RISK MANAGEMENT AND REGULATORY COMPLIANCE IN THE DIGITAL AGE

An Enterprise Data Approach for Financial Institutions and Insurers

How a firm leverages its data and maintains rigor around the quality and lineage of that data directly affects its ability to efficiently manage compliance.

60+

Percent increase in operating cost spent on compliance compared to pre-financial crisis by retail and corporate banks. (Deloitte)

The dynamics inherent in risk management and its associated regulation is an ongoing challenge for financial services and insurance firms globally. Stringent regulatory compliance focused on improving financial stability and operational transparency is unending. The cost and complexity of compliance for financial institutions and insurers has escalated significantly since the 2008 financial crisis. Deloitte reports that operating costs spent on compliance have increased by over 60 percent for retail and corporate banks compared to pre-financial crisis spending.[1] The Insurance Journal reported that IFRS 17 would mean "billions of euros in compliance costs "for insurers.[2]

Over the same period, a variety of technological and societal topics have advanced that require improved oversight and reporting. In some cases such topics have already led to new compliance requirements, such as the US California Consumer Privacy Act, and others are trending in that direction such as the European Commission's newly introduced Digital Operational Resilience Act ("DORA"), proposed to monitor multiple facets of digital oversight. New technology adoption and innovation is under scrutiny as regulators recognize the opportunity technology offers for improved operational efficiency but must monitor for appropriate and fair use. In a pre-pandemic 2019 study, Thomson Reuters identified the compliance responsibility surrounding technology as "the greatest change [that] has been seen over the last ten years in terms of remit, expectations and terminology."[3]

Technology is a broad category, evolving quickly with many implications on risk management and regulatory compliance for financial services and insurance providers. Digital transformation projects continue, and the global pandemic is accelerating such initiatives.[4] In the years since the financial crisis, the focus has been on financial stability and transparency. While financial stability remains of critical importance, additional areas of focus include operational risk management and a reinforcement of privacy and protection. How a firm leverages its data and maintains rigor around the quality and lineage of that data directly affects its ability to efficiently manage compliance in these areas. As regulations evolve specific to technology developments such as cryptocurrency or the use of AI, it will be crucial for firms to have enterprise platforms that offer agility and flexibility in order to remain efficient.

Technology Innovation requires Diligence

FINANCIAL STABILITY

Financial stability prevails as a top priority in financial services and insurance regulations and how this is managed and monitored is directly impacted by the acceptance and broader usage of new technologies. These new technologies need additional oversight and governance. For example, the US financial agencies joining the Global Financial Innovation Network (GFIN) is evidence of the goal to further innovation while maintaining regulatory oversight.[5]

- **An Alphabet Soup of Regulations**—Basel IV, CCAR, CECL, CRML, Dodd-Frank, FRTB, GDPR, IFRS 9, IFRS 17, MiFID 2, NRRA, PBR, PRB, TRIA, etc. The "traditional" regulations are under continuous updates and revision in an effort to tune the abundance of regulation introduced in recent years. New demands are placed on the compliance capabilities of firms based on updated requirements. For example, the Fundamental Review of the Trading Book (FRTB) requirements create an estimated 24x higher demand on historical data storage and 30x higher demand on computational requirements. The insurance industry has absorbed many regulatory changes over the past decade such as IFRS17, with the US Affordable Care Act "changing the shape of the industry", according to Locke Lord.[6]

OPERATIONAL RISK MANAGEMENT

Operational risks are associated with day-to-day activities surrounding processes people and systems and include a broad array of topics—IT systems and deployment, cyberattacks, risk modelling approaches, reputational and brand crises. McKinsey estimates that operation risk incidents can cost insurers 6% or more of net income—tens of billions of dollars.[7]

PROVEN DATA LEADERSHIP IN FINANCIAL SERVICES

Leading firms globally run on Cloudera to support their data and analytics strategies including

- **82 of the top 100** Global Banks

- **64 of the Top 100** Global Insurers

- **27 of the 30** Global Systemically Important Banks (G-SIB)

- **4 Largest** Credit Card Networks

- **8 of the 10** Largest Wealth Management firms

- Cloud—In the arena of IT systems, cloud computing is on the rise to accelerate agility and flexibility in business initiatives. Across all industries, the top 2 cloud service providers, AWS and Microsoft, hold a combined market share of 62.9%.[8] This has gained regulatory attention across the globe from the Financial Stability Board, European Banking Association, EIOPA, UK Financial Conduct Authority, US House Committee on Financial Services and more. One GSIB Bank CTO expressed this risk as "We are moving towards a world where there is a highly regulated industry that is running on non-regulated 3rd party infrastructure." The introduction of DORA by the European Commission is at the forefront of such regulation. It acknowledges the potential risks and paves the way for additional regulatory scrutiny related to cloud computing, digital services and specific concentration risk such as cloud concentration risk and central counterparty clearing (CCP) risk.

PRIVACY AND PROTECTION

Data is recognized by financial services firms and insurers as critical to offer products and services more personalized to customer needs. It is an invaluable asset that enables firms to compete more effectively and it is estimated that 1.7 MB of data is created every second for every person.[9] With the expansion of digital devices and the expanded use of data, privacy and security are of utmost importance.

- GDPR, HIPPA, CCPA, etc.—Privacy laws and governance are critical to maintain trust and confidence of a financial institutions' or insurers' customers. As digital and personalization initiatives advance, such data protection must be embedded into a firm's strategy.

- Alternative Data—Non-traditional data sources—social media, spending behaviors, mobile phone usage patterns—offer a wealth of information about an individual or business that can contribute insight to how a financial services firm or insurer assesses risk or offers more personalized services to a customer. As these firms seek to utilize more of this data, regulators are carefully watching to ensure fair treatment. As an example, the US Consumer Financial Protection Bureau (CFPB) approved the use of alternative data for credit underwriting but emphasizes the usage must be applied equally.[10] The Asia Pacific Economic Cooperation (APEC) Cross Border Privacy Rules (CBPR) was created to build customer, business and regulator trust in the cross border flow of personal data across Asia, similar to GDPR. Insurers are leveraging IOT sensors to monitor driving and health habits (fitness bands), improving the customization of their services. The use of this unstructured offers great possibilities but providers must also be able to manage this data within the parameters of the regulatory protection and limits on such usage such as Circular Letter No. 1.

- Financial Crime Prevention—The detection and prevention of financial crime remains a high priority and increasingly complex issue for firms. There is no tolerance for breaches and fines run into the millions of dollars. Despite best efforts, the cost of compliance in AML, KYC, insurance fraud prevention, etc. is an impediment and can impact the advancements of other arenas.

An Enterprise Data and Analytics Platform

As financial services and insurance firms are held accountable for their actions in these areas, the ability to maintain, manage, predict and report the necessary information is critical. Effectively managing risk and regulatory compliance offers the opportunity to improve efficiency ratios. Alternatively, ineffective management can lead to a decline in investment in innovation that is critical to maintaining a competitive advantage.

An enterprise data strategy helps manage the growing volume of data, the need for long retention periods and the increasingly complex reporting requirements. A strategic approach to data enables records to be available on demand, or sent to regulators proactively. As frequent changes in regulations have tested the ability of legacy compliance systems to respond in a timely manner, firms have realized that the key to optimizing their business operations is to rationalize the data sprawl and move towards an efficient, strategic data platform that enables agility to evolve with new regulatory requirements.

Cloudera SDX provides enterprise-grade security and governance on all data including metadata, with dedicated, integrated interfaces to manage it. Data security, governance, and control policies can be set once and consistently enforced everywhere, reducing operational costs and business risks while also enabling complete infrastructure choice and flexibility.

Partner Ecosystem

Cloudera has an established, robust partner ecosystem of over 4000 firms that brings our customers the skills, resources, and technologies to utilize the Cloudera enterprise data cloud for all aspects of risk management. Our Technology Certification and Solution Competency programs provide access to partner integrations and joint solutions that follow Cloudera reference architectures and best practices.
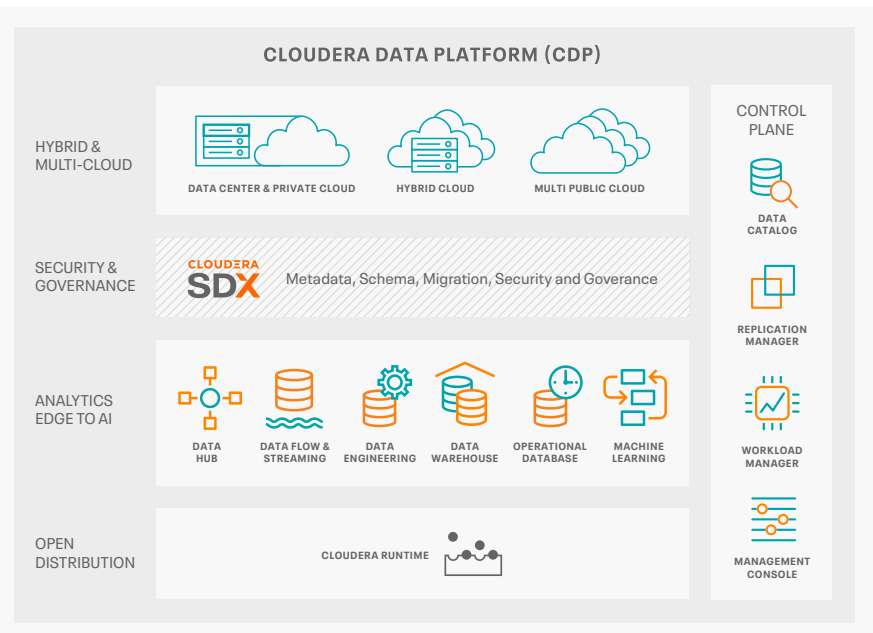
Cloudera Data Platform

The Cloudera Data Platform (CDP) offers financial institutions and insurance organizations a unified data and analytics platform to manage and model risk exposures to drive improved risk management and enable risk digital transformation. It supports big data, machine learning and predictive analytics to enable improved risk modeling and compliance support for CCAR/EBA Stress Testing, FRTB, BCBS-239, MiFID II, IFRS-9, IFRS-17, etc. CDP enables financial services and insurance entities to:

1. Ingest, process, analyze and drive risk analysis in real-time from high volumes of streaming data including customer data, market data, transaction data, alternative data and traditional enterprise data sources such as ERP, core system billing, claims and policy data, broker platforms and aggregators, core banking, treasury and trading platforms, etc.

2. Deliver timely, consistent risk analytics across lines of business. Build, test, iterate, deploy, and monitor machine learning models to enable advanced risk analysis.

3. Execute multiple analytical options (from SQL Analytics and tooling for BI engines to supporting the latest machine learning and AI algorithms) in order to drive intelligence and action from data at the edge, on premise, or in any public, private, or hybrid cloud.

4. Maintain strict enterprise data security, governance, compliance, and data lineage across environments.

SUPPORT FOR ALL DATA SOURCES, HIGHLY SCALABLE

Risk related data sources are expanding not only in volume and velocity but also in the variety of data types—structured, semi-structured and unstructured. Alternative Data is transforming the ability for risk management to gain a deeper understanding in risk exposures such as financial risk, behavioral risks, weather related risks, supply chain related risks, pandemic related risk and many other asset exposures.

CDP manages streaming data with support for massive volumes of data ingests to serve the real-time data needs of an enterprise. This facilitates real-time insights to improve detection, decisioning and actioning on critical events. In addition, the platform leverages a containerized approach to offer processing efficiency, including separate compute and storage capabilities.

Why Cloudera

Cloudera Data Platform enables financial services providers to effectively execute their data and analytics strategy to address current and evolving customer expectations.

EDGE TO AI ANALYTICS

All the functions needed to ingest, transform, query, optimize, and make predictions from data are integrated, eliminating the need for costly point products.

DATA SECURITY & COMPLIANCE

Maintains strict enterprise data security, governance, and control across all environments.

HYBRID AND MULTI-CLOUD

Delivers the same data management capabilities across data centers, private, and public clouds.

100% OPEN SOURCE

Open compute and open storage ensures zero vendor lock-in and maximum interoperability.

SECURITY, AGILITY, COST EFFICIENCY

Cloudera enables a more efficient approach to the data and analytics challenge surrounding risk management and compliance across the enterprise. CDP operates across the major public cloud providers, in a private cloud, on-premise, or in a hybrid model and is based on 100% open source technology. It offers a common security and governance model. CDP automatically scales resources as demand increases and scales down as workloads wind down. This ensures optimal performance and cost efficiency when activities such as modelling/stress tests require more resources.

SINGLE CONTROL PLANE

A control plane is offered with CDP to manage services with common tools across the lifecycle. Users can manage, monitor, and orchestrate all CDP services from a single pane of glass with consistent security and governance. The control plane delivers a powerful set of tools that provide data management, workload analysis, data movement and data discovery capabilities that enable multi-functional analytics by a user.

SHARED DATA EXPERIENCE (SDX)

With the rise in hacking, data breaches, and other cyber threats, security and data governance is paramount, particularly in the financial services industry and insurance industries that deal with massive amounts of highly sensitive data. This, alongside increasingly stringent data governance and general data protection regulation (HIPPA, GDPR, CCPA and others), has made security a key strength for Cloudera.

Cloudera's approach to the enterprise wide data security and privacy challenge is SDX— Shared Data Experience. SDX enables a common security, governance and compliance that is manageable and provides confidence that the data is protected. SDX enables safe and compliant self-service access to data and analytics. Multi-tenant data access and governance policies are set once, and automatically enforced across the data lifecycle in hybrid as well as multi-clouds. SDX reduces security risk and operational costs by delivering consistent data context across deployments.

OPEN SOURCE, ON-PREMISE, HYBRID AND MULTI-CLOUD

CDP is 100% open source, open compute, open storage and open for integration – this enables rapid innovation and protects an organization from vendor lock-in. In addition, CDP is available for public or private cloud and on-premise deployment.

Financial services institutions and insurers need the ability to analyze and act on massive volumes of data coming from diverse sources in order to monitor, model, and manage risk across the enterprise. Cloudera Data Platform offers a comprehensive platform that can model and monitor risk exposures on-demand.

Risk and Compliance Use Cases

Cloudera Data Platform enables a data strategy to manage large quantities of data in an efficient manner with data warehouse optimization and business intelligence methods and tools to enable accurate reporting. By accessing data across the enterprise and including unstructured and alternative data sources, new use cases can be realized to better model and manage risk and support compliance with existing and new regulations.

- CCAR / PBR/ CECL—Gain control of the risk profiles with a comprehensive data warehouse that enables improved measuring and modeling. Meet updated regulatory reporting requirements such as CCAR (Comprehensive Capital Analysis and Review) or PBR (Principle-Based Reserving), AML and KYC with the Cloudera platform to provide reliable and trusted access to data reservoirs for planned and ad hoc reporting. Support CECL requirements (Current Expected Credit Losses) with a common framework that enables best practice data management while individual lines of business can use varied modelling approaches aligned to specific business needs.

- Fraud Prevention—Prevent payment or claims fraud with a holistic enterprise view of all customer and financial crime related data, systems, networks, models and processes. CDP supports the machine learning and AI to support dynamic model updating and monitoring.

- FRTB Readiness—This legislation will transform how banks measure risk as part of its key requirements, specifically shifting from value-at-risk (VaR) to primarily an expected shortfall (ES) metric, which measures the risk of loss for investments. These new regulations require extensive back-testing and monitoring of both the standard and internal approaches. CDP offers a scalable infrastructure and standardized data structure to absorb expanding data sets and manage increased compute demands.

Sample Customer Successes

- **Santander Group** is a customer who gained tremendous efficiency with the Cloudera solution. Increasing pressure from a regulatory and compliance standpoint drove an initiative to standardize data on Cloudera. The result was a 20X reduction in infrastructure costs and a 10x faster time to market for new or updated applications.
Read the full case study.

- **Global Insurer**—Data standardization and confidentiality were critical to the global data security standards of this Cloudera customer. They utilized the built-in platform mechanisms that enable data users to view only the data that they've been approved to access while masking other data. This greatly increased usage viability of the enterprise data lake data while reducing data security and regulatory risks. It also eliminated manual processes used to manage security risks previously.

- **BSE**—The scalability of Cloudera is demonstrated by the Bombay Stock Exchange. BSE runs on Cloudera and supports their growth in a robust and scalable manner. BSE states "As a stock exchange, we undertake the responsibility of managing extremely sensitive information. Real-time analytics and scalability are factors imperative to the sustainable growth of BSE. This will ensure that our critical systems are future proof so we can continue to enable the industry by building capital market flows."
Read the full case study.

- **Banco de Crédito del Perú** has realized the value of SDX in a hybrid environment managed on-premise coupled with Cloudera on Microsoft Azure. It helped them efficiently deploy the solution with all personal data protection and security policies automatically replicated in the cloud.
Read the full case study.

Cloudera Data Platform offers the tools to help financial services and insurance companies embrace both the present opportunity around data, as well as the emerging sources of new information to manage risk and compliance more effectively.

Learn more about the Cloudera Data Platform and how Cloudera is transforming Financial Services and Insurance.

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