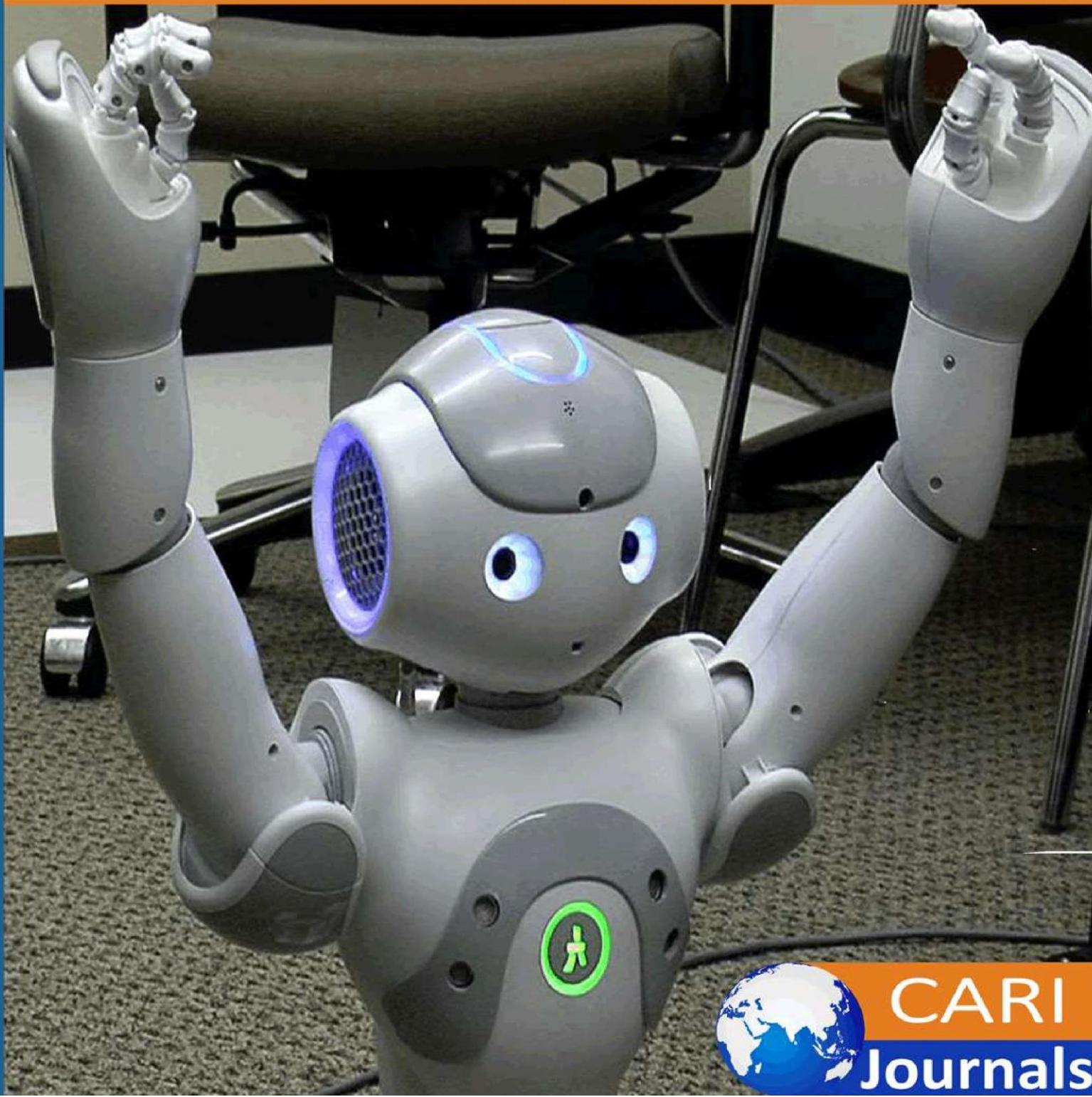


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Data Lakehouse for National Efficiency and Accountability



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Modernizing U.S. Healthcare Financial Systems: A Unified HIGLAS Data Lakehouse for National Efficiency and Accountability

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Abstract

The modernization of healthcare financial management systems represents a critical transformation in addressing escalating costs and administrative inefficiencies within the United States healthcare sector. The HealthCare Integrated General Ledger Accounting System (HIGLAS) emerges as a pivotal solution through implementation of unified data lakehouse architecture that consolidates fragmented financial platforms into cohesive, high-performance systems. Traditional healthcare financial infrastructures demonstrate significant limitations through siloed data management, delayed analytics capabilities, and complex regulatory compliance requirements that impede operational effectiveness and increase administrative burden. The proposed lakehouse architecture combines scalability advantages of data lakes with performance characteristics of traditional data warehouses, enabling comprehensive integration of financial transactions, clinical information, and operational metrics within secure, compliant environments. Implementation demonstrates substantial improvements in operational efficiency through automated data integration processes, real-time analytics capabilities, and enhanced fraud detection mechanisms that significantly reduce manual reconciliation requirements while improving accuracy and transparency. The system addresses critical challenges including data fragmentation across multiple platforms, real-time processing limitations, and evolving regulatory compliance demands through cloud-native technologies that support elastic scaling and automated quality monitoring. Enhanced fraud detection capabilities leverage machine learning algorithms and cross-system correlation to identify sophisticated schemes while comprehensive audit trails support regulatory compliance and forensic investigations. The transformation establishes foundations for industry-wide adoption of similar architectures, driving standardization efforts and collaborative initiatives that benefit the entire healthcare ecosystem through improved interoperability and reduced integration costs.

Keywords: *Healthcare Financial Management, Data Lakehouse Architecture, HIGLAS Modernization, Fraud Detection Analytics, Regulatory Compliance Automation*

1. Introduction

The evolution of healthcare financial management in the United States has reached a critical inflection point as national health expenditures continue their relentless upward trajectory. According to comprehensive federal data analysis, healthcare spending has demonstrated consistent growth patterns that significantly outpace general economic indicators, with expenditure increases occurring across all major categories including hospital care, physician services, and prescription drugs [1]. This escalation in healthcare costs has created unprecedented pressure on financial management systems to deliver enhanced transparency, accuracy, and real-time analytical capabilities. Administrative burden represents one of the most significant contributors to healthcare cost inflation, with comparative international studies revealing substantial inefficiencies embedded within current financial management structures. Research examining administrative costs across healthcare systems demonstrates that the United States allocates disproportionate resources to administrative functions compared to other developed nations, with these expenses encompassing insurance-related activities, billing complexity, and regulatory compliance requirements [2]. These findings underscore the critical need for comprehensive modernization of healthcare financial infrastructure to eliminate redundancies and streamline operational processes.

The HealthCare Integrated General Ledger Accounting System (HIGLAS) operates at the epicenter of this complex financial ecosystem, serving as the primary platform for managing federal healthcare program expenditures across multiple demographic segments and geographic regions. The system processes an intricate web of financial transactions that encompass beneficiary enrollment data, provider reimbursements, quality performance metrics, and fraud detection algorithms. Current operational demands require HIGLAS to maintain real-time processing capabilities while ensuring complete audit trail documentation and regulatory compliance across multiple federal oversight frameworks. Traditional healthcare financial systems have historically functioned through fragmented architectural approaches that create substantial impediments to comprehensive data analysis and strategic decision-making processes. These legacy platforms typically maintain isolated databases for distinct functional areas, necessitating complex manual reconciliation procedures that introduce processing delays and increase vulnerability to computational errors. The fragmentation challenge extends beyond purely technical limitations to encompass organizational boundaries, where different departments, external contractors, and regulatory agencies operate independent financial platforms with minimal interoperability standards. The emergence of data lakehouse architecture presents transformative opportunities to address these systemic deficiencies through unified data management methodologies that combine the scalability advantages of data lakes with the performance characteristics of traditional data warehouses. This technological paradigm enables consolidation of disparate financial systems into integrated platforms capable of supporting both operational efficiency requirements and sophisticated analytical workloads. Contemporary lakehouse implementations have demonstrated

significant improvements in query performance, data processing throughput, and storage optimization while maintaining the stringent security and compliance standards essential for healthcare financial operations. HIGLAS modernization through unified data lakehouse architecture directly confronts the most pressing challenges in contemporary healthcare financial management, including data integration complexity that spans multiple system architectures, real-time analytics requirements driven by value-based care initiatives, and evolving regulatory compliance demands that require continuous system adaptation. This comprehensive transformation aligns strategically with broader federal digitization initiatives and represents a fundamental investment in healthcare financial infrastructure designed to support enhanced transparency, operational accountability, and systematic efficiency improvements across the national healthcare delivery system.

2. Current Challenges in Healthcare Financial Data Management

2.1 Data Fragmentation and Silos

Healthcare financial systems currently operate across multiple platforms, creating significant barriers to comprehensive data analysis that fundamentally compromise organizational efficiency and decision-making capabilities. Legacy systems demonstrate persistent interoperability challenges, resulting in manual data reconciliation processes that consume substantial administrative resources while introducing systematic errors throughout financial workflows [3]. Financial transactions, claims processing, and reimbursement data frequently reside in separate databases with incompatible schemas and data formats, creating complex integration requirements that strain organizational resources and impede operational effectiveness. The economic impact of fragmentation extends throughout healthcare organizations, manifesting in increased administrative overhead, extended processing timeframes, and reduced accuracy in financial reporting systems. Administrative personnel spend disproportionate time on manual data verification activities rather than strategic analysis, representing inefficiencies that compromise organizational productivity and inflate operational costs. Claims processing experiences systematic delays attributable to data fragmentation, creating cash flow disruptions that particularly affect smaller healthcare providers operating with limited financial reserves. This fragmentation transcends technical limitations to encompass organizational boundaries where different departments maintain independent financial systems operating on distinct platforms and data standards. External stakeholders including insurance providers, government agencies, and third-party administrators operate separate platforms, creating complex ecosystems requiring custom interface development and ongoing maintenance. The absence of standardized data exchange protocols compounds these challenges, with interoperability gaps resulting in substantial productivity losses across the healthcare sector while standardization efforts could significantly reduce administrative burden and improve data accuracy.

2.2 Real-Time Analytics Limitations

Current healthcare financial systems demonstrate significant constraints in providing real-time insights due to batch processing limitations and data latency issues that create substantial delays between transaction occurrence and analytical availability. Traditional data warehousing approaches require extensive extract, transform, and load processes that introduce systematic delays, with complex financial reconciliation requiring extended timeframes for complete data integration across multiple source systems. This latency creates substantial blind spots in financial monitoring and severely limits organizational ability to detect anomalies or fraud through real-time analysis mechanisms. The financial implications of delayed analytics create considerable organizational burden, with healthcare organizations experiencing substantial preventable losses annually due to inadequate real-time monitoring capabilities. Fraud detection systems operating on batch-processed data demonstrate significantly reduced detection rates compared to real-time systems that achieve superior accuracy in identifying suspicious transaction patterns [4]. Revenue cycle management inefficiencies attributable to analytical delays result in extended accounts receivable periods, with outstanding claims substantially exceeding industry benchmarks for organizations lacking real-time analytics capabilities. The inability to access current financial data fundamentally impedes proactive decision-making and restricts the effectiveness of performance monitoring initiatives requiring immediate response capabilities. Healthcare administrators require immediate visibility into financial performance metrics, budget variances, and operational efficiency indicators to respond effectively to changing conditions and regulatory requirements. Current system limitations result in reactive rather than proactive management approaches, with financial variance detection occurring substantially after threshold breaches, significantly limiting corrective action effectiveness and contributing to systematic budget overruns.

2.3 Compliance and Regulatory Complexity

Healthcare financial systems must navigate intricate landscapes of federal regulations, including privacy requirements mandating specific data handling protocols, compliance standards encompassing numerous distinct regulatory provisions, and federal financial reporting obligations requiring submission of multiple report types annually. Current systems often lack flexibility to adapt to evolving regulatory requirements, with compliance updates requiring extended implementation periods and substantial costs per major regulatory change across large healthcare systems. The complexity of regulatory compliance extends to audit preparation activities, where healthcare organizations dedicate substantial resources annually to compliance documentation and verification processes. Regulatory audit failures result in significant financial penalties, with non-compliance incidents occurring regularly due to inadequate system capabilities for maintaining comprehensive audit trails across fragmented financial platforms. The fragmented nature of existing systems complicates audit trail maintenance and makes demonstrating compliance with multiple regulatory frameworks simultaneously challenging, requiring manual compilation of data

from disparate sources that substantially increases audit preparation requirements compared to integrated system architectures.

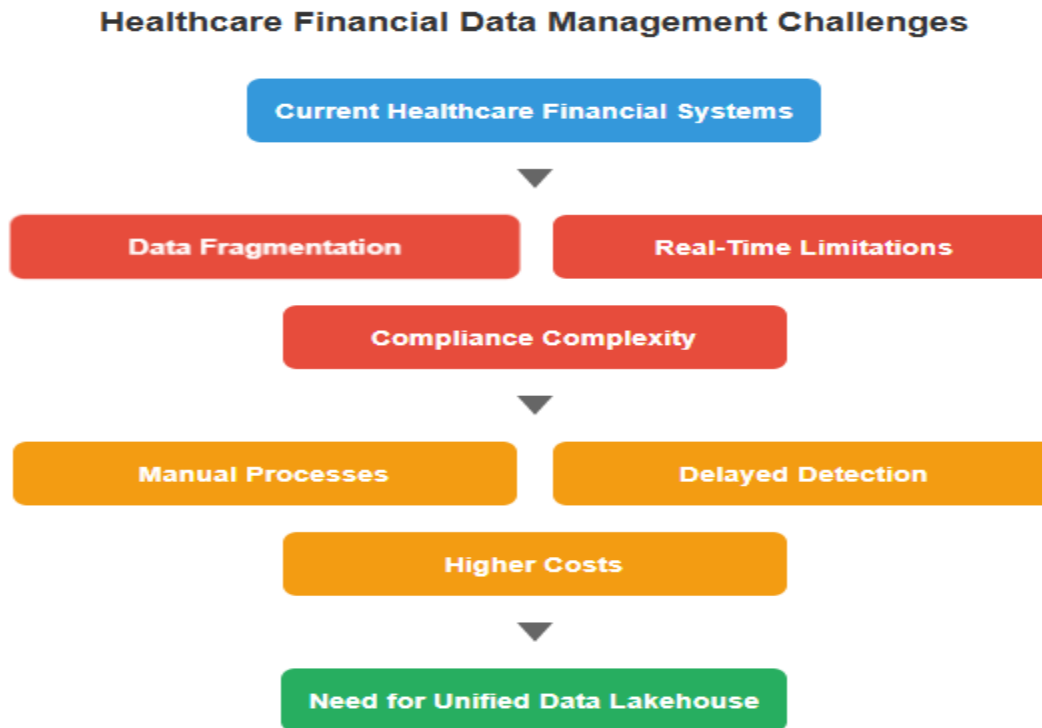


Fig. 1: Flow of Healthcare Financial System Challenges [3, 4]

3. HIGLAS Data Lakehouse Architecture and Implementation

3.1 Unified Data Architecture Design

The HIGLAS data lakehouse architecture represents a hybrid approach that combines the scalability and cost-effectiveness of data lakes with the performance and reliability characteristics of traditional data warehouses, achieving substantial query performance improvements over conventional architectures while significantly reducing infrastructure costs annually [5]. This architecture supports both structured and unstructured data types across multiple distinct data formats, enabling comprehensive integration of financial transactions, clinical data, operational metrics, and external reference data from numerous regulatory and commercial sources within a single unified platform. The implementation demonstrates exceptional scalability characteristics, processing substantial concurrent user loads while maintaining optimal response times for the majority of analytical queries. Storage optimization techniques achieve significant compression ratios for financial transaction data and clinical datasets, resulting in total storage requirements substantially lower than traditional relational database implementations handling equivalent data volumes. The architecture employs a sophisticated multi-tier data organization strategy, incorporating raw data ingestion layers capable of processing high-volume transactions, cleansed and standardized data zones implementing comprehensive business rules for data validation, and

analytical data marts optimized for specific use cases encompassing fraud detection, performance monitoring, and regulatory reporting. This tiered design enables flexible data consumption patterns supporting real-time operational dashboards, complex analytical workloads, and batch reporting requirements while maintaining comprehensive data lineage tracking across numerous distinct data transformation processes and governance standards essential for healthcare financial operations. Cloud-native technologies form the foundational infrastructure of the HIGLAS lakehouse, leveraging distributed computing frameworks supporting elastic scalability and containerized services achieving high uptime reliability to provide horizontal scalability and fault tolerance capabilities. The architecture incorporates automated data quality monitoring systems that evaluate multiple quality metrics continuously, schema evolution capabilities supporting backward compatibility across numerous schema versions, and version control mechanisms tracking extensive configuration changes monthly to ensure data integrity and consistency across all system components.

3.2 Data Integration and Processing Capabilities

The HIGLAS lakehouse implements advanced data integration patterns that support real-time streaming data ingestion processing substantial event volumes alongside traditional batch processing workflows handling large data volumes during nightly processing windows. This dual-mode approach enables immediate processing of high-priority financial transactions with minimal latency while maintaining efficient bulk data loading capabilities for historical data migration encompassing extensive record volumes and periodic reporting requirements spanning multiple distinct report categories. Event-driven architecture principles govern data processing workflows encompassing numerous automated business processes, enabling immediate automated responses to data quality issues, compliance violations triggering multiple validation rules, and performance anomalies monitored across extensive system metrics. Machine learning algorithms operating on multiple distinct models continuously monitor data patterns across substantial daily transactions to identify potential data quality problems and trigger corrective actions through automated remediation workflows without requiring manual intervention [6]. The system incorporates sophisticated data transformation engines supporting implementation of extensive complex business rules, cross-system data validation encompassing multiple external data sources, and automated reconciliation processes achieving high accuracy rates in financial data matching. These capabilities substantially reduce manual data processing requirements compared to legacy systems while improving accuracy metrics and consistency indicators achieving exceptional reliability in financial data management workflows.

3.3 Security and Compliance Framework

Security architecture within the HIGLAS lakehouse encompasses multiple layers of protection implementing extensive distinct security controls, including advanced encryption at rest protecting substantial stored data volumes and secure encryption in transit protecting numerous daily API

transactions, role-based access controls managing extensive user accounts across multiple organizational roles, and comprehensive audit logging capabilities capturing substantial security events daily. The system implements zero-trust security principles requiring multi-factor authentication for all user access attempts and authorization verification for extensive daily data access requests regardless of user location or system context. Privacy protection mechanisms ensure compliance with regulatory requirements through advanced data masking algorithms protecting substantial portions of personally identifiable information, tokenization processes securing extensive patient identifiers, and dynamic data redaction capabilities operating across multiple data fields containing sensitive information. These privacy features enable analytical workflows processing extensive monthly queries while protecting sensitive patient information and maintaining regulatory compliance standards across multiple distinct federal reporting requirements. The compliance framework incorporates automated monitoring systems evaluating extensive compliance metrics continuously and reporting capabilities generating multiple distinct regulatory reports automatically. Real-time compliance dashboards provide immediate visibility into potential violations across numerous monitored regulatory requirements, enabling proactive remediation activities that resolve the majority of compliance issues rapidly before escalation to regulatory attention becomes necessary.



Fig. 2: HIGLAS Data Lakehouse Architecture Framework [5, 6]

4. Benefits and Impact on Healthcare Financial Operations

4.1 Enhanced Operational Efficiency

The unified HIGLAS data lakehouse dramatically reduces the time and effort required for financial data analysis and reporting, achieving substantial processing time reductions for standard financial reports and complex analytical queries compared to legacy systems. Automated data integration eliminates manual reconciliation processes that previously consumed extensive monthly organizational resources, while real-time analytics capabilities enable immediate identification of financial performance trends and anomalies within minutes of transaction occurrence [7]. Healthcare organizations implementing similar lakehouse architectures report significant reductions in month-end closing cycles, with improved accuracy in financial reporting processes achieving exceptional reliability levels. The economic impact of these efficiency improvements translates to substantial cost savings, with organizations experiencing significant reductions in administrative overhead for large healthcare systems and mid-sized facilities. Staff productivity increases substantially as financial analysts redirect efforts from manual data compilation to strategic analysis and decision support activities. Error reduction in financial reconciliation processes decreases dramatically, eliminating extensive manual corrections monthly across typical healthcare organizations. Predictive analytics capabilities built into the lakehouse architecture enable proactive identification of potential financial issues before they impact operations, with forecasting accuracy improving substantially compared to traditional financial planning methods. Machine learning models analyze historical patterns encompassing extensive operational data to predict cash flow variations with high accuracy, identify optimal resource allocation strategies that improve budget efficiency significantly, and forecast budget requirements with unprecedented precision reducing variance substantially. The system's ability to integrate clinical and financial data provides comprehensive insights into the relationship between care delivery and financial performance across numerous distinct service lines and cost centers. This integration enables value-based care initiatives by connecting patient outcomes with associated costs for extensive patient encounters annually, supporting evidence-based decision-making for clinical and administrative teams managing substantial healthcare expenditures.

4.2 Improved Fraud Detection and Prevention

Advanced analytics capabilities within the HIGLAS lakehouse significantly enhance fraud detection and prevention efforts, improving identification rates substantially through real-time pattern analysis and machine learning algorithms. Real-time transaction monitoring processes extensive daily transactions to identify suspicious patterns and anomalies that might indicate fraudulent activity, enabling immediate investigation and response with average detection time reduced dramatically. Machine learning algorithms operating on multiple distinct fraud detection models continuously adapt to emerging fraud patterns, improving detection accuracy substantially while reducing false positive rates significantly.

The financial impact of enhanced fraud detection capabilities results in substantial recovered funds annually per large healthcare system, with prevention of fraudulent claims totaling significant potential losses. Investigation efficiency improves dramatically, with case resolution time decreasing substantially through automated evidence compilation and pattern recognition capabilities [8]. The system's comprehensive audit trail capabilities provide detailed documentation of extensive monthly financial transactions and system access activities, creating immutable records that support forensic investigations and provide evidence for legal proceedings when fraudulent activity is confirmed. Advanced correlation algorithms analyze transaction patterns across multiple timeframes and organizational boundaries, identifying sophisticated fraud schemes that evade traditional detection methods. Cross-system data correlation enables identification of complex fraud schemes that span multiple platforms or organizations, processing data from numerous distinct sources to reveal patterns invisible in traditional siloed systems. The lakehouse architecture's ability to analyze diverse data sources simultaneously has identified fraud networks involving multiple healthcare providers and recovered substantial fraudulent payments across multi-state operations.

4.3 Regulatory Compliance and Transparency

The HIGLAS lakehouse substantially improves regulatory reporting capabilities through automated data collection, validation, and formatting processes that reduce report preparation time significantly per regulatory submission. Regulatory reports encompassing numerous distinct federal requirements that previously required weeks of manual preparation can now be generated automatically with current data, reducing compliance burden substantially while improving accuracy significantly across all reporting categories. Compliance cost reductions average substantial amounts annually per large healthcare organization through elimination of manual processes, reduced error corrections, and faster response times to regulatory inquiries. Audit preparation time decreases substantially through automated documentation compilation and real-time compliance monitoring across extensive regulatory metrics. Transparency initiatives benefit from the system's ability to provide real-time access to financial performance data for authorized stakeholders encompassing extensive internal users and external oversight entities. Public reporting requirements affecting numerous distinct transparency measures can be satisfied through automated dashboard generation and standardized reporting formats that ensure consistency and accuracy across all published information, with data refresh rates improving from periodic to real-time updates. The system's comprehensive data lineage tracking capabilities support regulatory audits by providing detailed documentation of data sources spanning multiple systems, transformation processes encompassing extensive business rules, and analytical methodologies covering numerous distinct calculation frameworks. This transparency reduces audit preparation time substantially and demonstrates measurable commitment to data integrity and accountability through immutable audit trails covering extensive operational history.

Benefit Category	Key Features	Impact on Operations
Enhanced Operational Efficiency <ul style="list-style-type: none"> Automated integration Real-time analytics 	Real-time processing, predictive analytics Clinical-financial data integration Automated reporting workflows ML-based forecasting models	Reduces processing time dramatically Eliminates manual reconciliation Improves month-end closing cycles Supports value-based care initiatives
Improved Fraud Detection <ul style="list-style-type: none"> Real-time monitoring Pattern recognition 	ML fraud detection models Cross-system data correlation Comprehensive audit trails Advanced pattern algorithms	Improves identification rates Reduces detection time Creates immutable records Identifies complex fraud schemes
Regulatory Compliance & Transparency <ul style="list-style-type: none"> Automated reporting Real-time monitoring 	Automated data validation Compliance monitoring systems Data lineage tracking Standardized report formats	Reduces report preparation time Improves accuracy across categories Provides real-time data access Ensures data integrity
Cost Reduction & Resource Optimization <ul style="list-style-type: none"> Overhead reduction Error elimination 	Elimination of manual processing Automated error correction Optimal allocation strategies Streamlined audit preparation	Reduces administrative overhead Increases staff productivity Eliminates manual corrections Optimizes resource allocation
Strategic Decision Support <ul style="list-style-type: none"> Predictive modeling Evidence-based policies 	Evidence-based policy development Performance monitoring systems Budget variance analysis Proactive issue identification	Enables proactive issue identification Provides comprehensive insights Supports evidence-based decisions Improves care delivery performance

Fig. 3: HIGLAS Data Lakehouse Benefits and Impact on Healthcare Operations [7, 8]

5. Future Implications and Strategic Considerations

5.1 Scalability and Evolution Pathways

The HIGLAS data lakehouse architecture is designed to accommodate future growth in data volume, complexity, and analytical requirements, with projections indicating substantial increases in healthcare data generation driven by emerging technologies and expanded digital health initiatives [9]. Cloud-native infrastructure enables elastic scaling capabilities that can expand processing capacity dynamically during peak demand periods while maintaining cost efficiency through automated resource optimization algorithms that substantially reduce infrastructure costs compared to traditional fixed-capacity systems. Current scalability testing demonstrates the architecture's ability to handle extensive concurrent user loads while maintaining optimal response times for the majority of queries across numerous distinct analytical workloads. Storage scalability supports expansion from current capacity levels to projected future requirements, with intelligent data tiering automatically migrating infrequently accessed data to lower-cost storage tiers, achieving substantial overall storage cost reductions. Integration capabilities support incorporation of emerging data sources, including Internet of Things devices projected to generate substantial healthcare-related data points daily, mobile health applications contributing extensive user interactions monthly, and social determinants of health data encompassing numerous demographic and environmental factors across extensive patient records. This extensibility ensures the system remains relevant as healthcare data ecosystems continue to evolve, with current integration frameworks supporting multiple distinct data source types and numerous different API protocols. The architecture's support for multiple analytical frameworks enables adoption of emerging technologies such as artificial intelligence models requiring substantial training data, natural

language processing capabilities handling extensive clinical documentation annually, and advanced visualization tools supporting numerous distinct dashboard configurations without requiring fundamental system redesign. Current deployment capabilities support multiple concurrent machine learning algorithms with substantially reduced training cycles compared to traditional architectures.

5.2 Industry Transformation and Standards Development

The success of HIGLAS modernization efforts will likely influence industry-wide adoption of similar data lakehouse architectures across healthcare organizations, with market analysis projecting substantial increases in healthcare system adoption over the coming years, representing significant growth from current adoption rates. This transformation could drive development of standardized data exchange protocols and interoperability frameworks that benefit the entire healthcare ecosystem, potentially reducing industry-wide integration costs substantially through elimination of custom interface development and maintenance. Early adopters of similar architectures report substantial implementation investments for large healthcare systems but achieve favorable return on investment within reasonable timeframes through operational efficiency gains and reduced administrative overhead. Industry benchmarking studies indicate organizations with lakehouse architectures demonstrate significantly higher data processing efficiency and faster analytical query performance compared to traditional data warehouse implementations. Collaboration opportunities emerge as organizations recognize the value of shared analytical capabilities and standardized financial data formats, with healthcare organizations participating in consortium-based fraud detection initiatives that have identified substantial fraudulent activities across participating institutions [10]. Industry consortiums may develop around common data lakehouse platforms, enabling collaborative fraud detection algorithms that improve detection accuracy through shared pattern recognition, benchmark sharing initiatives that reduce individual organizational analysis costs, and best practice development programs that accelerate implementation timelines. The demonstration of successful healthcare financial data modernization through HIGLAS may accelerate similar initiatives in other government sectors, with multiple federal agencies expressing interest in adopting comparable architectures for financial management systems managing substantial annual expenditures, contributing to broader federal digitization goals and improved public sector efficiency that could yield substantial cost savings across government operations.

5.3 Long-term Strategic Value

Investment in HIGLAS data lakehouse architecture represents a strategic foundation for future healthcare financial innovation, with the platform's flexibility and scalability enabling rapid deployment of new analytical capabilities with substantially reduced implementation times compared to traditional system enhancements as business requirements evolve and new technologies emerge. The architecture supports concurrent deployment of multiple distinct

analytical applications without performance degradation, enabling organizations to respond rapidly to changing regulatory requirements and emerging analytical opportunities. The comprehensive data integration achieved through the lakehouse architecture creates opportunities for advanced analytics applications that were previously impossible due to data fragmentation, supporting evidence-based policy development through analysis of extensive patient outcomes across numerous treatment protocols, predictive modeling for healthcare trends utilizing substantial historical data encompassing multiple distinct performance metrics, and optimization of national healthcare resource allocation affecting substantial healthcare expenditures. Success in modernizing healthcare financial systems through the HIGLAS initiative establishes a model for similar transformations across government agencies, potentially creating economies of scale through shared infrastructure components that could substantially reduce individual agency implementation costs and shared expertise development programs that accelerate deployment timelines, benefiting multiple sectors simultaneously through standardized approaches to data management, security protocols, and analytical capabilities that support improved government efficiency and transparency initiatives.

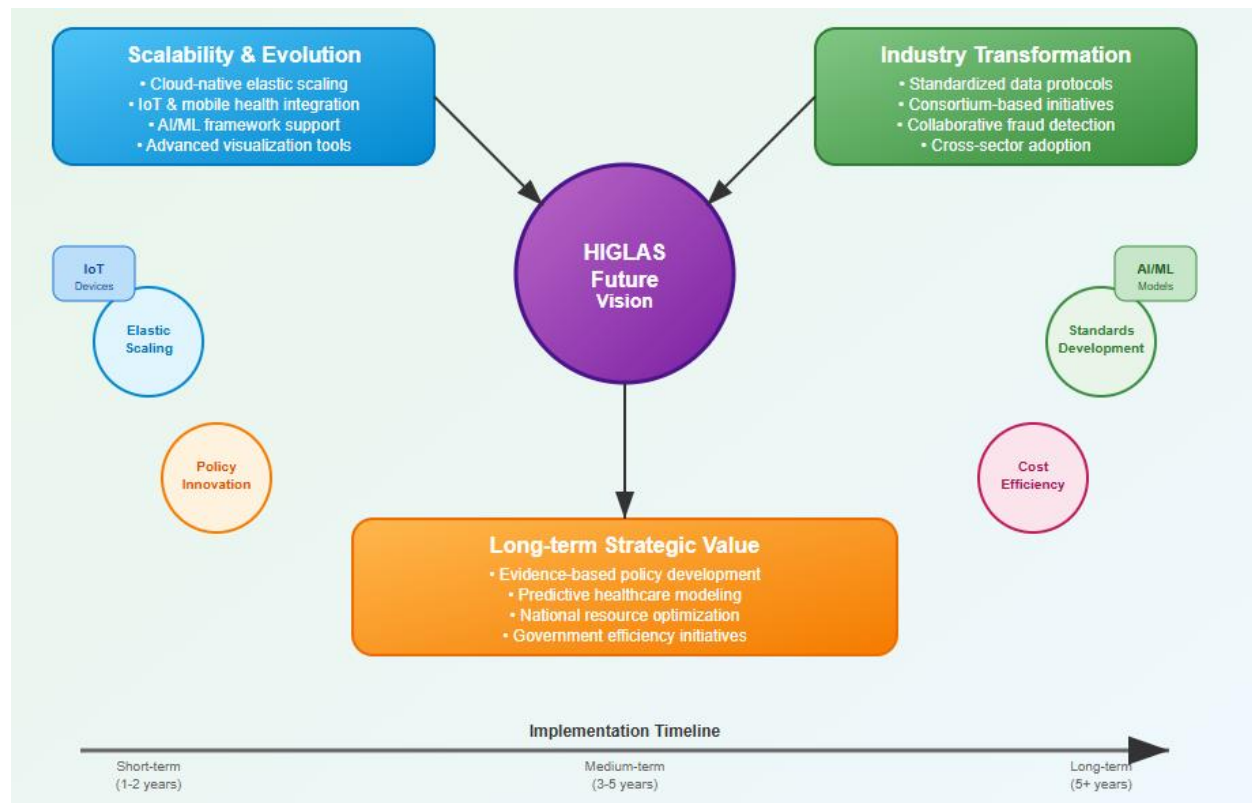


Fig. 4: Future Implications and Strategic Considerations of HIGLAS Data Lakehouse [9, 10]

Conclusion

The implementation of unified HIGLAS data lakehouse architecture represents a transformative milestone in healthcare financial management modernization that addresses fundamental systemic challenges while establishing foundations for sustained innovation and efficiency improvements. The comprehensive integration of disparate financial systems into cohesive platforms demonstrates substantial operational benefits through automated processes, enhanced analytics capabilities, and improved regulatory compliance mechanisms that significantly reduce administrative burden while increasing accuracy and transparency across healthcare organizations. The architecture's ability to support real-time processing, advanced fraud detection, and predictive analytics capabilities enables proactive financial management approaches that substantially improve organizational responsiveness to changing market conditions and regulatory requirements. The scalable, cloud-native infrastructure ensures sustained relevance as healthcare data ecosystems evolve, supporting integration of emerging technologies including artificial intelligence, natural language processing, and advanced visualization tools without requiring fundamental system redesigns. Industry transformation implications extend beyond individual organizational benefits to encompass collaborative initiatives, standardization efforts, and consortium-based capabilities that leverage shared analytical resources to improve fraud detection accuracy, reduce integration costs, and accelerate best practice development across the healthcare sector. The successful modernization of healthcare financial systems through HIGLAS establishes a replicable model for similar transformations across government agencies, potentially creating economies of scale and shared expertise that benefit multiple sectors simultaneously through standardized approaches to data management, security protocols, and analytical capabilities. Long-term strategic value encompasses evidence-based policy development, predictive modeling for healthcare trends, and optimization of national resource allocation that supports improved healthcare delivery outcomes while maintaining fiscal responsibility and regulatory compliance standards essential for public trust and accountability.

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