Building Lifecycle Management Initative

# Building Lifecycle Management Initiative

## State of Data in the Commercial Real Estate Industry - 2025

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# FORWARD

This document addresses the pervasive data fragmentation issue within the Commercial Real Estate (CRE) industry. The contents have been augmented utilizing Google Gemini Deep Research. The scope of the investigation centers on identifying the key characteristics, causes, and consequences of fragmented data across various CRE operations. To achieve this, the search criteria focused on literature and resources discussing data management challenges, information silos, interoperability issues, and the impact of disparate data systems on decision-making, efficiency, and innovation within the CRE sector. The time scale was constrained to information dated 2022 or later.

The analysis for this research drew upon a diverse range of sources. These include academic publications, industry reports from CRE associations and consulting firms, technology white papers on data integration and management solutions, and relevant articles from business and real estate news outlets. It also examine case studies and best practices related to data consolidation, unified platforms within the CRE domain, and analogous industries facing similar data challenges.

This multifaceted approach aims to understand the current state of data fragmentation in CRE comprehensively, and outlines available information on practical solutions.

# Table of Contents



# Executive Summary

The commercial real estate (CRE) industry is currently grappling with a significant challenge: the fragmentation of its data. Information vital for operations and decision-making exists in disparate systems, spreadsheets, and documents, hindering seamless flow and interoperability across the various phases of the CRE lifecycle. Recent industry publications and reports increasingly recognize this issue as a significant impediment to efficiency and growth. Emerging technological solutions, particularly those leveraging artificial intelligence (AI) and dedicated data integration platforms, offer promising pathways to consolidate and leverage this fragmented data. However, the effectiveness of these solutions is influenced by organizational policies, the industry's level of digital transformation, and the existing data quality. Furthermore, ongoing initiatives to establish industry-wide data standards hold the potential for long-term improvements in data exchange and interoperability. Addressing data fragmentation while considering these influencing factors is crucial for the CRE industry to unlock greater efficiency, transparency, and informed decision-making, ultimately leading to enhanced performance and value creation.

## Pervasiveness of Data Fragmentation in CRE

The issue of data fragmentation in commercial real estate manifests in various ways across the industry. Organizations often find their data scattered across numerous spreadsheets, documents, and disparate software systems.[1] This situation is frequently exacerbated by investments in CRE involving diverse property types, multiple stakeholders such as investors and lenders, and intricate investment structures, each potentially utilizing their own methods for data tracking and management.[1] An asset manager might track financial performance in one system. In contrast, property managers use a separate platform for operational data, and leasing teams maintain tenant information in yet another.[1] This departmental segregation further compounds the challenge of achieving a unified view of critical information.

A significant contributing factor to this fragmentation is the continued reliance on legacy technology infrastructures that were not originally designed to communicate with each other.[2] Many real estate firms still depend on established, often aging, systems that serve singular purposes for specific tasks.[3] This results in isolated data repositories that hinder the ability of different business units to share and integrate information effectively.[3] Compounding this issue is the persistent use of spreadsheets for critical functions, such as reporting, property valuation, cash flow analysis, and budgeting.[3] While offering flexibility for individual tasks, these manual methods

inherently limit data sharing and the creation of a centralized, accessible data environment. The historical trend of adopting technology piecemeal, without a focus on interoperability, has naturally led to the current environment where data is often trapped within isolated systems and manual processes.

Several underlying reasons contribute to the persistence of data fragmentation in the CRE sector. A fundamental challenge is the industry's lack of standardized data formats and protocols.[4] Without universally agreed-upon formats for data fields, definitions, and structures, it becomes exceedingly difficult for different software applications and databases to understand and process each other's data seamlessly.[5] Furthermore, internal organizational structures often contribute to the problem. Departmental silos, where teams operate independently with their own data management practices and limited incentives for cross-departmental data sharing, naturally lead to the isolation of information within those units.[6] This issue is further intensified by the lack of consistent and well-defined data management policies and procedures across different firms and even within departments of the same organization.[8] Without precise data collection, storage, sharing, and maintenance guidelines, disparate approaches are adopted, leading to inconsistencies and integration challenges. The combination of a lack of unified data standards and a collaborative data-sharing culture within many CRE organizations is a fundamental driver of the deeply entrenched data fragmentation problem.

There is a growing recognition within the CRE industry that data fragmentation is not merely an inconvenience but a substantial impediment to operational efficiency, informed decision-making, and overall business growth. Industry reports and publications increasingly identify data fragmentation as a top sector challenge.[1] For example, Pereview Software, a provider of solutions for CRE asset management, explicitly lists "Siloed data" as the primary challenge in analyzing reporting hurdles asset managers face.[1] Deloitte's 2024 Real Estate Outlook underscores this point by highlighting data silos as a significant impediment to efficiency and real-time decision-making within the industry.[3] Asset managers, in particular, face significant reporting challenges directly stemming from siloed data as they struggle to aggregate and analyze information from disparate sources to understand their investment portfolios comprehensively.[1] This increasing awareness signals a critical shift in the industry's understanding of data fragmentation, moving it from a background operational issue to a front-and-center strategic concern.

## Recent Research and Industry Insights (2022 - Present)

While explicit academic research papers were not directly present within the provided snippets, the search queries referencing "JSTOR commercial real estate data fragmentation" suggest an underlying academic interest in this topic. Furthermore, discussions within ResearchGate abstracts touch upon related concepts. One paper explores the use of Building Information Modeling (BIM) for visualizing corporate real estate data from disparate systems, directly acknowledging the challenge of data being owned by different departments and stored on separate systems.[10] Another abstract discusses the potential of big data integration for bridging data silos, highlighting how these silos restrict information sharing and collaboration within organizations. Additionally, an abstract notes that much of the current research on commercial real estate exists within academic silos, suggesting a parallel fragmentation of knowledge within the research community itself. These references show that although finding specific academic papers from 2022 and later about data fragmentation in CRE needs more focused searching, the academic community knows about and is looking into related problems and possible solutions.

Industry publications and reports from 2022 to present consistently highlight the recognition and impact of data fragmentation in CRE. Pereview Software's analysis of reporting challenges for asset managers in 2024 explicitly identifies siloed data as the number one issue.[1] Commercial Observer, a leading industry publication, frames data fragmentation as a significant hurdle that technologies like AI are increasingly being used to overcome.[4] Deloitte's 2024 Real Estate Outlook corroborates this view, pinpointing data silos as a direct consequence of the industry's continued reliance on legacy systems and the widespread use of spreadsheets for critical functions.[1] Lobby CRE further emphasizes the pervasiveness of this problem, stating that approximately 75% of the commercial real estate industry currently struggles with data silos.[2] This agreement among industry sources highlights that data fragmentation is a big problem affecting many CRE operations and decision-making parts.

The impact of data fragmentation on the CRE industry is multifaceted and far-reaching. One of the primary consequences is the difficulty in obtaining a comprehensive and unified view of investment portfolios.[1] When critical data points reside in isolated systems, it becomes complex and time-consuming to aggregate and analyze this information effectively, hindering a holistic understanding of overall performance and risk. Furthermore, the existence of data silos significantly increases the potential for errors, inaccuracies, and the presence of outdated information.[1] Manual data entry across multiple systems, coupled with a lack of data validation and synchronization, inevitably leads to inconsistencies and a higher likelihood of unreliable data. This

fragmented data environment also makes generating comprehensive reports are incredibly time-consuming and inefficient.[1] The need to manually collect and compile information from disparate sources for reporting purposes diverts valuable time and resources from more strategic activities. Ultimately, data fragmentation hinders informed decision-making, impedes efforts to optimize performance, and obscures the ability to visualize and manage risks within CRE operations effectively.[1] Beyond these core operational challenges, data silos can also lead to decreased productivity, impaired teamwork and collaboration, the potential loss of critical data, and ultimately, increased operational expenses for CRE businesses. Moreover, data silos limit organizations' ability to effectively leverage data for sustainability reporting and make holistic decisions, especially as environmental, social, and governance (ESG) factors become more prominent in the industry.[16]

Several solutions are emerging within the CRE industry in response to these challenges. A key recommendation consistently appearing in industry discussions is data centralization into a single, unified platform.[1] This approach aims to provide a single source of truth for all relevant information, improving data accessibility, consistency, analysis and reporting efficiency. Technology, particularly artificial intelligence (AI) and automation is increasingly recognized as a powerful solution for aggregating, structuring, and analyzing the vast amounts of fragmented data within the CRE sector. [1.] AI-powered tools are being developed to automate data collection from multiple sources, standardize unstructured information, and provide valuable insights that would be difficult and time-consuming to obtain through manual methods.[4] Furthermore, dedicated data integration platforms are emerging as critical tools for connecting disparate data sources and creating a more unified data landscape within CRE organizations. These platforms offer features and capabilities specifically designed to facilitate the flow and transformation of data between different systems. The adoption of cloud-based solutions is also considered a way to improve data accessibility and break down the silos associated with traditional on-premises systems. By leveraging the scalability and accessibility of cloud infrastructure, CRE firms can create more integrated and collaborative data environments.

## Influence of Organizational Factors and Technology Adoption on CRE Data Practices

Organizational policies, standards, processes, and procedures significantly influence CRE data practices. Poorly defined or enforced policies can inadvertently promote data silos by allowing departments to operate with disparate data management approaches and limited data sharing incentives.[2] When leadership does not establish data as a key

component of organizational success and does not foster a culture of collaboration, data tends to be gathered and kept within individual departments.[2] This can lead to inconsistent processes, disparate data sources, and a lack of alignment across the firm, negatively impacting productivity and data integrity.[12] Conversely, well-defined data management policies, including guidelines on data collection, processing, retention, and disposal, are crucial for preventing data silos and ensuring data quality and accessibility across the organization.[18]

The CRE industry's relatively late adoption of digital transformation and the associated lower levels of technology skills and experience among some personnel also significantly affect efforts to improve data quality.[1] Many firms still rely on manual processes and outdated systems, partly due to a lack of in-house expertise to implement and manage more sophisticated digital solutions.[1] This skills gap in areas like data analytics, software development, and cloud computing hinders the modernization of data management practices and the effective utilization of emerging technologies like AI.[1] Without personnel equipped to standardize data inputs, ensure data consistency, and govern data integrity, the potential benefits of technological solutions for improving data quality may not be fully realized.[3]

## Role of AI in Improving Data Quality and Management

The CRE industry is increasingly optimistic about the role of AI in improving historically poor data quality and management.[4] AI's ability to process and analyze vast amounts of data in real-time offers significant potential for automating data collection, structuring unstructured information, and identifying inconsistencies and errors.[3] AI-powered tools can centralize and standardize specific types of CRE data, such as rental comparables and lease documents, reducing manual effort and improving accuracy.[4] AI can also enhance property valuation accuracy and automate condition assessments, providing more reliable data for decision-making. [3]

However, the industry may be overestimating the immediate impact of AI without addressing foundational data management issues. AI's effectiveness relies heavily on the quality and consistency of the data it processes. [3.] AI's ability to deliver meaningful improvements will be constrained if the underlying data is fragmented, inaccurate, and lacks standardization due to poor organizational policies and limited technology skills. [3.] To leverage AI for data quality improvement, organizations must first establish transparent data governance, implement data standards, and ensure data transparency.[3] While AI offers powerful tools for analyzing and extracting insights from data, it is not a panacea for resolving deeply rooted data quality problems stemming from organizational and technological limitations.[3] A strategic and phased approach

that combines technological solutions with improvements in data management practices and personnel skills development are essential for achieving sustainable improvements in data quality within the CRE industry.

## Impact of Data Silos on the Commercial Real Estate Lifecycle

The presence of data silos significantly impacts each phase of the commercial real estate lifecycle, creating inefficiencies and challenges at every stage. During acquisition, CRE professionals face difficulties accessing and integrating the diverse data sources necessary for thorough due diligence.[10] This includes property records, market data, and financial information, often residing in separate systems that do not readily communicate. The traditional approach often involves time-consuming manual processes to gather and verify data from multiple locations.[10] This fragmentation makes obtaining a holistic view of a property's history, performance, and overall potential challenging.[1] Consequently, there is an increased risk of relying on incomplete or inaccurate data, leading to flawed valuation and suboptimal investment decisions.[10]

The lack of seamless data flow between different stages, such as planning, design, construction, and handover to property management, can create significant hurdles in the development phase. [3.] Siloed information can lead to inefficiencies in project management and cost control.[12] Design specifications might not be readily accessible to the construction team, or budget information might not be effectively integrated with project timelines. This lack of coordinated data can hinder effective communication and collaboration among the various stakeholders, including architects, contractors, developers, and future property managers. The potential for data inconsistencies between design models, construction documents, and the operational systems that will be used to manage the property further underscores the negative impact of data silos during development.

The **management** phase of the CRE lifecycle is mainly affected by data fragmentation. Due to scattered data on tenants, leases, maintenance requests, and financial records, property managers often grapple with inefficiencies in day-to-day operations.[2] Generating accurate and timely reports for owners and investors becomes a significant challenge when the necessary data resides in numerous isolated systems.[1] Tracking tenant satisfaction and addressing issues promptly can also be problematic when communication channels and data systems are fragmented. Furthermore, optimizing building operations, such as energy management and maintenance scheduling, is limited without a unified view of building performance data. For example, energy

consumption data might be in one system while maintenance logs are in another, preventing a comprehensive analysis to identify potential areas for improvement.

Finally, data silos can also hinder the **disposition** of commercial real estate assets.[22] Compiling comprehensive and accurate property information for marketing and sales purposes can be challenging when data is fragmented across different systems. Accessing historical performance data, maintenance records, and other relevant information that could positively influence buyer interest and property valuation becomes more difficult. If information is pulled from disparate and unsynchronized systems, the potential for inconsistencies in the data presented to prospective buyers can also undermine trust and impact the speed and price of the sale.

## Emerging Solutions and Initiatives for Data Integration

The commercial real estate is increasingly looking toward technological solutions to data fragmentation. Artificial intelligence (AI) and machine learning (ML) are at the forefront of these solutions, offering the capability to automate the collection, structuring, and analysis of data from multiple disparate sources.[4] AI tools, like those made by Keyway (KeyComps and KeyDocs), show how we can gather and organize certain types of commercial real estate data, like rental comparisons and real estate documents, which significantly cuts down the amount of manual work needed in these essential tasks.[4] Furthermore, AI can enhance property valuation accuracy and automate condition assessments, providing more efficient and data-driven insights. AI-powered platforms are also emerging that can integrate data from various sources without requiring manual intervention, effectively breaking down existing data silos and providing a more holistic view of operations.[3] The application of predictive analytics, powered by AI and ML, offers the potential to forecast market trends and provide valuable assistance in areas such as tenant and lease management, enabling more proactive and informed decision-making.

Beyond AI, dedicated data integration platforms are playing a crucial role in connecting disparate systems and unifying CRE data. These platforms are designed to centralize data into a single, accessible source, facilitating efficient management and analysis. Cloud-based data integration platforms offer scalability and flexibility, allowing CRE firms to adapt their data infrastructure to evolving needs. Many of these platforms come equipped with pre-built connectors for a wide range of data sources and applications commonly used in the CRE industry, simplifying the establishment of data pipelines. Examples of such platforms include Integrate.io, Oracle Data Integrator, Talend Cloud Data Integration, MuleSoft, Dell Boomi, Fivetran, IBM InfoSphere, Jitterbit, and SnapLogic.

Building Information Modeling (BIM) represents another technological solution that can aid in visualizing and managing data from disparate systems within building design, construction, and operation. BIM is a centralized software framework capable of integrating geometric and non-geometric building information, providing a single source of truth for various aspects of a property's lifecycle. This integrated approach can help break down data silos that often exist between different phases of a building's lifecycle and among various stakeholders involved in its creation and management.

In addition to technological solutions, initiatives focused on establishing data standards and improving interoperability are gaining momentum in the CRE industry. MISMO (Mortgage Industry Standards Maintenance Organization) is actively developing standards for exchanging critical data within the commercial real estate finance sector, including appraisal information, financial operating statements, rent roll data, and green utility data. These standards aim to create a more efficient and consistent framework for data exchange among lenders, borrowers, and other stakeholders involved in commercial mortgage transactions. Recognizing the challenges associated with adopting new standards, MISMO is also developing tools and guidelines to simplify the implementation process for industry participants. However, historical data suggests that achieving widespread adoption of such standards can be complex, with factors such as cost-benefit concerns and the need for vendor support playing significant roles.

OSCRE International is a key organization focused on the development and implementation of real estate data standards. OSCRE provides the OSCRE Industry Data Model™ (IDM), a comprehensive and integrated data model with free access and open standards, designed to address the management of real estate asset lifecycles. The IDM contains data definitions for over 130 use cases and serves as a foundation for developing data strategies in real estate, including corporate and investment data standards. OSCRE's mission is to enhance real asset data through unified standards and knowledge, aiming to build the digital future of real estate. They offer education and training to build core competencies in data strategy, integration, master data management, and data governance using the IDM. OSCRE collaborates with various industry organizations and has developed standards for environmental data, including energy and water, to support sustainability initiatives. Their work aims to improve data management, enable better decision-making, and facilitate the adoption of emerging technologies like AI in the real estate sector. OSCRE's initiatives promote data integration, reduce the total cost of systems and data ownership, and accelerate the shift to truly digital real estate.

Another initiative in this space is the IBPDI (International Building Performance & Data Initiative), which is developing a global, industry-wide Common Data Model (CDM) for

Real Estate. This CDM aims to serve as an open, free, and standardized data language for all real estate-related business processes, potentially revolutionizing data exchange and integration across the industry. Supported by major industry players like Microsoft and RICS, the IBPDI's CDM is structured in clusters representing different specializations within real estate, such as energy, portfolio management, and asset management. This modular approach may facilitate incremental adoption of the standards by other industry segments.

The UNECE framework on statistical interoperability provides a valuable conceptual model for understanding the different facets of data interoperability, including semantic, structural, syntactic, and system interoperability. This framework emphasizes the importance of open standards and common data formats for seamless data sharing and integration. While focused on statistical data, the principles outlined in the UNECE framework are relevant to data interoperability challenges within the CRE industry. The experiences from the healthcare industry, where government rules and programs have greatly improved data sharing and standardization, suggest a possible way for similar regulations and frameworks, whether led by the industry or supported by the government, to bring about the same kind of improvements in the CRE sector.

## Key Root Causes, Constraints to Improvement, and Possible Near-Term Solutions

| Category | Description | Supporting Citation |
|---|---|---|
| **Root Causes** | Continued reliance on legacy systems and spreadsheets | 1 |
| | Lack of standardized data formats and protocols | 4 |
| | Departmental silos and lack of cross-departmental data sharing | 2 |
| | Absence of consistent data management policies and procedures | 8 |
| **Constraints to Improvement** | Low level of technology skills and experience in industry personnel | 1 |

| Category | Description | Supporting Citation |
|---|---|---|
| | Costs associated with implementing new technologies and overhauling legacy systems | |
| | Potential resistance to change and adoption of new standards | |
| | Ensuring data privacy and security during integration efforts | |
| **Possible Near-Term Solutions** | Centralizing data into unified platforms | 1 |
| | Leveraging AI and automation for data aggregation and standardization | 4 |
| | Use of industry data standards | |
| | Adopting cloud-based solutions for improved data accessibility | |
| | Focusing on internal training and upskilling of personnel in data management and technology | 3 |
| | Implementing clear and consistently enforced organizational data policies and standards | 18 |

# Conclusion

The commercial real estate industry widely acknowledges data fragmentation as a significant impediment to efficiency, accuracy, and strategic decision-making across all phases of the property lifecycle. Recent studies and industry reports often highlight the problems caused by data silos, such as trouble getting a complete view of portfolios,

higher chances of mistakes and outdated information, slow reporting processes, and difficulties in improving performance and managing risks. These challenges are rooted in factors such as reliance on legacy systems, lack of data standards, and organizational silos. They are further constrained by industry's maturity and technology skills.

Emerging technological solutions, particularly artificial intelligence and dedicated data integration platforms, offer promising avenues for addressing these issues. AI can help by automatically gathering, organizing, and analyzing data, making it easier to create a more connected and user-friendly data environment in CRE, primarily when used alongside data integration platforms that link different systems. Additionally, ongoing work to develop common data standards and improve how other systems work together, like the initiatives from OSCRE, MISMO, and IBPDI, is essential for enhancing data and teamwork in the industry. However, successfully implementing these solutions requires a concerted effort to address organizational factors, improve technology skills within the industry, and establish robust data management practices.

Looking ahead, the future of CRE data hinges on a continued and strategic approach to data integration. Unlocking the full potential of CRE data will require not only the adoption of new technologies and adherence to emerging standards but also a fundamental cultural shift within the industry toward greater data sharing, collaboration, and a commitment to data quality. By embracing these changes, the commercial real estate sector can pave the way for greater efficiency, enhanced transparency, and ultimately, more informed and profitable decision-making.

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