Detailed results of evaluation round of reflective approach

DP	DP title & formulation	Integrated in concept	Feedback	Summary of critical aspects	Summary of positive aspects
DP1	Adaptive learning and continuous Improvement For developers to enhance fraud detection accuracy and adaptability for users in the context of evolving fraud patterns and changing cardholder behaviors, employ mechanisms to regularly update models, continuously monitor key performance metrics, learn from cardholder behavior patterns, and incorporate user feedback on fraud alert accuracy. Implement distinct processes for constant updating and refinement using the latest transactional and external data to adapt dynamically. This approach ensures that the FDS remains responsive and accurate while allowing users to manage critical updates, reducing compliance risks and maintaining system reliability.	Enterprise architecture model	Expert 1 feedback • Suggested incorporating user feedback in model updates for feature adjustments and continuous improvement Expert 2 feedback • Appreciated the ongoing improvement and learning aspects • Suggested enhancing model governance with a review process for transactions that don't trigger alerts Expert 3 feedback • Suggested a collaborative continuous improvement process • Stressed the importance of user involvement in model improvement suggestions • Underscored the necessity of user input in operational enhancements	Review process • Missing review steps for non-flagged transactions User feedback in continues improvement and updates • Lack of direct user input in model updates	Continuous improvement • Positive feedback on ongoing improvement and learning Model governance • Appreciated continuous monitoring and updates in model governance • Recognized adaptability and shared responsibility in model enhancement between users and providers
DP2	User-centric Development and Alignment For developers to create a tailored FDS that aligns with the specific business goals, services, and customer base for users in the context of the FDS development process, employ active involvement of end-users, including both managers and operational users, through regular touchpoints and feedback loops. Tailor the system to meet the unique business needs of each user, ensuring the FDS is effective, aligned with strategic objectives, and optimizes the cost-benefit ratio. This involves addressing specific goals such as reducing manual workloads, increasing efficiency or speed, enhancing risk and resource management, and most importantly, protecting cardholders against fraud. Leverage fraud risk assessments and similar tools during development to ensure the model is accurately designed to address the organization's specific risks and requirements.	Enterprise architecture model	Expert 1 feedback • Confirmed the importance of customer preferences in decisions like enabling auto-close in real-time or post-hoc flows Expert 2 feedback • Feedback shows alignment with current implementation practices • Indicating the design aligns well with user needs Expert 3 feedback • No specific feedback given for improvement	• No specific critical aspects identified	Business alignment • Effective alignment with business needs, confirming practical application User-provider partnership • Positive view on the ongoing partnership between users and providers User-centric flexibility • Appreciates the system's user-centric design, with flexibility to meet operational needs
DP3	Comprehensive Data integration And quality assurance For developers to enhance fraud detection accuracy for users in the context of data quality and integrity, employ robust data understanding, thorough preprocessing techniques, advanced feature engineering, and continuous integration and analysis of contextual data points (such as time, place, login behaviors, device id, and ip address). Implement continuous data quality monitoring to detect and rectify missing or incorrect data fields, with an emphasis on critical data points that directly influence fraud detection. Prioritize the accuracy, quality, and integrity of these data fields to ensure the FDS remains built on a reliable foundation, enabling more informed decision-making and ensuring the accurate identification of fraudulent activities.	Enterprise architecture model	Expert 1 feedback • Recommended shared feature extraction for both rules engine and ai model to streamline computations and avoid redundancy Expert 2 feedback • Appreciated focus on data quality Expert 3 feedback • No specific feedback given for improvement	Integration gap in feature sharing • Absence of shared features between the rules engine and model → *direct incorporated in model*	Comprehensive integration • Recognized as effective, with appreciation for comprehensive data integration and continuous quality monitoring Data flow setup • Positive feedback on the data integration pipeline and the overall data flow structure

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DP4	Ai-driven with Targeted rules For developers to enhance detection efficiency and adaptability for users in the context of operational needs, prioritize an ai-driven approach while selectively integrating rule-based methods. This strategy leverages the superior adaptability and pattern recognition capabilities of ai to handle most fraud detection scenarios, reserving rule-based methods for specific, well-defined cases where ai may not have sufficient labelled data or where straightforward, clear-cut decisions are needed. This approach ensures the system remains effective, minimizes unnecessary alerts, and optimizes resources by reducing manual review workloads.	Enterprise architecture model	Expert 1 feedback • Mentioned the importance of balancing user-configurable options for auto-close in both real-time and post-hoc flows to meet diverse client needs Expert 2 feedback • Pleased with the ai-driven approach and the integration of rule-based methods for clarity and targeted action Expert 3 feedback • Questioned the dominance of rule-based systems and was reassured about the ai's involvement in deeper layers of the architecture	Configurability of auto-close in real-time and post-hoc flows • Experts suggested enabling the auto-close feature to operate within real-time blocking as well as post-hoc analysis, allowing more configurable options	Effective ai and rule integration • Positive on the ai with rules set up, noting it leads to a more comprehensive fraud detection system
DP5	Scalability And Flexibility For developers to maintain long-term usability and effectiveness for users in the context of in-creasing transaction volumes and evolving fraud techniques, employ scalable infrastructure and support modular updates and expansions. This approach ensures the FDS can efficiently handle growth, adapt to new fraud methodologies, and maintain accurate fraud detection with minimal false positives, even under high transaction volumes. Ensure that the system can easily scale up or down by adding resources as needed, allowing for seamless adjustments while maintaining system effectiveness.	Enterprise architecture model	Expert 1 feedback • No specific feedback given for improvement Expert 2 feedback • No specific feedback given for improvement Expert 3 feedback • Feedback was positive regarding system design and no specific feedback given on improving scalability and flexibility	• No specific critical aspects identified	• Overall agreement with the concept
DP7	Balanced approach To fraud prevention And detection For developers to enable a strategic shift towards combining preventive and detective fraud management for users in the context of comprehensive fraud protection, employ FDS algorithms that effectively integrate both preventive measures, such as real-time blocking of potentially fraudulent transactions, and detective measures that facilitate thorough investigation after transactions have occurred. This balanced approach ensures that the system leverages well-trained models to provide secure protection for card users and the company, addressing fraud both proactively and reactively.	Enterprise architecture model	Expert 1 feedback • No specific feedback given for improvement Expert 2 feedback • Agrees with the balanced approach and the necessity of having both preventive and detective measures in place Expert 3 feedback • Concerned about the initial reliance on rules but was reassured by the explanation of the ai's deep integration for preventive and post-transaction analysis	• No specific critical aspects identified	Positive on real-time and post-hoc setup • Integration of both preventive and detective measures appreciated, finding the combined approach adaptable and reassuring in its flexibility for user preferences

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DP8	Bias mitigation and ethical decision-making For developers to ensure fair treatment of all card users and minimize bias in decision-making processes, establish clear ethical guidelines for data usage before model development. Employ algorithms that undergo regular monitoring and implement mandatory human oversight to review and validate ai decisions. Additionally, ensure that users' judgments are thoroughly re-viewed to prevent any bias from influencing the system. This approach fosters trust, promotes fairness, and ensures decisions are made without undue bias, providing balanced and effective fraud protection.	Enterprise architecture model	Expert 1 feedback • Recommended periodic checks of auto-close cases to ensure consistent quality control, supporting the principle of oversight and fairness in automated decisions Expert 2 feedback • Emphasized the necessity of validation and oversight, particularly in the review process for transactions that didn't trigger alerts Expert 3 feedback • Suggested a periodic review process for transactions and auto-closed cases to ensure fairness and accuracy, emphasizing the need for human oversight in automated decisions	Need for increased human oversight • Suggested implementing more rigorous validation, specifically recommending additional human review in auto-closed cases to reinforce fairness and accuracy	Bias mitigation • Appreciated the well-implemented ethical controls, including bias mitigation mechanisms and transparency in decision-making, which were seen as effective in ensuring fairness
DP6	Transparent And user-friendly Explainability For developers to create transparent and user-friendly data exploration and explainability features in the context of both the development and usage of the FDS, provide clear, interpretable insights, comprehensive access to relevant data, and well-documented reasoning paths. Ensure that the model training process is thoroughly documented and transparent. Balance the level of detail with user needs to foster trust, support decision-making, and enable users to easily validate the system's outputs.	Figma user-interaction prototype	Expert 1 feedback • Suggested adding an audit trail and breakdown of false positives for each rule • Noting that users need to track metrics by specific rule type to better manage alert accuracy • Suggested clarifying the role of ai vs. Rules in fraud detection • Appreciated the transparency and user-friendly nature of the system, especially the dashboard for tracking metrics • Suggested adding a time-tracked variation of the dashboard for better trend analysis Expert 3 feedback • Valued the transparent nature of the model • Suggested adding more detailed visual tracking of transactions over time for better clarity and oversight User 1 feedback • Found the dashboard layout effective for transparency • Appreciated the clear presentation of critical information such as blocked transactions and ai confidence scores for alerts • Emphasized the importance of showing a clear distinction between fraud-related alerts and compliance-based alerts • Suggested adding historical interaction data with counterparties to provide more context, helping to identify normal vs. Suspicious patterns • Highlighted the value of having immediate access to details like merchant name, user's time zone, and past interactions for quicker assessments User 2 feedback • Appreciated the customizable widgets on the dashboard, highlighting the benefit of tailoring views based on individual workflows • Found the map and explainability features useful, especially for visualizing geolocation anomalies • Suggested making some elements, like the map, optional (e.g., via dropdown) to reduce visual clutter • Recommended structuring data presentation with different levels, so users could access more details progressively rather than all at once • Mentioned that the system would benefit from features that allow quick access to essential data without overwhelming the user initially User 3: feedback • Appreciated the transparency of the explainability features, especially the real-time visualization of why a transaction was flagged (e.g., geolocation anomalies with a map view) • Suggested including a high-level quality metric to compare system-detected fraud cases with undetected cases reported by clients, enhancing credibility • Valued the ai confidence and feature impact indicators for providing clarity and supported a progressive view with context-sensitive displays • Found the dashboard intuitive, self-explanatory, and designed for expert use	Audit and performance tracking • Need for an audit trail to log and track user actions and system decisions for compliance Rule-specific metrics • Importance of tracking metrics per rule type to better manage and adjust alert accuracy Differentiated alerts • Emphasis on distinguishing between fraud and compliance alerts Contextual and historical data • Suggestion to add historical interaction data with counterparties to provide context for normal vs. Suspicious patterns Dashboard customization and visual clarity • Recommend optional elements (e.g., dropdowns for maps) to reduce initial visual clutter • Support for a progressive information structure Trend analysis and temporal tracking • Suggested integration of time-based trend analysis in the dashboard for tracking patterns and anomalies over time • Proposal for more detailed visual tracking of transactions	Transparency and clarity • Users widely appreciated the dashboard's transparency, finding it intuitive for quick assessments and effective in conveying operational insights Decision support features • Valued ai confidence levels, feature impact details, and adaptive visualizations (e.g., maps) for supporting informed decision-making User-friendliness and customization • Highlighted the dashboard's adaptability, widget flexibility, and user-centered layout, enhancing its usability for compliance work and personalized experiences Managerial utility • Recognized the balance between detailed expert insights and accessible summaries, making it useful for both operational and managerial levels