.* (2021), who highlighted blockchain's potential to institutionalize trust through immutable

data. Post-blockchain, relationships are increasingly data-driven. Clients independently verify the authenticity of product claims, thereby reducing reliance on sales intermediaries. For local customers, a digital loyalty program based on repeat purchases and mobile payments fosters long-term engagement.

The fifth result is the shifts in revenue streams. These dynamics are consistent with Duong *et al.* (2024) and Nguyen & Ali (2023), who reported that traceability enhances product value in global agricultural trade. While green bean sales remain the dominant income source, blockchain traceability has enabled PT. Alko to command premium pricing. New products such as roasted and powdered coffee have been added, supported by a verified sourcing narrative. Currently, export revenues account for 60 percent of total sales, indicating enhanced international market access due to improved credibility.

Next is development of key resources. The firm's key resources have evolved from primarily physical and human capital to digital infrastructure. Blockchain platforms, traceability databases, and trained personnel now form the backbone of the business model. The internal halal verification team and field data inputters are essential for maintaining product integrity. This expansion supports previous findings by Moshood *et al.* (2022), who demonstrated that resource restructuring — such as the emergence of dedicated data and traceability roles — was a significant consequence of adopting blockchain in agricultural supply chains.

Reconfiguration of key activities is the seventh result in the firm. These changes aim to maintain data consistency and transparency, echoing the operational shifts identified in (Cai *et al.*, 2021). Key business activities have undergone significant change. Manual documentation has been replaced with digital data entry at each stage of the supply chain. New tasks include farmer onboarding, training, blockchain system audits, and coordination with technology providers such as Emurgo Trace.

Expansion of key partnerships is the eighth result. The adoption of blockchain has led to an expansion in strategic partnerships. This inclusive approach reflects Yu *et al.* (2024), who stressed the importance of stakeholder integration in blockchain ecosystems. In addition to local farmers and export brokers, the firm now collaborates with technology providers, certification institutions, and blockchain auditors. Farmers are positioned as data partners whose inputs are critical to the traceability system.

The last result is cost structure and strategic investment. Blockchain adoption has modified the cost structure. Although variable costs — such as cherry procurement and logistics — remain high, fixed costs have increased due to software subscriptions, training, and IT support. These additional costs are offset by higher price realization and stable profit margins, aligning with the conclusions of Alamsyah *et al.* (2023), who found digital systems create long-term cost efficiencies despite higher upfront investments.

Table 1 presents a full breakdown of the BMC as implemented by PT. Alko Sumatra Kopi. The company's key partners include local farmers, export brokers, and specialty coffee buyers such as cafés and roasteries. Its key activities revolve around procurement, processing, product development, and promotion. Value propositions emphasize not only product quality (Grade 1 Arabica and Robusta) but also traceability via blockchain, ethical sourcing, and consistency in delivery. PT. Alko adopts tailored customer relationships, offering more personalized interaction and loyalty programs to local buyers, and formal trust-based engagement with exporters. The revenue streams are predominantly export-driven (60 percent), while the cost structure shows higher variable costs — indicative of production scalability. This canvas provides a strategic snapshot of how PT. Alko creates and delivers value in a sustainable and competitive manner.

Table 1. Business Model Canvas Elements of PT. Alko Sumatra Kopi

Elements	Results
1. Customer Segments	• Main Target Markets: ○ Local: Roasteries and cafés (e.g., Tora Bika). ○ Export: International coffee companies such as Royal Coffee (California), Sakanotocu (Japan), Falcon (UK), and Kindred Forest (UK). • Customer Satisfaction: ○ Local: Measured by monthly Purchase Orders (PO). ○ Export: Measured by increased orders of specific coffee types. • Satisfaction Factors: Order accuracy, delivery timeline, and product quality. • Customer Retention: ○ Local: 95 percent repeat customers. ○ Export: 70–80 percent repeat customers. • Retention Factors: Product quality, good communication, and discount offerings.
2. Value Propositions	• Arabica and Robusta coffee processed using Natural, Semi-wash, Full-wash, and Honey methods. • Grade 1 quality products with distinct aroma and flavor profiles (strong, sweet, smooth) tailored to customer preferences. • Equipped with blockchain technology for coffee origin transparency. • Consistent quality and timely delivery help customers reduce costs and increase trust.
3. Channels	• Local: Direct delivery to roasteries and cafés. • Export: Distribution via brokers.
4. Customer Relationships	• Relationship Types: ○ Local: Personal relationships through regular communication. ○ Export: Broker-mediated relationships and formal communication. • Interaction Frequency: ○ Local: Frequent interaction, at least three times a week. ○ Export: Less frequent, depending on order cycles. • Loyalty Programs: ○ Local: Discounts for repeat purchases and payments via apps. ○ Export: No discounts; focus is on product quality and customer satisfaction.
5. Revenue Streams	• Main Revenue Sources: ○ Export: 60 percent of total revenue. ○ Local: 40 percent of total revenue. • New Products: ○ New products like coffee powder contribute about 10 percent of total revenue but do not displace core product revenues.

6. Key Resources
 - Skilled labor (internally trained).
 - Technology (blockchain and invoice applications).
 - Farmer partnerships (as long-term suppliers of coffee beans).
7. Key Activities
 - Raw Material Procurement: Raw materials are collected through standard-compliant collectors.
 - Coffee Processing: Includes the collection, processing, and distribution of raw materials.
 - Marketing and Promotion: Strategies include discounts and customized product offers based on customer criteria.
 - Product Development: New product development (e.g., coffee powder) based on customer demand.
8. Key Partnerships
 - Local farmers: Main partners for raw material supply.
 - Export brokers: For international distribution.
 - Roasteries and cafés: Loyal customers and product promotion partners.
9. Cost Structure
 - Fixed Costs (30 percent):
 - Employee salaries.
 - Utilities.
 - Variable Costs (70 percent):
 - Raw material costs (purchase of cherries from collectors).
 - Shipping and warehousing costs.

Source: Primary data (processed), 2025.

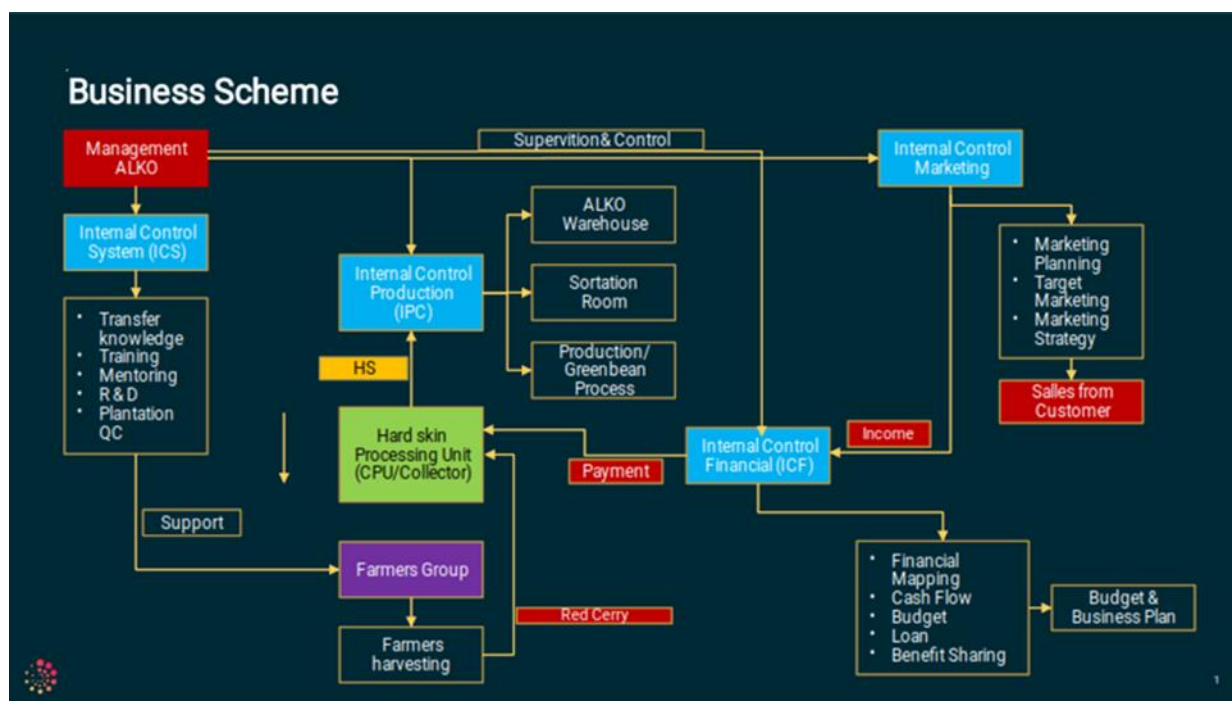


Figure 1. Business Scheme of PT. Alko Sumatra Kopi

Source: Secondary data (processed), 2025.

Figure 1 provides a comprehensive visualization of PT. Alko Sumatra Kopi's operational framework. This scheme outlines the integration between internal control systems, farmer networks, processing units, marketing teams, and financial administration. The flow begins from farmer groups who harvest red cherries, which are then processed through a Hard Skin Processing Unit (HS/CPU)

under the supervision of the Internal Control Production (IPC) team. Supervision also includes warehousing, sorting, and production control. Simultaneously, the Internal Control Financial (ICF) unit manages payments and budgeting, while the Internal Control Marketing unit focuses on planning and executing marketing strategies. This scheme reflects the interconnected and vertically integrated approach adopted by PT. Alko in maintaining quality and traceability from farm to cup.

Table 2 highlights the critical changes in PT. Alko Sumatra Kopi's BMC following the implementation of blockchain technology. This digital innovation led to structural adjustments across multiple blocks. Key Activities now include digital data entry and transparent trace recording. Key Resources have been expanded to incorporate blockchain infrastructure and trained personnel for quality control. The company's Value Proposition has evolved toward offering transparency, traceability, and ethical product sourcing. Customer Relationships are increasingly based on verifiable trust, especially with export clients who demand documented assurance. This transformation marks a significant leap from conventional models toward a digitally integrated, transparency-driven, and sustainability-focused business model. The table visualizes the major elements in the BMC that have been significantly influenced after the adoption of blockchain technology. These changes include digital documentation in key activities, data-driven customer relationships, enhanced value propositions, and more sophisticated key resources. This model shows a shift towards traceability, transparency, and a digitally integrated coffee supply chain.

Table 3 presents the overall business process flow of PT. Alko Sumatra Kopi. It illustrates the hierarchical supervision and control across internal units such as production, finance, and marketing, beginning from the farmers' groups to final customer transactions. This visual framework demonstrates how different components within the supply chain are integrated through both operational and financial flows.

In light of the study's results, it is recommended that PT. Alko Sumatra Kopi continue investing in internal capacity building, particularly by expanding training programs for farmers and operational staff involved in blockchain data entry and system maintenance. Furthermore, future research should explore the quantitative impact of blockchain adoption on financial performance, customer loyalty, and supply chain efficiency. Comparative studies involving other agricultural commodities such as cocoa, tea, or spices are also encouraged to assess the broader applicability of blockchain-enabled business model transformation. These efforts will help refine digital strategies in agriculture and ensure that innovation supports both economic and ethical sustainability goals.

Discussion

The transformation of PT. Alko Sumatra Kopi's business model through blockchain adoption aligns with various findings from prior studies that emphasize the strategic role of digital technologies in agri-food value chains. The shift in customer segmentation — from volume-driven to value-based targeting — supports the observations of Moshood *et al.* (2022), who reported that digital traceability can attract ethically conscious buyers seeking verified supply chain data. Similarly, Abelenda *et al.* (2023) highlighted the increasing preference for transparency as a differentiator in premium markets, which resonates with PT. Alko's experience engaging specialty coffee buyers from Japan, the UK, and the US.

Table 2. Key Shifts in Business Model Components of PT. Alko Sumatra Kopi due to Blockchain Integration

Elements	Results
1. Customer Segments	• International specialty coffee buyers. • Domestic roasteries and cafés. • B2B (business to business) buyers who prioritize traceability and sustainability.
2. Value Propositions	• Transparent product origin and production process. • High-quality, traceable coffee (Grade 1). • Improved customer trust and credibility. • Ethical and sustainable sourcing practices.
3. Channels	• Blockchain-enabled traceability platforms. • Digital order systems. • Export distribution via brokers. • Direct local deliveries.
4. Customer Relationships	• Trust-based relationships through verified data. • Responsive service for inquiries and complaints. • Personalized feedback channels.
5. Revenue Streams	• Export of traceable coffee beans. • Domestic sales to cafés and roasteries. • Potential additional income from traceability certification and premium pricing.
6. Key Resources	• Blockchain technology system. • Trained human resources. • Traceability SOP and documentation. • Strategic farmer partnerships.
7. Key Activities	• Digital data recording. • Processing red cherries into green beans. • Traceability documentation and validation. • Export distribution coordination. • Product marketing.
8. Key Partnerships	• Blockchain platform provider. • Blockchain-trained human resources. • Coffee farmer groups. • Export brokers. • Roasteries and cafés.
9. Cost Structure	• Fixed costs: salaries, digital infrastructure, warehouse rent • Variable costs: raw materials, transportation, blockchain services

Source: Authors' analysis based on primary and secondary data (processed), 2025.

Table 3. Summary Table: Business Model Canvas Before and After Blockchain Adoption

BMC Element	Before Blockchain	After Blockchain Transformation
Customer Segments	High-volume buyers	Value-conscious, ethical consumers
Value Proposition	Coffee grade and flavor	Verified traceability, sustainability, data access
Channels	Physical delivery, brokers	Hybrid channels + QR-code traceability access
Customer Relationships	Personal and transactional	Data-driven, loyalty-based, performance-focused
Revenue Streams	Green bean sales	Premium pricing, added-value products, global access
Key Resources	Physical assets, labor	Blockchain system, traceability team, digital tools
Key Activities	Manual recording, processing	Digital documentation, training, blockchain audits
Key Partnerships	Farmers, brokers	+ Tech providers, certifiers, data validators
Cost Structure	Logistics, wages	+ IT infrastructure, training, blockchain subscriptions

Source: Authors' analysis based on primary and secondary data (processed), 2025.

Enhancement in the company's value proposition, particularly through end-to-end traceability features, confirms the argument by Casino *et al.* (2019) that blockchain provides a competitive advantage in food supply chains by strengthening credibility and trust. The integration of QR-code traceability into product packaging, as practiced by PT. Alko, mirrors the dual-interface strategy discussed by Braun *et al.* (2021), which allows physical goods to be augmented with real-time digital data access — thus enriching the customer experience.

Regarding customer relationships, this study finds that blockchain facilitates trust-based interactions through verifiable and immutable data, a finding that strongly supports Tian (2016), who emphasized blockchain's ability to institutionalize trust in digitally mediated transactions. The development of loyalty programs and direct feedback channels further illustrates the relational shift from transactional to data-driven engagement models.

In the context of revenue streams, PT. Alko's ability to secure premium pricing for traceable products and expand its product portfolio echoes Duong *et al.* (2024) and Nguyen & Ali (2024), who noted that blockchain-enabled traceability can increase perceived product value, customer trust, and willingness to pay. Moreover, the integration of value-added products such as roasted and powdered coffee complements these findings and illustrates how blockchain can support business model diversification.

The evolution of key resources — from traditional physical infrastructure to digital systems and trained personnel—further supports the conclusions of Moshood *et al.* (2022), who documented the emergence of specialized traceability teams and digital support functions as core elements in modern agricultural enterprises. Similarly, the changes in PT. Alko's key activities, including the transition from manual to digital documentation and coordination with blockchain service providers, confirm the process shifts observed by Cai *et al.* (2021) in blockchain-based agri-food operations.

The study also affirms the importance of stakeholder integration in blockchain ecosystems, as outlined by Yu *et al.* (2024). PT. Alko's expanded partnerships with technology providers, certification bodies, and smallholder farmers reflect a decentralized and inclusive approach to traceability management. This approach is critical in maintaining data integrity and ensuring widespread adoption at the grassroots level.

Finally, the restructuring of the company's cost model — particularly the increase in fixed costs due to digital infrastructure and training — is consistent with the findings of Alamsyah *et al.* (2023), who argued that while blockchain incurs higher upfront investments, it yields long-term cost efficiency and market resilience. PT. Alko's ability to balance these costs with premium revenue and export expansion highlights the strategic viability of blockchain for scalable agribusiness models.

In contrast to studies that focus narrowly on technological implementation, this research contributes a more integrated perspective by using the BMC to assess holistic impacts. While the findings generally align with prior literature, they also address the research gaps noted by Rahardjo *et al.* (2020) and Casino *et al.* (2020) regarding the lack of empirical evidence on blockchain-driven business model restructuring in Indonesian commodity agriculture. Thus, this study not only validates existing theories but also extends by offering grounded insights from a pioneering real-world case.

CONCLUSION

PT. Alko Sumatra Kopi's transition to a digitally enabled business model illustrates how traditional agricultural enterprises can innovate through the integration of emerging technologies like blockchain. By reconfiguring its BMC, the company enhanced its value proposition, established deeper customer relationships, and entered new premium markets. The analysis of all nine BMC blocks shows that blockchain not only improved operational efficiency but also strengthened PT. Alko's strategic position within the global coffee industry. The transformation from volume-based segmentation to value-oriented targeting, the enhancement of customer trust through verified traceability, and the optimization of revenue and cost structures indicate the critical role of blockchain as a driver of business model innovation. Based on the findings, it can be concluded that blockchain technology, when implemented strategically, can enable traditional agribusinesses to transition toward more sustainable, transparent, and globally competitive models.

However, this study has several limitations that should be acknowledged. One major limitation is the scope of the data, which focuses on a single case study — PT. Alko Sumatra Kopi — making it difficult to generalize the findings to other agribusiness contexts. Additionally, the exclusive use of qualitative data limits the ability to quantitatively assess the impact of the digital transformation. The lack of access to detailed internal financial data also posed challenges in evaluating profitability and cost-efficiency outcomes. Future research should consider expanding the scope through comparative studies involving multiple companies and integrating quantitative methods to strengthen the analysis and validity of the findings.

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