

Credit Beyond Scores: Platform-Native Behavioral Data as Alternative Determinants of Financial Eligibility in the Digital Economy

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ABSTRACT

This article explores an innovative paradigm in financial eligibility assessment that moves beyond traditional credit scoring systems. By leveraging platform-native behavioral signals instead of conventional credit histories, financial institutions can expand access to capital for previously underserved populations while maintaining robust risk management. The model analyzes digital footprints, including transaction patterns, earnings consistency, engagement metrics, and professional relationships, to create more holistic creditworthiness profiles. Alternative credit assessment methodologies demonstrate superior predictive power for individuals lacking conventional credit histories, particularly independent contractors, gig economy workers, and young professionals. The technical architecture integrates diverse data streams through sophisticated machine learning algorithms while addressing critical ethical considerations, including bias mitigation, privacy protection, and algorithmic transparency. Implementation results reveal significant financial inclusion benefits alongside strong loan performance metrics, challenging conventional risk assumptions about "credit invisible" populations. This platform-native approach represents a transformative shift in fintech risk modeling that aligns business objectives with broader financial inclusion goals.

Keywords: Alternative credit scoring, behavioral data analytics, financial inclusion, algorithmic fairness, platform-native assessment

1. Introduction: Beyond Traditional Credit Metrics

The contemporary financial ecosystem relies heavily on conventional credit assessment frameworks that inadvertently establish exclusionary barriers to financial resources. These standardized evaluation mechanisms serve as access controls, dictating which individuals qualify for various financial instruments, including loans, mortgages, and essential banking services. Documentation from credit accessibility evaluations indicates that a considerable segment of adults exists outside formal credit markets, unable to participate due to minimal or absent credit documentation [1]. This financial invisibility phenomenon disproportionately impacts early-career individuals, international transplants, and participants in alternative work arrangements such as contract-based positions and commission-structured occupations. Evidence suggests these individuals face systematic disadvantages not because they constitute genuine credit risks, but rather because established evaluation frameworks fail to capture their authentic financial behaviors and capabilities. This reality underscores how prevailing credit assessment practices reinforce structural inequities rather than fostering broader financial participation opportunities [1].

Traditional creditworthiness evaluation exhibits an inherent backward-facing orientation, placing excessive emphasis on historical interactions with established financial products while disregarding current stability indicators and future earning trajectories. This framework creates a fundamental paradox: individuals require established credit records to access financial services, yet cannot develop

these records without initial access opportunities. For professionals operating in sectors characterized by fluctuating income structures—including property transactions, independent creative work, and cyclical employment—these limitations create particularly significant obstacles. Despite maintaining robust financial stability amid income variability, these professionals face skepticism as conventional metrics interpret their natural income fluctuations as risk indicators rather than recognizing them as intrinsic characteristics of their professional domains. Documented evidence suggests these population segments frequently demonstrate distinctive financial responsibility indicators that remain unrecognized by dominant evaluation frameworks [1].

Assessment Approach	Key Indicators	Limitations	Strengths
Traditional Credit Scoring	Payment history, Credit utilization, Account age, Credit mix	Excludes "credit invisibles", Backward-looking, Limited predictive power for non-traditional workers	Standardized, widely accepted, Regulatory familiarity
Platform-Native Assessment	Transaction frequency, Earnings consistency, Professional engagement, Network quality, Growth trajectories	Requires digital platform participation, Privacy considerations	Captures financial responsibility outside traditional credit, with Higher predictive power for underserved groups.

Table 1: Comparison of Traditional vs. Platform-Native Credit Assessment Indicators. [1, 2]

Platform-derived behavioral signals present a transformative alternative to conventional credit assessment methodologies. Digital platforms generate substantial quantities of behavioral information that function as meaningful indicators of financial responsibility and stability patterns. Contemporary economic scholarship illustrates how technology ecosystems can utilize proprietary interaction data to construct sophisticated risk evaluation models that frequently surpass traditional credit assessment frameworks in predictive accuracy [2]. Through analyzing patterns across digital transaction histories, engagement consistency, professional development trajectories, and relationship networks, these platforms create multidimensional and contextually appropriate creditworthiness evaluations. This methodology fundamentally transforms risk measurement approaches, transitioning from externally reported historical data toward observed behavioral patterns within relevant professional contexts. Evidence suggests these alternative data streams significantly enhance decisional accuracy while simultaneously expanding financial access opportunities for traditionally marginalized population segments [2].

The development of innovative eligibility frameworks within specialized professional platforms exemplifies this fundamental paradigm transformation. Through developing algorithmic systems that evaluate activity patterns within digital ecosystems, financial service providers now assess patterns across earnings consistency, transaction completion rates, client relationship stability, and platform engagement metrics to construct comprehensive financial reliability profiles. This methodology serves complementary objectives: expanding capital accessibility for underserved professionals while enhancing assessment accuracy through industry-specific performance indicators. Documentation regarding these alternative methodologies demonstrates their capacity to maintain or enhance predictive accuracy compared with traditional models while substantially expanding qualified applicant pools [2].

2. Methodology: Behavioral Data as Predictive Indicators

Alternative credit evaluation frameworks begin with identifying distinctive behavioral patterns that accurately signal financial dependability. Departing from conventional scoring mechanisms that prioritize historical payment records and debt-to-limit proportions, platform-centered methodologies harness multifaceted behavioral signals gathered through digital platform interactions. Credit market applications reveal numerous valuable predictive elements, including transaction density, income stability patterns, platform utilization consistency, professional advancement activities, and relationship network characteristics. These behavioral markers frequently exhibit stronger repayment correlation than traditional credit variables, particularly when evaluating specialized professional communities or individuals lacking extensive credit documentation. Identifying these indicators combines specialized domain knowledge with advanced data exploration techniques, systematically assessing potential signals across diverse demographic segments. Controlled evaluations have shown that the comprehensive behavioral indicators—particularly in the context of development trajectories and patterns of growth—are consistently better than singular measures in predicting financial reliability among historically excluded populations (see reference [3]).

The functional infrastructure of systemic behavioral credit assessment must deliver an integrated information mechanism while ensuring adequate safeguards in terms of privacy and security that meet regulatory compliance and ethical standards. Credit assessment technology often employs multi-layer development environments with different stages of data collection paths, normalization, characteristics, product deployment, and performance tracking. Data normalization represents a particularly vital architectural element, as behavioral information requires specialized adjustment techniques addressing seasonal variations, sector-specific patterns, and platform development stages that might otherwise introduce evaluation distortions. Sophisticated implementations feature simultaneous assessment capabilities alongside scheduled processing to deliver dynamic evaluations as fresh behavioral information becomes available. Contemporary confidentiality techniques, including statistical privacy techniques and distributed learning approaches, enable these systems to gather insights from sensitive personal data while respecting individual privacy and structural compliance requirements. Classification algorithm benchmarking demonstrates that successful implementations carefully balance technical sophistication with decision transparency, ensuring evaluation outcomes remain comprehensible to both individual applicants and regulatory authorities [4].

Machine learning applications within credit assessment have undergone substantial evolution, with tree-based gradient boosting techniques and probability-based regression models demonstrating particular effectiveness within financial evaluation contexts. Algorithm performance comparisons reveal that advanced decision tree frameworks excel at identifying complex relationships between behavioral patterns and repayment outcomes, while statistical regression approaches provide superior explanatory capability and regulatory compatibility within governed financial environments. Combined methodologies frequently produce optimal real-world results, with sophisticated non-linear frameworks identifying candidate characteristics for subsequent linear models offering enhanced transparency. Feature development represents a crucial implementation component, with time-based characteristics demonstrating exceptional predictive capability in capturing financial stability indicators. Performance analysis demonstrates that combining techniques, which integrate predictions from diverse model structures, can significantly enhance accuracy while minimizing framework-specific limitations that might otherwise create performance vulnerabilities [4].

Validation frameworks for behavioral credit assessment must incorporate both statistical accuracy measurements and practical implementation objectives within comprehensive evaluation protocols. Beyond conventional statistical validation, effective assessment frameworks incorporate domain-relevant considerations, including access rate implications, population composition stability, and performance consistency across diverse applicant segments. Temporal validation strategies—evaluating models against future performance periods rather than contemporary data—provide

substantially more reliable performance estimates than randomized validation approaches that potentially overstate predictive capability. Comprehensive validation processes must assess fairness dimensions across demographic categories, ensuring behavioral metrics avoid perpetuating existing disadvantages or creating new algorithmic disparities. Comparative performance evaluation against traditional credit frameworks demonstrates that behavioral data methodologies frequently achieve superior discrimination capability, particularly among populations with limited credit documentation or non-conventional financial profiles. Robust implementations establish continuous performance monitoring systems that identify accuracy degradation and initiate recalibration processes when necessary, maintaining consistent performance across changing economic conditions and evolving platform characteristics [3].

3. Ethical Considerations in Alternative Credit Scoring

Traditional evaluation methodologies increasingly face critical examination for perpetuating underlying prejudices, disadvantaging specific community segments despite declarations of neutral risk evaluation. Banking technology assessments document persistent acceptance proportion disparities and financing condition variations across population categories—remaining evident despite controlling for equivalent risk measurements and solvency characteristics. These inequities frequently originate from legacy imbalances incorporated within formative information sets utilized for algorithm construction and calibration, creating reinforcing patterns that maintain established financial exclusion structures. Information-driven credit evaluation frameworks present encouraging opportunities to counteract these historical biases through the inclusion of diverse, more comprehensive financial responsibility markers existing beyond standard reporting infrastructures. Consumer lending fairness investigations indicate that appropriately engineered behavioral measurements can dramatically reduce acceptance disparities across population segments while preserving or improving overall forecasting precision and risk categorization effectiveness. Nevertheless, establishing truly balanced frameworks necessitates deliberate fairness-oriented creation throughout developmental cycles, incorporating thorough disparity testing across protected classifications, hypothetical situation evaluation to recognize potential prejudice pathways, and persistent observation for developing bias indicators during practical implementation. The most effective solutions combine sophisticated methodological mechanisms with fundamental procedural modifications to lending practices, confronting both computational and structural causes of disparity while acknowledging intricate socioeconomic dynamics contributing to financial inequality [5].

Ethical Dimension	Key Challenges	Recommended Mitigation Strategies	Stakeholder Benefits
Algorithmic Fairness	Historical bias perpetuation, Protected class disparities	Fairness-aware design, Disparate impact testing, Counterfactual analysis	Reduced approval disparities, Broader market access.
Privacy Protection	Surveillance concerns, Sensitive information exposure	Data minimization, Purpose limitation, Explicit consent frameworks	Enhanced user trust, Regulatory compliance.
Transparency	"Black box" decision-making, Limited contestability	SHAP analysis, Global and local explanations, Non-technical interpretability	Increased user acceptance, Effective oversight.
Regulatory Compliance	Evolving requirements, Cross-jurisdiction complexity	Comprehensive documentation, Regular bias audits, Outcome-based validation	Reduced compliance risk, Competitive advantage.

Table 2: Ethical Considerations in Alternative Credit Scoring Implementation.[5, 6]

The platform behavior information application introduces meaningful confidentiality considerations transcending conventional financial protection structures, demanding specialized management approaches. Modern assessment frameworks typically handle substantially more granular individual information than standard evaluation systems, including detailed professional activity sequences, interpersonal connection patterns, interaction tendencies, and participation metrics revealing sensitive individual attributes. This expanded information collection intensifies monitoring concerns, whereby individuals potentially experience pressure to exhibit artificial conduct patterns under persistent algorithmic supervision to maintain critical financial resource availability. Inferential damage studies emphasize implementing rigorous information restriction guidelines, usage constraints, and transparent authorization mechanisms, providing individuals with substantive influence regarding how personal information affects significant financial opportunity decisions. Protective computational approaches, including differential statistical methods, distributed computational frameworks, and protected calculation systems, represent practical technological solutions balancing analytical capability with individual information security within alternative evaluation environments. These methodologies enable beneficial insight extraction from behavioral information while diminishing sensitive detail exposure and reducing identification possibilities. Implementing clear information administration frameworks—incorporating specific guidelines regarding retention boundaries, distribution limitations, and personal access provisions—considerably influences participant confidence and willingness to utilize alternative assessment mechanisms, directly affecting acceptance potential and longevity within controlled financial contexts [6].

Transparent artificial intelligence frameworks represent fundamental components of principled alternative credit evaluation, allowing individuals to understand assessment determinations and challenge potentially mistaken or inequitable decisions impacting financial prospects. Unlike obscured processing frameworks providing limited visibility into decision justifications, transparent systems incorporating sophisticated interpretation capabilities enable detailed analysis of factor contributions to specific credit determinations. Framework interpretation innovations demonstrate that approaches like characteristic contribution analysis deliver uniform, computationally efficient clarifications across diverse computational structures, enabling standardized explanation methodologies regardless of underlying algorithmic implementation. Properly implemented transparency mechanisms should provide both comprehensive system explanations for oversight purposes and individualized decision explanations for specific applicants, facilitating meaningful contestability when unfavorable determinations occur. These explanations must reconcile competing objectives—providing adequate detail for substantive comprehension while remaining accessible to varied audiences lacking specialized technical knowledge. Explanation quality significantly influences acceptance of automated determinations in consequential domains like financial services, with straightforward, concise, and practical explanations generating substantially greater confidence than technical justifications disconnected from practical applicant considerations. Establishing robust explanation frameworks requires a careful balance between potentially conflicting priorities—maintaining computational sophistication while ensuring interpretability, and providing comprehensive explanations without overwhelming recipients with excessive technical details that complicate rather than simplify decision understanding [7].

The evolving regulatory landscape surrounding alternative credit evaluation necessitates forward-looking compliance strategies incorporated within comprehensive ethical management structures, anticipating future requirements. Financial services operate within sophisticated regulatory environments with numerous intersecting authorities, including lending equity regulations, information protection mandates, algorithmic accountability provisions, and domain-specific oversight mechanisms continuously developing alongside technological advancement. Financial technology equity examinations emphasize developing thorough documentation regarding development procedures, validation methodologies, demographic impact assessments, and

continuous monitoring practices demonstrating regulatory adherence and ethical commitment. Effective management strategies incorporate both technological safeguards and organizational frameworks, including designated responsibility for ethical supervision, periodic impartiality reviews with meaningful correction mechanisms, and defined escalation procedures for addressing identified concerns before resulting in consumer harm or regulatory repercussions. Contemporary regulatory expectations increasingly prioritize outcome-based assessments rather than procedural conformity alone, requiring demonstrable evidence that alternative evaluation systems achieve stated inclusion objectives without introducing additional discrimination forms or privacy compromises. Forward-thinking organizations establish integrated ethical frameworks aligning regulatory compliance with broader societal responsibility commitments, creating responsible innovation principles extending beyond minimum statutory requirements to address emerging ethical considerations before becoming regulatory mandates, positioning these approaches as strategic advantages rather than compliance obligations [5].

4. Results: Performance and Impact Analysis

Systematic comparisons between platform-derived credit evaluation frameworks reveal considerable effectiveness improvements compared to established scoring methodologies, particularly regarding populations lacking comprehensive formal credit documentation. Banking technological applications within developing economic contexts indicate that conduct-driven evaluation frameworks consistently achieve superior differentiation capabilities across numerous performance indicators, with notable enhancements observed among emerging professionals, entrepreneurial individuals, and independent workforce participants typically possessing minimal credit documentation. These performance distinctions maintain consistency across varied economic situations and market circumstances, suggesting that conduct indicators extracted from platform participation deliver more dependable predictive signals compared to conventional credit measurements during periods of economic instability. Integration of detailed behavioral information captures nuanced financial responsibility patterns invisible to established assessment techniques, enabling precise risk categorization within previously undifferentiated population segments. Extended observations tracking framework effectiveness through economic cycles confirm that platform-derived approaches preserve prediction consistency throughout different market conditions, showing considerably reduced performance deterioration during economic contractions compared to traditional systems that frequently underperform when established patterns rapidly transform. Technical framework comparisons demonstrate that combined methodologies integrating multiple behavioral indicators produce optimal outcomes, with considerable performance advancements when incorporating chronological patterns capturing consistency and improvement trajectories rather than isolated behavioral snapshots. These effectiveness improvements convert directly into concrete operational advantages, including decreased default proportions, broadened market accessibility, and improved resource distribution while concurrently promoting financial participation objectives [8].

Population Segment	Performance Improvement vs. Traditional Models	Key Behavioral Indicators	Economic Condition Resilience
Young Professionals	Substantial	Platform engagement consistency, Professional development	High
Gig Economy Workers	Significant	Transaction frequency, Client relationship stability	Moderate-High
Independent Contractors	Moderate-High	Earnings growth trajectory, Operational consistency	High
Recent Immigrants	Significant	Network quality, Engagement patterns	Moderate

Table 3: Performance Metrics of Alternative Credit Assessment Models. [8]

Deployment of platform-derived credit assessment frameworks has created meaningful financial participation improvements across numerous market segments historically neglected by conventional lending organizations. Financial wellness and expenditure pattern examinations across varied population categories document considerable financing accessibility improvements among historically excluded groups following alternative assessment implementation. These participation advantages transcend basic approval proportion improvements to include improved contractual conditions, expanded credit accessibility, and decreased collateral obligations that acknowledge actual borrower risk characteristics rather than penalizing nonstandard financial backgrounds. Particularly significant benefits emerge among independent service providers, freelance professionals, and recently relocated individuals—populations frequently demonstrating substantial financial responsibility within professional environments despite lacking established credit documentation required for conventional financing products. Geographic distribution analysis identifies especially meaningful impacts within underdeveloped banking regions where traditional credit infrastructure remains insufficient but digital platform adoption has achieved substantial penetration, establishing novel financial participation pathways through behavioral assessment techniques. Demographic impact assessments confirm that appropriately constructed behavioral credit frameworks can dramatically decrease approval disparities between majority and minority applicants while preserving risk management standards, addressing persistent equity challenges regarding capital accessibility. These financial participation improvements translate into quantifiable economic advantages, including increased entrepreneurial formation, improved professional advancement opportunities, and expedited financial resource development among previously excluded populations now able to leverage professional achievements for capital accessibility despite lacking conventional credit credentials [9]. Comprehensive validation through extensive repayment performance monitoring provides convincing evidence that platform-derived approaches accurately identify creditworthy borrowers despite nontraditional financial profiles. Global financial participation and transaction behavior assessments across diverse economic environments demonstrate that borrowers approved through behavioral assessment frameworks exhibit repayment characteristics contradicting conventional risk assumptions regarding individuals lacking traditional credit documentation. Portfolio analysis reveals these positive outcomes remain consistent across numerous financing products, duration structures, and economic circumstances, confirming the substantial predictive capabilities of properly designed behavioral indicators derived from platform engagement and professional activity patterns. Particularly strong correlations emerge between specific behavioral metrics—including professional engagement consistency, advancement trajectory indicators, and relationship stability measurements—and subsequent repayment performance, even when controlling for conventional financial variables. These observations challenge established risk management presumptions by

demonstrating that professional behavior consistency provides more reliable default prediction than income consistency alone—a crucial insight when evaluating independent contractors, commission-compensated professionals, and other individuals with naturally variable earning patterns. Segmentation analysis further reveals that behavioral indicators demonstrate particularly effective discrimination capabilities within minimal documentation segments traditionally considered challenging to evaluate, enabling precise risk differentiation compared to generic credit measurements relying on limited historical data. This enhanced discrimination capability allows financing providers to confidently serve previously overlooked population segments while maintaining appropriate risk management standards and regulatory obligations [10].

Individual examinations of previously excluded persons gaining capital accessibility through platform-derived assessment methodologies provide persuasive qualitative evidence of transformative economic impact beyond statistical performance measurements. Financial wellness assessments document professional developments among independent service providers who transformed initial capital accessibility into substantial business expansion, productivity enhancements, and income stabilization previously unachievable without alternative credit assessment approaches. These individual situations highlight how appropriately structured financing enables previously excluded professionals to overcome liquidity challenges, invest in equipment or education, expand service capabilities, and establish sustainable business frameworks—generating progressive financial improvement rather than excessive obligation situations that expanded credit accessibility critics occasionally anticipate. Extended observation of first-time borrowers approved through behavioral scoring frameworks shows accelerated financial participation progression, with numerous individuals successfully transitioning toward mainstream financial systems after establishing performance documentation through alternative assessment pathways. Crucially, these positive outcomes extend beyond individual economic advancement to generate community benefits within professional networks, as initial recipients frequently expand operations, create employment opportunities, and establish additional economic possibilities within their sectors. Global financial participation experiences across diverse economic environments reveal considerable psychological advantages beyond immediate economic benefits, including decreased financial pressure, enhanced professional assurance, and improved financial dignity resulting from validation of professional accomplishments as legitimate creditworthiness indicators rather than being characterized by the absence of traditional credit documentation [9].

Market Segment	Access Improvement	Economic Impact	Psychological Benefits
Independent Professionals	Significant credit access expansion, Improved terms	Business growth, Operational investment, Service expansion	Reduced financial stress, Professional validation
Underbanked Communities	New financial pathways, Reduced collateral requirements	Local business formation, Community economic development	Financial dignity reduced exclusion
Variable Income Earners	Recognition of financial stability despite income fluctuations	Income smoothing, Professional advancement	Confidence in financial planning reduced precarity
First-time Borrowers	Entry point to financial services, Pathway to mainstream options	Asset acquisition, Credit history establishment	Financial empowerment, Future opportunity access

Table 4: Financial Inclusion Outcomes of Platform-Native Credit Assessment. [9, 10]

Conclusion

The transition from traditional credit scoring to platform-native assessment models represents a fundamental paradigm shift in how financial institutions evaluate creditworthiness. By leveraging behavioral data generated within digital ecosystems, these alternative approaches successfully identify qualified borrowers among populations traditionally excluded from mainstream financial services. The evidence demonstrates that properly designed behavioral indicators not only match but often exceed the predictive power of conventional credit metrics while dramatically expanding financial access. For gig economy workers, independent professionals, and others with non-traditional economic profiles, these innovations transform professional accomplishments into pathways to capital that were previously unavailable. Looking forward, continued advancement in context-aware credit models will require deeper integration of explainable AI techniques, privacy-preserving computation methods, and cross-platform data standardization. Industry-wide adoption of alternative assessment methodologies holds transformative potential for both financial institutions seeking new growth opportunities and individuals whose economic contributions have been systematically undervalued by legacy credit systems. By recognizing the legitimacy of diverse indicators of financial responsibility, these innovations align risk management objectives with broader financial inclusion goals, creating more equitable pathways to economic participation.

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