

Transformative Credit Assessment Model (TCAM): Reconstructing the Role of the Credit Analyst as a Catalyst for Financial Inclusion in Sharia Microfinance

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Abstract: Financial inclusion in Islamic microfinance continues to face a structural tension between prudent risk management and access for micro-borrowers who have limited formal financial records, unstable income, thin credit files, and insufficient collateral. This article proposes a Transformative Credit Assessment Model (TCAM) that reconstructs the role of the credit analyst from a conventional risk gatekeeper into an inclusion catalyst. The study employs a qualitative conceptual approach using a structured narrative review of recent national and international literature on Islamic microfinance, asymmetric information, credit scoring, alternative data, digital finance, financial inclusion, and Shariah governance. The synthesis identifies that conventional assessment is frequently constrained by document dependence and the inability to capture

Abstrak: Inklusi keuangan dalam mikrofinansial Islam menghadapi ketegangan struktural antara kehati-hatian manajemen risiko dan kebutuhan memperluas akses pembiayaan bagi usaha mikro dengan pelaporan keuangan formal yang terbatas, pendapatan tidak stabil, riwayat kredit tipis, dan nilai agunan yang terbatas. Artikel ini mengusulkan Model Penilaian Kredit Transformatif (TCAM) yang merekonstruksi peran analis kredit dari penjaga risiko menjadi katalis inklusi. Penelitian ini menggunakan pendekatan kualitatif-konseptual melalui tinjauan literatur terstruktur terhadap publikasi nasional dan internasional tentang mikrofinansial Islam, informasi asimetris, penilaian kredit, data alternatif, keuangan digital, inklusi keuangan, dan tata kelola syariah. Sintesis literatur menunjukkan bahwa penilaian kredit konvensional sering terhambat oleh

informal economic, behavioral, social, and community information. The model transforms the analyst's workflow into four sequential functions: risk gatekeeping, risk interpretation, relationship-based assessment, and inclusion catalysis. The proposed model is expected to reduce information asymmetry, decrease avoidable credit rationing, improve borrower bankability, and expand sustainable Islamic financial inclusion. The article's main contribution is a conceptual framework that connects asymmetric information theory, relationship-based microfinance, digital credit assessment, and maqashid al-shariah into a single operational model for Islamic microfinance institutions.

Keywords: Transformative Credit Assessment Model; Islamic Microfinance; Credit Analyst; Asymmetric Information; Financial Inclusion; Alternative Credit Scoring.

ketergantungan pada dokumen formal dan keterbatasan dalam menangkap informasi informal, perilaku, sosial, dan ekonomi komunitas. Model ini mengubah alur kerja analis menjadi empat fungsi: penjaga risiko, interpretasi risiko, penilaian berbasis relasi, dan katalisis inklusi. Model ini diharapkan dapat mengurangi asimetri informasi, mengurangi rasioning kredit yang dapat dihindari dan memperluas inklusi keuangan Islam secara berkelanjutan. Kontribusi utama artikel ini adalah kerangka konseptual yang menghubungkan teori informasi asimetris, keuangan berbasis hubungan, penilaian kredit digital, dan maqashid al-syariah ke dalam satu model operasional tunggal untuk institusi mikrofinansial Islam.

Kata kunci: Model Penilaian Kredit Transformatif; Mikrofinansial Islam; Analisis Kredit; Informasi Asimetris; Inklusi Keuangan; Penilaian Kredit Alternatif.

A. Introduction

Financial inclusion is one of the important prerequisites for sustainable economic development because access to savings, financing, payments, and financial protection services allows households and businesses to manage risk and develop economic activities. At the micro level, access issues are not only related to the availability of financial institutions, but also the ability of these institutions to read the economic viability of communities that mostly operate informally. In Indonesia, micro entrepreneurs often do not have standard financial reports, adequate collateral, or a long credit history. As a result, credit assessment requirements that are too rigid can result in

exclusion of potential debtors who actually have good character and decent business capacity.

These issues are becoming increasingly important in sharia microfinance, such as BMT, sharia MFIs, BPRS, and similar institutions that deal with debtors with very diverse economic characteristics. Martiana et al. (2024) show that micro business financing through BMT faces asymmetric information problems that can give rise to moral hazards and agency problems. This finding confirms that the quality of financing assessment does not only depend on documents, but on the ability of institutions to obtain, verify, and interpret information scattered on debtors and their environment. Furthermore, designing micro-fintech models specifically tailored for Islamic microfinance institutions in Indonesia is essential to bridge these informational barriers (Ascarya & Sakti, 2022).

Mohamed and Elgammal's (2023) research provides an important perspective that in Islamic microfinance, group, women, and rural financing can be related to lower credit risk. These findings show that social dynamics are not solely external factors, but can be a source of information and risk mitigation mechanisms. In other words, the credit assessment process for the micro segment needs to move from a predominantly document-based approach to one that is able to capture social relationships, reputations, behaviors, and business contexts.

Digital transformation opens up new opportunities. Adam et al. (2025) show that innovative credit scoring with alternative data and AI/ML technology has the potential to expand access to financing in Indonesia, but faces obstacles in the form of regulatory fragmentation, data interoperability, and algorithm opacity. At the international level, Berg et al. (2020) show that digital footprints can improve the ability to predict creditworthiness when conventional credit history is not available. However, the use of alternative data also raises issues of privacy, bias, transparency, and accountability. Therefore, technology should not replace human judgment, but rather become a decision-support system that strengthens analysts' abilities.

On that basis, this article develops the Transformative Credit Assessment Model (TCAM). TCAM is not just a new credit scoring algorithm, but a reconstruction of the process and the role of the analyst. This model combines the 6Cs (character, capacity, capital, collateral, condition, and community) with digital/alternative data, sharia compliance, and maqashid-oriented impact. Its conceptual contribution lies in the change of orientation from binary feasible/unfeasible decisions to tiered decisions: ready to finance, finance with support, graduated financing, or empowerment first. Mukit et al. (2026) introduced AI and blockchain-powered credit scoring models for Islamic microfinance institutions to enhance transparency and non-financial behavioral tracking.

Based on this background, the research questions of this article are: (1) what are the limitations of the credit assessment model in Islamic microfinance for groups with thin-file or informal financial records; (2) how can the role of the credit analyst be transformed into a catalyst for inclusion; and (3) how can TCAM be reconstructed as an assessment model that integrates financial, non-financial, social, digital, and sharia information? This research aims to build a conceptual model of TCAM, explain its working mechanism, and formulate propositions that can be tested in subsequent empirical research.

B. Research Method

This study uses a qualitative-conceptual approach with the structured narrative literature review method. This approach was chosen because the purpose of the research is not to estimate the influence of variables using primary data, but to synthesize the findings of previous research to build a new conceptual model.

Literature sources were searched through databases and pages of academic publishers with keywords: Islamic microfinance, microfinance credit risk, asymmetric information, credit assessment, credit scoring, alternative data, character-based lending, digital financial inclusion, Islamic fintech, and maqashid al-shariah. The analysis is

carried out in four stages: 1) **Identification:** Identify publications relevant to three domains: Islamic microfinance, credit assessment, and financial inclusion; 2) **Classification:** Classify literature based on information mechanisms, assessment techniques, social factors, digitalization, and sharia principles; 3) **Synthesis:** Compare the contributions and limitations of each approach; 4) **Reconstruction:** Formulate the dimensions of the TCAM, the analyst's workflow, the catalytic mechanism, and the research proposition.

C. Results and Discussion

1. State of the Art and Research Gap

The literature reviewed shows at least four research streams. The first stream places asymmetric information as the main problem of microfinance. The second stream emphasizes social dynamics, group financing, and relationship-based financing. The third stream develops alternative credit scoring, machine learning, psychometric assessment, and digital footprint. The fourth stream highlights the need for ethical and sharia governance in the use of technology in credit scoring. Mapping the literature and TCAM position are presented in Table 1.

Table 1. Mapping of Literature Flows and TCAM Position

Literature Flow	Key Focus	Limitations	TCAM Position
<i>Asymmetric information</i>	Moral hazard, adverse selection, monitoring (Stiglitz & Weiss, 1981; Martiana et al., 2024)	It has not explained the complete reconstruction of the analyst function	Analyst as translator and information gap reducer
<i>Islamic microfinance</i>	Risk, group financing, women/rural inclusion (Mohamed &	Has not integrated assessments, digital data, and maqashid in a	Integrating risk, social, sharia context, and impact

Literature Flow	Key Focus	Limitations	TCAM Position
	Elgammal, 2023; Ben Salem & Ben Abdelkader, 2023)	single model	
<i>Digital/alternative scoring</i>	AI/ML, digital footprint, psychometrics (Berg et al., 2020; Jagtiani & Lemieux, 2019; Kumar & Babu, 2025)	Risk of bias, opacity, data governance (Aziz & Zulkepli, 2025; McCanless, 2023)	Technology as a decision support with human supervision
<i>Credit analyst/risk management</i>	Screening and financing decisions (Martiana et al., 2024; Mohamed & Elgammal, 2023)	Tends to be risk-gatekeeper oriented	Analysts as catalysts for inclusion

The main research gap lies in the lack of integration of four elements in a single architecture: the quality of microinformation, the role of analysts as context processors, alternative data technologies, and inclusion orientations limited by sharia principles. Research on character-based assessment in Indonesia has approached this gap through Character-Based Risk Mapping, but the main focus is on the digitization of character assessments. TCAM expands the framework by placing the transformation of the role of analysts as a connecting mechanism between assessment and inclusion, and including maqashid-oriented impacts as a post-financing stage. This trend is corroborated by Xhumari and Haloci (2023), who provide an extensive review of international literature on digital lending and the evolution of credit assessment."

2. Reconstruction of the Credit Analyst Role

In the traditional model, the credit analyst functions primarily as a risk gatekeeper.

The focus is on ensuring that the applicant meets the requirements, has the ability to pay, provides adequate documentation, and does not produce a level of risk above the institution's tolerance. This function is important for maintaining asset quality, but it can result in exclusion bias when formal indicators are not able to represent the economic realities of micro-enterprises.

TCAM transforms the function through four stages:

Stage 1 (Risk Gatekeeper): Maintain the principle of prudence through basic verification and exclusion criteria.

Stage 2 (Risk Interpreter): Interpret formal and informal data contextually through data triangulation.

Stage 3 (Relationship Analyst): Build a deep understanding of the debtor, business, community, and cash flow.

Stage 4 (Inclusion Catalyst): Help create the conditions for prospective debtors who have not yet met formal standards to become bankable. Details of the transformation of the analyst role are presented in Table 2.

Table 2. Stages and Roles of Credit Analysts in TCAM

Stages	The Role of an Analyst	Main Activities	Output
1. Risk Gatekeeper	Risk guard	KYC, screening, basic verification, exclusion criteria	List of eligible/ineligible candidates starting
2. Risk Interpreter	Risk translator	Triangulation of financial, non-financial, and social data	Contextual risk profile
3. Relationship Analyst	Relationship-based assessor	Business visits, cash flow mapping, community validation	Debtor profile and financing pathway
4. Inclusion Catalyst	Inclusion drivers	Structuring, mentoring, monitoring, graduation	Sustainable bankability and inclusion

3. Transformative Credit Assessment Model (TCAM) Architecture

Recent empirical work highlights that digital financial inclusion, driven by digital literacy and demographic factors, plays a pivotal role in Indonesia (Widyastuti et al., 2024)

TCAM is built on the proposition that the feasibility of microfinance cannot be reduced to a single score number. Risk must be understood as a combination of economic capabilities, character, social context, information quality, and sharia compliance. Therefore, TCAM uses three layers of assessment: Core 6C, Extended Data, and Shariah-Maqashid Layer (Table 3).

Table 3. Three Layers of TCAM Architecture Assessment

Assessment Layer	Dimensions	Example Indicators	Function
Core 6C	Character	Integrity, consistency, payment discipline, reputation	Measuring willingness to pay
Core 6C	Capacity	Turnover, cash flow, margin, debt servicing capacity	Measuring the ability to pay
Core 6C	Capital	Own capital, business assets, reinvestment	Measuring financial commitment
Core 6C	Collateral	Alternative Assets/Guarantees/Guarantees	Mitigating losses given default
Core 6C	Condition	Market, season, sector, location, purchasing power	Measuring external risks
Core 6C	Community	Social reputation, group, supplier, buyer	Reduce information asymmetry
Extended Data	Digital/Alternative Data	Transactions, digital payments, e-commerce,	Strengthening thin-file debtor

Assessment Layer	Dimensions	Example Indicators	Function
		legitimate business data	assessments
Shariah-Maqashid	Shariah Compliance	Business object, contract, source/use of funds	Ensuring sharia compliance
Shariah-Maqashid	Impact (Maqashid)	Business sustainability, income, resilience, employment	Assessing socio-economic impacts

The Character dimension maintains the principle that willingness to pay is an important component that cannot be fully captured by financial ratios. The Capacity dimension maps actual cash flows, not just reported revenues. Capital and Collateral are used proportionally, not as the only filters. Condition reads external risks, while Community captures information inherent in social networks and economic relationships.

4. Reduction of Asymmetric Information in TCAM

Asymmetric information arises because debtors have more complete information about their business conditions and behavior than financing providers. TCAM addresses this problem through data triangulation. Information from debtors is not directly received as a single fact, but is compared to business observations, cash flow, supplier-buyer relationships, legitimate transaction data, community reputation, and payment history. Analysts function as human in the loop who interpret information differences.

This mechanism results in four forms of information asymmetry reduction: ex-ante screening (suppressing adverse selection), contextual verification (improving the quality of decisions), behavioral monitoring (suppressing moral hazard), and post-financing learning (updating the risk profile for subsequent decisions).

5. TCAM and Alternative Credit Scoring

These developments align with the IsDB Institute and UNDP (2025) report, which emphasizes Fintech solutions for strengthening Islamic micro-financial ecosystems. Utilizing technology as decision support aligns with overarching digital transformation strategies in Islamic banking aimed at enhancing financial inclusion (Fadel et al., 2026). In TCAM, the digital score of alternative credit scoring is one of the inputs, not the final decision. The analyst triangulates the alternative data and the debtor's context. If the algorithm assigns a low score due to a thin-file credit record, the analyst evaluates whether the low score reflects a high-risk debtor or a lack of information (low-information debtor). This paradigm shift directs institutions from 'less data means high risk' to 'less data needs additional information.

6. Segmentation of Financing Decisions

TCAM does not produce binary (feasible/unfeasible) decisions. Based on the risk profile and information quality, debtors are placed in four path segments (Table 4).

Table 4. Segmentation of TCAM Financing Decisions

Segmentation	Characteristics	Financing Strategy	The Role of an Analyst
Ready-to-finance	Low risk, robust information	Financing as per the full needs	Validation and monitoring
Finance-with-support	Moderate risk, prospective venture	Financing accompanied by assistance	Structuring and training
Graduated finance	Limited information, good character	Gradual ceiling/group/guarantee	Building bankability
Empowerment first	High risk / not yet eligible	Initial enablement program referral	Preparing prospective debtors

7. TCAM as a Catalyst for Financial Inclusion

This model is especially vital for ultra-micro borrowers who frequently operate informally and remain underserved by traditional banking frameworks (Wulandari & Kassim, 2026). The catalytic function in TCAM means accelerating the transformation process from a low-information borrower to an informed and bankable borrower. The flow of this catalytic mechanism is formulated as follows:

Improved information quality → Decreased uncertainty → More accurate risk assessment → Unnecessary credit rationing → Increased access to financing → Increased business ability → increased bankability → Sustainable financial inclusion achieved.

8. Integration of Maqashid al-Shariah in TCAM

Maqashid al-shariah provides a normative foundation so that inclusion does not turn into an exploitative expansion of financing. The principle of hifz al-mal directs that financing helps maintain and develop wealth in a healthy manner. TCAM requires human oversight, model audit, explainability, and review mechanisms for debtors to prevent data bias and algorithmic injustice.

Digital transformation in Shariah finance presents a significant opportunity to foster public welfare and expand financial inclusion (Ceasario & Nisa, 2025).

9. Research Propositions and Empirical Testing Agenda

Integrating Islamic financial technology with digital financial inclusion frameworks strengthens overall ecosystem resilience (Rofik & Huda, 2025). Since this article is conceptual, the relationships between variables are formulated in the form of propositions for further empirical research:

P1: The integration of financial and non-financial information in TCAM improves the quality of credit assessment in Islamic microfinance.

P2: Community-based information strengthens analysts' ability to reduce asymmetric information.

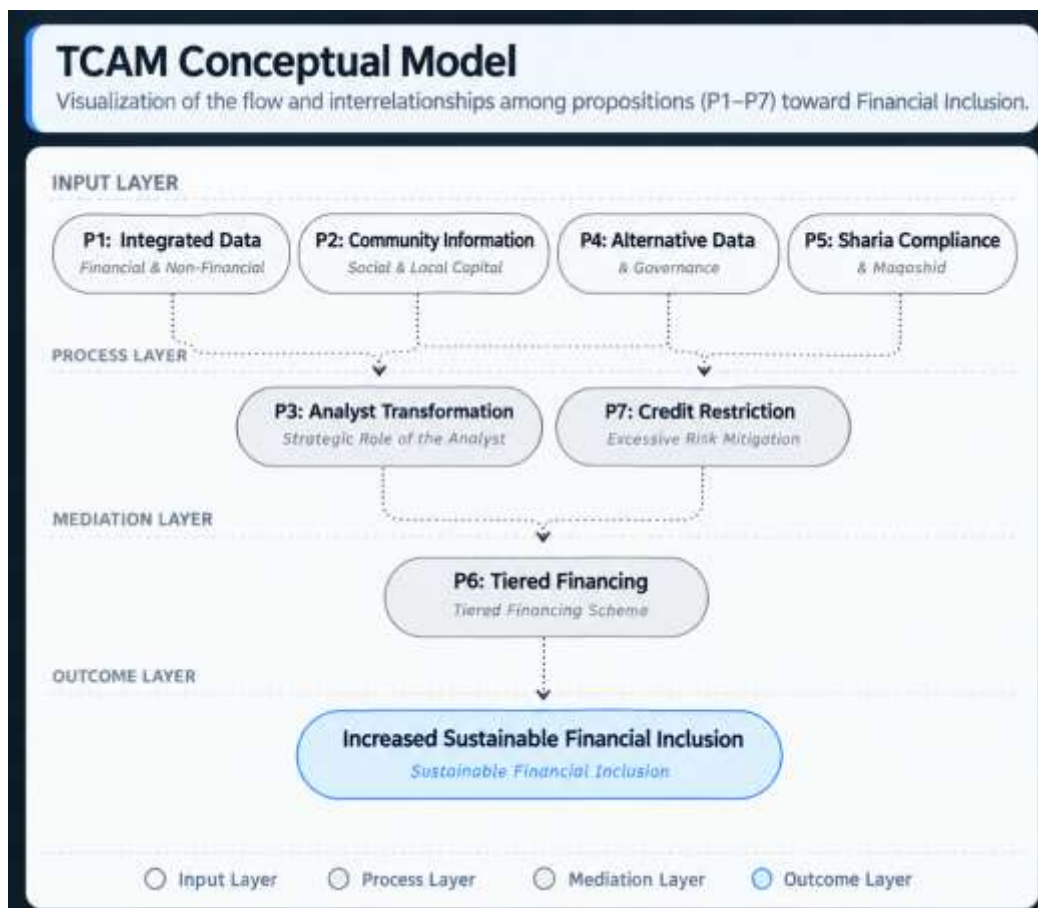
P3: The transformation of the analyst role from a risk gatekeeper to an inclusion catalyst improves the institution's ability to identify potentially bankable debtors.

P4: Alternative data improves the quality of risk assessment when used in conjunction with human oversight, explainability, and good data governance.

P5: Sharia compliance and maqashid oriented impact strengthen the quality of sustainable financial inclusion.

P6: Graduated financing mediates the relationship between the quality of assessment and the improvement of the bankability of micro-debtors.

P7: TCAM can suppress unnecessary credit rationing without eliminating the pure risk management function.



Gambar 1. Diagram Model Konseptual TCAM

10. Novelty and Scientific Contribution

The novelty of TCAM addresses key opportunities and challenges within Islamic fintech for Muslim communities (Lestari et al., 2026). The integration of assessment

architecture, human decisions, social information, digital data, sharia governance, and maqashid-oriented outputs into one operational model (Table 5)

Table 5. Comparison of Conventional and TCAM Approaches

Aspects	Conventional Approach	TCAM Approach
Assessment Object	Applicant	Debtor + Business + Ecosystem
Resources	Formal credit documents & history	Financial + Non-Financial + Social + Digital
The Role of an Analyst	Risk gatekeeper	Gatekeeper + Interpreter + Relationship + Catalyst
The Role of Technology	Automatic scoring (scoring/automation)	Decision support + Human oversight
Shape of Decision	Binary (Eligible / Not Eligible)	Graduated Pathway
Orientation	Risk-adjusted return	Risk + Inclusion + Impact of Maqashid
Outcome	Portfolio quality / Returns	Bankability + Sustainable Inclusion + Portfolio

D. Conclusion

This study concludes that the main problem of Islamic microfinance is not only a lack of capital, but also an information gap between prospective borrowers and financing providers. Conventional credit scoring models that rely too much on formal history and collateral risk turning information limitations into financing exclusion.

TCAM offers a reconstruction of the role of the credit analyst from a risk gatekeeper to a risk interpreter, relationship analyst, and inclusion catalyst. This model integrates the 6C dimension with digital/alternative data, sharia compliance, and

maqashid-oriented impact. Its main contribution is to change valuation decisions from binary to graduated financing pathways, thus being able to reduce credit rationing without neglecting the prudential principle.

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