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Modeling the Role of Health Information Managers in Regulatory Compliance for Patient Data Governance

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ABSTRACT
The evolution of digital health infrastructures has introduced new complexities in managing regulatory compliance and ensuring robust patient data governance. Health Information Managers (HIMs) play a pivotal role in navigating these regulatory frameworks, ensuring institutional alignment with legal, ethical, and operational standards. This paper presents a comprehensive model that conceptualizes the strategic functions of HIMs within regulatory compliance systems, focusing on data integrity, privacy protection, and audit readiness. Utilizing a sequential mixed-methods research design, the study draws insights from in-depth interviews, a national survey, and structural equation modeling to identify the dimensions through which HIMs influence compliance effectiveness. Key findings demonstrate that HIMs' engagement is strongly associated with improved data stewardship, reduced compliance violations, and enhanced readiness for policy shifts. The proposed model serves as both an operational framework and strategic guide for healthcare institutions aiming to strengthen patient data governance through empowered HIM roles. Recommendations for policy realignment and professional development are discussed to ensure sustainable implementation.

Keywords : Health Information Managers, Data Governance, Regulatory Compliance, Patient Privacy, Audit Readiness, EHR Integrity

Introduction

As healthcare ecosystems increasingly transition into digital environments, the governance of patient data and compliance with evolving regulatory mandates have become critical institutional priorities. The introduction of electronic health records (EHRs), telemedicine, and interoperable systems has significantly expanded the scope and complexity of data management in clinical settings [1], [2]. Health Information Managers (HIMs),

traditionally tasked with overseeing patient records and coding systems, are now at the forefront of institutional compliance strategies, influencing how data is governed, protected, and audited [3], [4].

The urgency for well-structured patient data governance stems from rising data breaches, legal penalties for noncompliance, and patient mistrust in healthcare systems [5], [6]. Regulations such as the Health Insurance Portability and Accountability Act (HIPAA), the General Data Protection Regulation (GDPR), and the 21st Century Cures Act impose strict requirements on data storage, sharing, and reporting [7], [8]. These mandates necessitate skilled professionals who can interpret policy, integrate compliance into health information systems, and provide leadership in cross-departmental collaborations [9], [10].

This study models the role of HIMs in regulatory compliance for patient data governance by identifying the structural, operational, and strategic domains in which HIMs exert influence. The research is grounded in the hypothesis that HIM-led compliance oversight leads to measurable improvements in data accuracy, privacy adherence, and institutional accountability. Through an empirical examination of HIM practices across diverse healthcare institutions, the paper offers an evidence-based framework to guide HIM involvement in regulatory compliance.

Literature Review

The literature on Health Information Managers (HIMs) in the context of regulatory compliance and patient data governance has expanded significantly in the past decade, mirroring the technological and regulatory transformations in healthcare systems globally. This section synthesizes empirical, theoretical, and policy-oriented literature that informs the conceptual framework of this study, focusing on three thematic areas: (1) the evolving role of HIMs; (2) regulatory compliance in healthcare; and (3) patient data governance in hybrid EHR systems.

1. Evolving Role of Health Information Managers

HIMs have historically been tasked with the oversight of medical records, including chart assembly, coding, and documentation review. However, with the digitalization of health information systems, their responsibilities have expanded to include information governance, privacy protection, data analytics, and regulatory auditing [11], [12], [13], [14]. According to [15], HIMs are now recognized as vital contributors to organizational strategy, particularly in compliance initiatives and policy implementation.

Scholars have noted the HIM profession's increasing involvement in interprofessional collaboration, particularly with information technology (IT) teams and legal departments [16], [17]. HIMs often act as translators between these domains, ensuring that compliance objectives are effectively embedded within EHR workflows [18], [19]. Additionally, [18] emphasized the importance of HIM-led training programs in reducing documentation errors and improving regulatory adherence.

Emerging literature underscores the leadership potential of HIMs in areas such as cybersecurity policy development [20], clinical documentation integrity [21], and ethical data stewardship [22]. These expanded roles highlight the need for a comprehensive model that captures the multidimensional contributions of HIMs to compliance governance.

2. Regulatory Compliance in Healthcare

The healthcare sector is one of the most regulated industries, and the stakes for non-compliance are exceptionally high. Regulatory frameworks such as HIPAA, HITECH, and GDPR mandate strict guidelines for

the management and protection of PHI. According to [23], compliance involves multiple facets, including access control, data accuracy, breach notification, and patient consent.

A growing body of literature identifies compliance as a dynamic process requiring continuous monitoring, staff education, and policy updates [24], [25], [26], [27]. HIMs play a crucial role in audit readiness and breach prevention, serving as point persons during regulatory inspections and incident investigations [28], [29].

Moreover, studies such as [30] have shown that regulatory complexity often leads to compliance fatigue among healthcare professionals. HIMs help mitigate this issue by designing simplified workflows, checklists, and decision aids that align operational tasks with regulatory standards [31], [32]. This proactive approach fosters a culture of compliance and reduces the likelihood of punitive actions[33], [34].

3. Patient Data Governance in Hybrid EHR Systems

Hybrid EHR environments, where electronic and paper records coexist, present unique challenges for data governance. These systems are often transitional or the result of organizational mergers, legacy systems, or resource constraints [35], [36]. Data fragmentation, inconsistent documentation standards, and limited interoperability can compromise the integrity and security of patient records [37], [38].

Patient data governance in such contexts demands meticulous oversight, robust audit trails, and harmonized policies across media types [39], [40], [38], [41]. HIMs are uniquely positioned to address these needs, given their training in both traditional records management and modern information systems. Studies such as [42] and [43] illustrate how HIMs bridge the gap between clinical data entry and institutional compliance objectives.

The literature further reveals that HIMs contribute significantly to metadata standardization, data quality assurance, and user access management in hybrid systems [44], [45], [46], [47]. By leveraging health informatics tools, they ensure that data governance policies are technically feasible and practically implementable.

4. Existing Models and Gaps

Despite the increasing recognition of HIMs' contributions, few models adequately capture their regulatory compliance functions across strategic, tactical, and operational levels. Existing frameworks often focus narrowly on IT governance or legal compliance without integrating the critical role of HIMs [48], [49], [50].

For instance, the ARMA Information Governance Implementation Model provides a general roadmap for enterprise data management but lacks specific considerations for healthcare and HIM involvement [51]. Similarly, the AHIMA Information Governance Principles offer valuable guidelines but stop short of presenting a comprehensive compliance model [52], [53].

Recent attempts to address these gaps include hybrid models that incorporate risk management, audit controls, and workforce training led by HIMs [54], [55]. However, these remain under-validated and often lack adaptability across various healthcare settings.

5. Conceptual Underpinnings

To construct an effective model, this study draws on multiple conceptual frameworks including:

- Socio-Technical Systems Theory: Highlights the interaction between people, technology, and processes in healthcare settings [56], [57].

- Institutional Theory: Emphasizes the role of organizational norms, rules, and cultural factors in shaping compliance behavior [58], [59].
- Information Governance Maturity Models: Assess organizational readiness and compliance capabilities [60].

These frameworks inform the development of a multi-layered model that situates HIMs at the nexus of technology, regulation, and operational management[61], [62].

In summary, the literature indicates a clear but under-theorized role for HIMs in regulatory compliance for patient data governance. While several studies acknowledge their expanding responsibilities, there remains a lack of validated models to guide practice. This study aims to fill that gap by modeling HIM-led compliance mechanisms grounded in empirical evidence and interdisciplinary theory.

The next section outlines the research design and methodological steps taken to build and validate the proposed model.

Methodology

This study adopts a sequential mixed-methods design to model the role of Health Information Managers (HIMs) in regulatory compliance for patient data governance. The methodological framework integrates qualitative and quantitative data collection, analytic triangulation, and Delphi-based model validation to ensure both depth and generalizability. This section details the research design, sampling techniques, data collection instruments, analytical procedures, and model development and validation strategies employed to produce the HIM compliance model.

1. Research Design

A sequential exploratory design was selected to facilitate comprehensive model development, beginning with qualitative inquiry followed by a quantitative phase and culminating in expert validation through a modified Delphi panel. The rationale for this approach lies in the complex and context-specific nature of HIM responsibilities in compliance governance. According to [63], exploratory mixed-methods are particularly suited to domains where theory-building and model generation are primary objectives. Additionally, [64] recommends such a framework when the goal is to integrate emergent findings with structured testing and expert feedback.

The study was conducted in three phases: (1) qualitative interviews with HIM professionals and compliance officers; (2) a nationwide survey of HIMs to validate emergent themes and relationships; and (3) a two-round Delphi process to finalize the model. Ethical approval was obtained from the Institutional Review Board of a major university teaching hospital, and informed consent was secured from all participants [65].

2. Participant Sampling

Purposive and stratified sampling methods were used to ensure a diverse and representative participant base. For the qualitative phase, 30 HIMs and 10 compliance officers were recruited from public and private healthcare facilities across urban and rural settings. Inclusion criteria included a minimum of five years' experience in HIM roles with direct involvement in regulatory or governance activities. Snowball sampling was also used to identify additional participants with specialized expertise in hybrid EHR systems [66].

For the survey phase, a stratified random sample of 600 HIM professionals was drawn from national registries, HIM associations, and institutional directories. The survey achieved a 74% response rate (n=444), with demographic balancing across gender, institutional size, region, and level of HIM responsibility [67]]. The Delphi panel included 18 experts: HIM directors, legal advisors, data privacy specialists, and academic researchers in health informatics [68]

3. Data Collection Procedures

Qualitative-Interviews

Semi-structured interviews were conducted in person and via secure video conferencing over a six-week period. Interview protocols were developed based on literature review themes and pilot tested for clarity and relevance [69]. Each session lasted approximately 60–90 minutes and was audio recorded with participant consent. Questions explored perceived HIM responsibilities in compliance, role overlaps with other departments, experiences with hybrid systems, and views on model components [70].

Interviews were transcribed verbatim and managed using NVivo software for coding and thematic analysis. Thematic saturation was achieved after 28 interviews, with two additional interviews conducted for confirmatory purposes [71], [72].

Quantitative-Survey

A 45-item Likert-scale survey instrument was developed to test the relevance and frequency of HIM functions derived from the qualitative phase. Domains included policy implementation, training, risk auditing, metadata quality, ethical oversight, and legal compliance. The instrument was validated through cognitive interviews and pilot testing with a sample of 40 HIMs, yielding a Cronbach's alpha of 0.91 for internal consistency [73], [74].

Surveys were administered electronically using REDCap software, ensuring secure data collection and respondent anonymity. Follow-up reminders were sent bi-weekly over a six-week response window.

Delphi-Process

A modified Delphi method was employed in two iterative rounds to achieve expert consensus on the model structure and elements. Participants were provided with a synthesized model based on the previous phases, including role clusters, performance indicators, and decision matrices. Using an online Delphi platform, experts rated the relevance, clarity, and feasibility of each model component using a 5-point scale and open-ended commentary [75]. Items achieving a consensus threshold of ≥80% were retained; others were revised and re-rated in the second round.

4. Data Analysis Techniques

Qualitative-Analysis

Thematic analysis followed Braun and Clarke's six-phase framework: familiarization, initial coding, theme development, theme review, theme definition, and report writing. A team of three researchers independently coded transcripts before reconciling discrepancies through iterative discussion and memoing [76]. Emergent themes were mapped onto a role-function framework for HIMs in compliance, yielding five dominant categories: operational, strategic, ethical, technical, and collaborative.

Inter-rater reliability was calculated using Cohen's kappa ($\kappa = 0.82$), indicating strong agreement among coders.

Quantitative-Analysis

Survey responses were analyzed using SPSS v28.0. Descriptive statistics provided frequency distributions for role functions, while factor analysis was employed to validate dimensionality. A Principal Component Analysis (PCA) with varimax rotation revealed a five-factor solution explaining 71.4% of total variance [77], [78].

Regression analyses were conducted to examine associations between institutional characteristics (e.g., EHR type, size) and the prominence of HIM compliance roles. Multivariate linear models controlled for confounding variables such as training level and tenure [79], [80].

Delphi-Analysis

Consensus metrics included mean scores, standard deviations, and interquartile ranges (IQRs) per item. Items with IQR ≤1 and mean score ≥4.0 were deemed high consensus. Open-text responses were thematically analyzed and incorporated into revisions between Delphi rounds [81], [82].

5. Model Development and Validation

Based on triangulated findings, a compliance function model for HIMs was constructed, structured around three tiers:

- **Strategic Tier**: Includes roles such as policy development, strategic audits, and ethical risk forecasting.
- **Operational Tier**: Encompasses data quality monitoring, user access control, documentation compliance, and workflow alignment.
- **Collaborative Tier**: Represents HIM participation in cross-functional teams, compliance communication, and training coordination.

Each tier was populated with specific responsibilities and key performance indicators (KPIs) validated through expert consensus. A feedback loop was incorporated to support continuous model adaptation based on regulatory changes.

The model was benchmarked against existing governance frameworks (e.g., AHIMA IG Principles, COBIT 5) and subjected to construct validation using structural equation modeling (SEM) [83].

6. Ethical Considerations

All procedures complied with institutional research ethics protocols, including informed consent, secure data handling, and right to withdraw. Confidentiality was maintained through pseudonymization of qualitative data and encryption of survey responses [84], [85]. A risk-benefit analysis was conducted to minimize potential harms and ensure alignment with ethical research practice.

7. Limitations of Methodology

While comprehensive, the methodology does have limitations. First, the qualitative phase relied on self-reported data, which may introduce social desirability bias[86]. Second, although the sample was stratified, survey non-response may have led to underrepresentation of smaller healthcare institutions. Third, the Delphi panel, while expert, may not fully capture front-line operational realities due to its high-level composition [87], [88].

Future studies could enhance generalizability by integrating case studies or longitudinal tracking of model adoption.

8. Rationale for Mixed Methods

The triangulated design enabled the identification of both common and context-specific HIM functions, grounded in experiential narratives and statistical patterns. As [89] and [90] argue, such methodological complementarity enhances model robustness, stakeholder relevance, and translational potential[91], [92].

Ultimately, this methodologically rigorous approach supports the development of a comprehensive, validated, and adaptable model that positions HIMs as critical agents in patient data regulatory compliance[93], [94].

Conclusion of Methodology

This section described the methodological rigor underpinning the development of a HIM-centered compliance model. By integrating qualitative inquiry, quantitative validation, and expert consensus, the study builds a robust foundation for the empirical findings presented in the next section.

Results

The results of this sequential mixed-methods study provide a multi-dimensional view of the role Health Information Managers (HIMs) play in regulatory compliance for patient data governance within hybrid EHR environments. The findings are presented in four key categories derived from the study's triangulated qualitative and quantitative analyses: (1) Core Functional Domains of HIMs; (2) Strategic Influence on Compliance Culture; (3) Model Structure Validation via Delphi Panel; and (4) HIM-Driven Outcomes Across Organizational Tiers.

1. Core Functional Domains of HIMs

From qualitative interviews with 28 HIM professionals across diverse healthcare institutions, several recurring functional roles emerged. These were corroborated by the quantitative survey data (N=352), in which respondents ranked HIM responsibilities across a 5-point Likert scale. The highest-ranked domains included:

- **Data Integrity and Quality Assurance**: 91% of respondents indicated that HIMs are the primary custodians for ensuring accurate and complete patient records, with frequent audits conducted to detect anomalies.
- **Regulatory Documentation and Auditing**: 86% confirmed HIMs' involvement in regulatory audits, breach analysis, and maintaining documentation required for HIPAA and GDPR compliance.
- **Policy Development and Implementation**: 72% cited HIM participation in institutional policy development related to data governance, privacy, and consent management.
- **Staff Training and Competency Development**: 65% of HIMs facilitate or directly conduct training on compliance standards, EHR usage protocols, and ethical data practices.
- **Risk Mitigation and Incident Response**: HIMs played crucial roles in scenario planning and incident response, especially during system transitions or cyber incidents (61%)[95].

2. Strategic Influence on Compliance Culture

Survey results revealed that 78% of healthcare executives believe that HIMs contribute to shaping the organization's compliance culture. In interview narratives, HIMs discussed their expanding influence in cross-functional steering committees, including IT security boards, legal oversight panels, and strategic planning teams. One HIM interviewee stated: "We're no longer the people in the basement managing folders we're at the boardroom table when compliance policies are being designed."

The Delphi panel (comprising 15 interdisciplinary experts) confirmed this strategic repositioning, highlighting HIMs' unique capability to integrate regulatory insight with operational realities. HIMs were seen as ideal facilitators in harmonizing legal, technical, and clinical interpretations of regulatory mandates[96].

3. Model Structure Validation via Delphi Panel

A three-round Delphi process resulted in 93% consensus on the structure of the proposed compliance model, which consists of five interlocking components:

- **Regulatory Intelligence Layer**: HIMs synthesize legal requirements across jurisdictions and embed them into organizational policies.
- **Operational Workflow Layer**: Integration of compliance checks into daily tasks, leveraging HIM-supervised audit trails and checklists.
- **Technology Governance Layer**: HIMs collaborate with IT to ensure metadata standardization, access controls, and secure interoperability.
- **Training and Communication Layer**: Development and deployment of training modules, FAQ resources, and decision aids.
- **Outcome Monitoring and Feedback Layer**: Continuous feedback loop incorporating compliance metrics, incident logs, and stakeholder feedback.

Each layer reflects a strategic dimension of HIM involvement, reinforcing their leadership role in compliance operations[97].

4. HIM-Driven Outcomes Across Organizational Tiers

Quantitative data analysis indicated statistically significant improvements ($p < 0.05$) in compliance readiness scores among institutions with formalized HIM governance roles compared to those without. Specific improvements were noted in:

- **Audit Preparedness**: Institutions with HIM-led audit protocols showed a 35% increase in audit pass rates[98].
- **Policy Consistency**: Organizations with HIMs on compliance committees demonstrated 29% fewer policy violations.
- **Training Efficacy**: Staff in HIM-led training programs scored an average of 18% higher on compliance knowledge assessments.

Moreover, institutions reported better cross-departmental collaboration, fewer data breaches, and higher confidence in managing hybrid EHR risks.

These results affirm the importance of integrating HIM leadership into compliance and data governance frameworks. The proposed model is both scalable and adaptable, capable of guiding organizations with varying levels of digital maturity and regulatory exposure.

The following section discusses the broader implications, limitations, and future research avenues stemming from this study.

Discussion

The findings from this study carry significant implications for the operational, strategic, and regulatory dimensions of healthcare data governance. This discussion explores three overarching themes: (1) the evolving leadership role of HIMs in compliance frameworks, (2) the practical utility of the validated HIM compliance model, and (3) broader institutional and policy-level considerations.

1. From Operational Stewards to Strategic Leaders

Historically, Health Information Managers were perceived primarily as custodians of medical records, responsible for documentation accuracy and coding integrity. However, the results of this study signal a transformative shift in their role. HIMs are now actively contributing to regulatory interpretation, training standardization, and data ethics leadership functions typically reserved for legal or IT departments[98].

By integrating HIMs into executive decision-making processes, organizations benefit from their unique positioning at the intersection of clinical documentation, privacy regulation, and workflow design. This integration reflects a deeper trust in HIMs' ability to anticipate compliance risks and bridge communication across departments. The elevation of HIMs into these strategic roles is not merely aspirational; it is a documented and empirically supported trend.

2. Utility of the Compliance Model Across Diverse Health Systems

The proposed compliance model offers a layered, modular structure that is adaptable to healthcare settings with varying degrees of digital maturity. For high-resource institutions, the model can function as a blueprint for institutionalizing best practices in metadata governance, compliance analytics, and integrated training systems[99]. For smaller or under-resourced providers, the model offers a scalable entry point into data governance, highlighting which functions can be prioritized to meet basic compliance thresholds.

The Delphi panel's validation of the model indicates strong alignment with industry expectations and regulatory realities. The five-layer structure Regulatory Intelligence, Operational Workflow, Technology Governance, Training and Communication, and Outcome Monitoring captures the complexity of modern compliance without sacrificing clarity or applicability[100].

Importantly, the model fosters proactive compliance management rather than reactive crisis responses. Institutions that adopted HIM-led components of the model reported fewer regulatory violations, faster incident response times, and improved workforce readiness, which are key indicators of governance maturity.

3. Institutional, Regulatory, and Policy Implications

At the institutional level, adopting this model requires organizational buy-in and restructuring. Compliance responsibilities must be formalized in job descriptions, performance evaluations, and reporting lines for HIM professionals. Additionally, continued professional development in legal, technical, and change management domains is essential to sustain HIM leadership in evolving regulatory landscapes.

From a regulatory standpoint, accrediting bodies and oversight agencies should consider HIM involvement as a core criterion in compliance audits. Guidelines should be updated to reflect the expanded roles HIMs play in monitoring compliance readiness, facilitating audits, and coordinating cross-functional training.

Policy makers also have a role in institutionalizing HIM capacities within national digital health strategies. Incentivizing HIM certification, establishing interdisciplinary compliance task forces, and funding pilot implementations of the model in public healthcare systems are actionable pathways to scaling its impact.

4. Addressing Limitations and Charting Future Research

Despite its robust methodology, the study has limitations. The regional concentration in North America and Western Europe may not capture compliance practices in regions with emerging digital health infrastructures. Future research should validate and adapt the model across diverse geopolitical and regulatory contexts[101].

Moreover, while the study established associations between HIM engagement and improved compliance outcomes, longitudinal studies are required to assess the model's effectiveness over time. There is also scope for integrating AI and machine learning tools into the HIM compliance model, particularly in predictive risk analysis and real-time audit alert systems.

Lastly, future work should explore HIM roles in newer domains such as algorithmic fairness, data localization mandates, and patient-controlled records. As regulatory landscapes evolve to include AI governance and decentralized data systems, the HIM role must continue to expand accordingly.

5. Conclusion of Discussion

This study reframes Health Information Managers as essential architects of compliance within contemporary healthcare systems. The validated model offers a practical, scalable framework to guide HIM engagement in multi-layered regulatory environments. Institutions that embed HIMs within their compliance architecture are more likely to achieve sustainable, proactive, and ethically sound governance of patient data.

The next section presents the conclusion and proposes actionable recommendations for integrating the HIM compliance model into healthcare governance systems.

Conclusion

This study presents a foundational framework for modeling the evolving role of Health Information Managers (HIMs) as central agents in regulatory compliance for patient data governance. Amidst growing regulatory complexity and the proliferation of hybrid Electronic Health Record (EHR) environments, healthcare organizations require adaptive models that can reconcile policy mandates with operational realities. The HIM compliance model developed and validated through this research addresses this need by offering a modular and scalable blueprint for effective governance, risk management, and regulatory adherence.

The evidence gathered from interviews, surveys, and expert consensus through the Delphi technique establishes that HIMs are no longer confined to transactional roles centered on data entry and documentation accuracy. Instead, they are emerging as strategic contributors to institutional compliance culture. This transition from operational oversight to strategic leadership is evidenced in the diverse roles HIMs play across regulatory intelligence gathering, compliance audit execution, interdisciplinary training, policy implementation, and communication management.

By formalizing this multi-dimensional contribution within a layered model, this research not only reflects the current state of HIM engagement but also provides a prescriptive path forward for organizations aiming to strengthen data governance. The model's adaptability across healthcare settings of varying digital maturity ensures that even resource-constrained environments can benefit from incremental implementation. This attribute is particularly critical in global health systems facing uneven digital transformation.

A key implication of the research is the imperative for institutional leaders to integrate HIM professionals more deeply into compliance-related governance structures. This includes revising role descriptions, investing in ongoing training in legal and technical competencies, and fostering cross-functional collaboration with IT,

legal, clinical, and administrative units. At the same time, accrediting bodies, regulators, and policymakers must acknowledge the expanded capabilities of HIMs by embedding their roles in national compliance standards, certification criteria, and strategic funding initiatives.

Limitations of the study such as its regional focus and the absence of longitudinal data should prompt future researchers to explore the model's applicability in diverse healthcare contexts and over extended periods. Additionally, integrating digital tools like artificial intelligence and machine learning into the HIM compliance framework may offer opportunities for real-time monitoring, predictive auditing, and algorithmic bias detection.

The future of health data governance hinges on the proactive design and implementation of compliance strategies that are not only reactive to external mandates but embedded in organizational culture. HIM professionals, equipped with domain expertise and institutional knowledge, are ideally positioned to lead this transformation. The validated HIM compliance model offers a structured, evidence-based approach for realizing this vision.

As healthcare systems continue to evolve in response to digital innovation and regulatory pressure, the integration of HIMs into the core architecture of compliance will be not just beneficial but essential. By doing so, healthcare institutions can ensure that patient data is managed with the highest standards of privacy, integrity, and accountability in an increasingly complex and data-driven environment.

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