Overcoming Challenges in Data Modernization: A Comprehensive Guide for the BFSI Sector

A Whitepaper

Executive summary

In the intricate landscape of the Banking, Financial Services, and Insurance (BFSI) sector, data modernization emerges as the pivotal nexus, orchestrating an advanced paradigm in financial services. Big data is revolutionizing the landscape of financial services, enhancing capabilities in areas such as forecasting risk assessments, fortifying security protocols, driving AI-enabled solutions, and enhancing customer satisfaction. However, the extensive datasets propelling these advancements necessitate organizations to reevaluate their resources, streamline processes, and, notably, overhaul their data platforms.

The journey toward comprehensive data modernization—ranging from overhauling legacy systems to architecting resilient data infrastructures—comes with its own set of formidable challenges. These include, but are not limited to, cybersecurity threats, data integrity issues, and compliance complexities. However, by proactively addressing these challenges, organizations can unlock unprecedented value from their data assets. The endgame? A future where data-driven insights don't just inform decisions—they shape the strategic trajectory of the entire BFSI sector.

This whitepaper presents a detailed analysis of the need for data modernization in the monetary infrastructure, the challenges on the road to modernization, and the strategies to combat them. Explore how the arena of financial operations adapts to the latest technological advancements that build business intelligence to effectively access, analyze, measure, and monetize data.

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Introduction

The corridors of the banking and financial sectors are undergoing a transformative shift, with data modernization emerging as a central pillar. Restructuring the core data system and modernizing the financial operations can create a value opportunity of up to $20 trillion.

Imagine a multinational banking corporation encountering the difficulty of fragmented customer data dispersed across multiple departments. The challenge lies in the interoperability and limited pool of talents needed to execute real-time risk assessment and personalized customer engagement. By revamping their data infrastructure to incorporate AI and ML algorithms, they can not only consolidate their disparate data landscape but also activate real-time analytics. This transformation would empower the bank to offer personalized financial products and also enhance its risk mitigation strategies.

Stakeholders, customers, and other key personnel, along with modern financial operations, have developed a focus on sustainability, governance, ethical impact investments, and capitalizing on opportunities in the changing global landscape. Thus, the quest for actionable insights, ESG, and streamlined decision-making processes has become paramount to reducing complexity in the banking consortium.

Initial insight: Deciphering data modernization for the BFSI Sector

Embracing AI-powered chatbots, hyper-personalization, open banking, and other contemporary introductions to the conventional financial ecosystem has captured the users' attention, and they are demonstrating an expanded enthusiasm and readiness to welcome numerous other transformations within the sector that minimize their exertion and time expenditure. With cloud technology gathering momentum, a shift to the cloud will help these organizations strategically manage their data.

Will digital transformation seamlessly integrate into the financial ecosystem, overcoming compliance and security obstacles to data modernization?

Certainly, the cybersecurity sector is anticipated to experience substantial expansion, from USD 137.9 Billion in 2023 to USD 407.6 Billion by 2032, reflecting an impressive 14.50% annual CAGR. This underscores the critical importance of data modernization and organizations' proactive readiness to tackle the hurdles on this transformative path.

Data modernization: A view on the limitations in the financial service Sector

The monetary infrastructure is characterized by high data generation, frequent customer interaction and transactions, and a stringent compliance-aligned ecosystem. As a result, they stand out as primary organizations that demand consideration for comprehensive data modernization. What unfolds next is an optimistic deep-dive into the challenges and, more importantly, the boundless opportunities that await this transformative odyssey.

Legacy system integration: Next-gen frameworks for effortless migration
As BFSI runs on a closed platform- a mainframe kind of system of a bygone era—it often impedes innovation. Consider high-frequency trading, where split-second decisions are the norm. The age-old technologies, with their inherent latencies, are ill-equipped to provide the requisite speed and analytical prowess. However, the amalgamation of advanced analytics and machine learning can be transformative, offering traders real-time insights and facilitating intricate trading pattern analysis.

Data silos: Centralizing for actionable insights

In the banking and finance sectors, data silos have emerged as a formidable challenge, hindering seamless operations and customer interactions. Such fragmentation often results in departmental representatives lacking an integrated view of a client's complete profile, leading to disjointed customer experiences and inefficient transaction tracking.

Taking retail banks as a prime example, consider a scenario where a customer holds both a savings and a loan account. Due to these data silos, when the customer interacts with the bank for different services, representatives from the savings department might be unaware of the client's engagements with the loan department, and vice versa. This lack of holistic data access not only complicates the customer's interaction but also impedes the bank's ability to offer tailored services. Embracing advanced techniques like data warehouses and data lakes makes it imperative to centralize data and dismantle these silos, ensuring unified and efficient service delivery.

CyberSecurity & regulatory compliance: Re-directing the hacking methodology

Stringent laws like the GDPR, CCPA, and PCI-DSS bind this industry, which is a hub of crucial client data. The challenge intensifies when institutions embark on data modernization initiatives, given the potential risks associated with data breaches or threats during the transition.

Consider the complexities of cross-border data transfers under GDPR. A multinational financial entity operating across both EU and non-EU territories grapples with the task of centralizing data via cloud migration. Ensuring GDPR compliance during this process is non-negotiable. Data modernization techniques, such as data anonymization, obfuscate personally identifiable information (PII) during transfers, allowing institutions to not only neutralize potential breach impacts but also align with GDPR's stringent mandates, thereby safeguarding both data integrity and individual rights.

Cultural & organizational hurdles: Empowering traditional executives

In the rapidly evolving fintech landscape, the inertia of established professionals can be a significant impediment to technological and procedural advancements. These seasoned experts, deeply rooted in traditional methodologies, often perceive innovations like AI-driven models or unified data platforms as potential threats to their established workflows rather than opportunities for growth and efficiency.

Take the case of an AI-driven risk assessment model that a reputable insurance company has introduced, where the underwriters exhibit resistance. Their concern stemmed from the notion that data-driven insights, which they saw as potentially less reliable, might overshadow their years of experience. Addressing such resistance necessitates continuous education and workshops highlighting the benefits of data modernization. Additionally, pilot projects can serve as tangible demonstrations, offering hands-on experience that showcases the efficiency and reliability of modernized systems.

Strategizing data modernization: A blueprint for success

Crafting the path forward: BFSI's data modernization roadmap

Amidst a wealth of possibilities, organizations exhibit hesitancy or oversight regarding global technological advancements. To assist organizations in the financial service sector in deploying the latest advancements and securing a prime position in innovation excellence, a detailed roadmap for data modernization is presented below. This strategy underscores the need for banks and financial institutions to establish their digital presence promptly.

Data migration

The challenge of seamless migration lies in ensuring zero downtime during the transition from legacy systems to contemporary platforms. A meticulous evaluation of the data landscape and quality is paramount, followed by prioritizing data for migration. A shift to the cloud can also be considered an effective migration possibility, with the global cloud-managed services market projected to reach USD 247.5 billion by 2030 at a CAGR of 14.2%.

Data ingestion & integration

Post-migration, the focus shifts to data ingestion—aggregating fragmented data from diverse sources, including customer transactions and social media feeds. This data is then integrated into modern infrastructure, which necessitates robust strategies leveraging Extract, Transform, and Load (ETL) tools to harmonize varying data formats. Effective data ingestion and integration not only enhance customer profiling and risk prediction but also bolster operational efficiency. The burgeoning data integration market, projected to reach USD 30.88 Billion by 2030, underscores its significance, with BFSI as a major contributor.

Data cleansing & transformation

Data integrity is crucial for financial success and maintaining a good reputation. Data cleansing prepares data for AI and ML integrations, while data transformation converts raw inputs into valuable insights. It's impressive that 80% of the banking industry acknowledges the potential benefits of AI and is preparing to implement AI-powered chatbots and cognitive document systems. As the banking sector embraces AI and blockchain, data cleansing, and transformation are more than just technical tasks; they are essential components that will determine the sector's ability to adapt and thrive in the future.

Data management ecosystem

Efficiently managing complex data is enabled by Object-Oriented Database Management Systems, which optimize data handling. With diverse data sources in various formats, polymorphic data storage is essential for smooth retention without significant changes. This data management approach benefits market analysts and other financial institutions by leveraging analytics for innovation and an enhanced customer experience.

Data lifecycle management

Data modeling elucidates intricate data relationships, paving the way for insightful analytics, while robust storage design fortifies against potential data breaches. The power of these efforts is amplified by embracing cloud technology. Introducing data management harmonizes security and compliance. At this pivotal point, legacy data lifecycle management gives way to a modern infrastructure that nurtures compliance, resilience, and evolution. Ignoring this crucial rhythm leads to inefficiency, vulnerability, stagnation, and the absence of innovative progress.

Data quality management

After all, in an industry where credibility is the currency, a sophisticated data quality management system purges inferior or replicated data. It paves the way for a consolidated data architecture, enabling seamless transactional views and financial activities. The dividend? Tailored experiences and solutions that resonate with the end-user, further solidifying the institution's market standing.

Data warehousing

With the core objectives of risk assessment, advanced analytics, and precise reporting, data warehousing is expected to grow at a significant CAGR of over 21% over the forecast period of 2023-2030. Being a strategic enabler, underpinning informed decision-making. Leveraging data Lakes, data vaults, and data marts, the financial ecosystem can adeptly handle diverse needs, from compliance to segment-specific analyses. With centralization, every byte is harnessed to drive investment strategies, detect anomalies, and optimize operations.

Indium Software's BFSI-centric modernization principles

Indium Software's guidance and approach to data modernization challenges have been organization and customer-centric. By adeptly choosing the right tools to strategize an accurate plan, they ensure a seamless transition is achieved while delivering quantifiable results. With a track record of aiding nearly 35% of leading global financial institutions, Indium Software offers top-tier solutions in modern data management, data streaming, data assurance, and data governance.
Alleviate the hurdles in risk management, asset performance analysis, customer data handling, and future online banking and financial management with their cloud-based platforms, big data technologies, data integration and ETL, data governance and metadata management, data visualization, and business intelligence.

Below are a few of the best and most contemporary solutions that Indium Software has examined, tested, and used for its BFSI clients.

Leverage the power of data with data and analytics solutions

Business intelligence: Beyond mere data collection, Indium Software harnesses multifaceted data to discern transactional patterns, driving strategic decisions to enable BFSI entities to tap into new market segments.

Predictive modeling: The team deploys statistical paradigms and machine learning to architect models, forecasting BFSI opportunities and potential risks, and ensuring institutions are always a step ahead.

Sentiment analysis: The team of experts transforms every customer's feedback into a chance to refine and innovate, ensuring the capital and investment arena offerings always resonate with the market pulse.

Text analytics: Indium Software's prowess in text mining and NLP extracts valuable insights from unstructured data, empowering banking and financial entities to optimize operations and enhance customer experiences.

Fraud detection: Elevate security protocols with the company's assistance through data mining and ML algorithms to build unparalleled trust, fortify the BFSI environment, and enhance customer loyalty.

Marketing & sales analytics: The experts at Indium Software harness analytics to gauge product performance, refining sales strategies based on tangible data and ensuring they are always aligned with the evolving customer psyche.

Customer 360: With comprehensive profiling, the team synthesizes transactional data to offer personalized experiences, building lasting relationships and ensuring customer loyalty.

Monetize your data through powerful data analytics solutions, enabling you to gain valuable insights into behaviors and trends. Whether it's improving customer experiences or detecting fraud, data analytics is paramount in the financial sector. As demonstrated in the following example, let's focus on using data analytics to enhance customer acquisition performance

NeoBankCo, a leading digital-first bank, identified profitability challenges with a majority of its accounts. To address this, the bank utilized advanced analytics for precise customer segmentation, enabling targeted marketing strategies. By benchmarking its user experience against competitors, NeoBankCo optimized its customer journey, resulting in enhanced profitability and a higher return on customer acquisition investments.

Modernize your applications and infrastructure with application development and cloud engineering

Cloud migration: Under the direction of certified cloud professionals, Indium Software ensures a seamless migration of sensitive and important data to the cloud, guaranteeing data security and integrity throughout without compromise.

Secure and reliable cloud data migration ensures a seamless transition, offering numerous advantages for the financial services sector. Embrace cloud engineering and unlock opportunities for enhanced agility, scalability, cost-efficiency, and innovation in banking and financial operations.

Ensure compliance and security with digital assurance services

Data lake/Data warehouse testing: Indium Software ensures data sanctity within repositories, which builds the foundation for informed risk management strategies and operational forecasts.

Data validation for app modernization: Their solution architects assist organizations in identifying inconsistencies and inaccuracies in the transferred data and assure data validation to support modern infrastructure without downtime and error.

Data validation for advanced analytics: Prior to system integration, their specialists rigorously validate the integrity of unstructured, non-standardized, and segmented data to ensure compatibility with advanced AI and ML algorithms, thereby facilitating a comprehensive analysis of risk vectors, operational performance metrics, emergent trends, and strategic operations

Data validation for infrastructure upgrades: Indium Software strategically maps infrastructure capabilities, empowering a more agile, responsive BFSI infrastructure ready for tomorrow's challenges.

In the banking sector, compliance and security are of greater significance, and the implementation of digital assurance is instrumental in facilitating seamless navigation through regulatory complexities. To illustrate, consider Visa's proactive measures in fortifying security within cryptocurrency services

Visa invested $500 million in AI and data infrastructure over the past five years to enhance the security of 60 cryptocurrency services. This investment aims to proactively protect digital financial transactions for users on its sophisticated data processing network.

Stay competitive with low-code development and digital engineering
Customization & integration: The low-code solutions can be tailored and integrated with existing databases and infrastructures with Indium Software's expertise, offering limitless innovation potential and exceeding BFSI expectations.

Application development: This enterprise assists in developing enterprise applications through a low-code platform that empowers organizational progress.

To remain at the forefront of digital modernization and innovation, low-code development emerges as a pivotal solution, expediting application development for citizen developers. Leveraging low-code platforms, the BFSI sector can significantly reduce time-to-market for their pioneering products and services.

Why data modernization?

Curious about what comes next after tackling data modernization challenges? This transformative journey opens up a world of opportunities that arise from overcoming these challenges. Indium Software's comprehensive approach to blending data commercialization and monetization strategies into the data modernization process enhances the BFSI sector's potential in the following key areas:

- Empower a responsive infrastructure through cloud and low-code platforms while maintaining relevance and resilience.

- Facilitates innovative financial products and services powered by data insights, allowing BFSI organizations to swiftly adapt to changing market trends and customer preferences.

- Boosts customer engagement and experience by addressing data silos and centralizing customer insights, giving it a competitive edge.

Overcome data integrity with the adoption of AI and ML algorithms, enhancing the ability to make informed decisions that drive business growth and market expansion.

Case study: Streamlining KYC processing: tex.Ai revolutionizes text extraction

An emerging financial company in India specializes in offering credit scores and aiding banks in evaluating customer creditworthiness. Recently, they embarked on a digital transformation journey, aiming to enhance the Know Your Customer (KYC) process. Their objective was to digitally validate KYC through the extraction of information from both internal and external fields within bank statements. However, they faced subsequent challenges on:

- Inaccuracy of the extracted data
- Varied field names in the bank statements.

Solutions offered:

Indium Software segmented the challenges into three and implemented the corresponding solutions.

- Systematically classified the bank statements and quality
- Leveraged the bounding box method supported by a Deep Learning Network to locate the tables accurately and utilized the teX.ai platform to extract the data.
- Employed a combined RNN model for the extraction of data present outside the table.

Impact obtained:

- Processing time was minimized, enabling the examination of large number of applications daily.
- The text extraction accuracy increased, providing reliable and consistent data for the firm to empower informed decisions.

Key success metrics:

- 87% increase in application processing time.

- 90% accurate data extraction output was delivered.

Conclusion: Harness data modernization for optimal management of expanding data landscapes

In conclusion, data and regulations are crucial components within the BFSI sector, demanding significant attention for streamlined operations and enhanced performance. With a portfolio of tailor-made solutions specifically designed for the BFSI industry, Indium Software strategically collaborates with you on your road toward data modernization. Their skills provide a radical revamp of your data architecture, from guaranteeing unwavering compliance with shifting regulatory environments to introducing cutting-edge analytics technologies. Together with Indium Software, you're not merely adjusting to change; you're in control of it, guiding your organization towards a future of unmatched operational efficiency and digital resilience.

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