Building data governance capabilities in corporate real estate: A practical guide to improving data governance maturity

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INTRODUCTION

This paper is a practical guide on how to begin to build data governance capabilities in corporate real estate (CRE). A central theme is ‘maturity’, specifically data governance maturity applied to CRE. The perspective shared here comes from a combination of industry research into capability maturity models blended with case examples from the CRE profession. The primary objective is to help CRE leaders gain a better understanding of data governance and to begin to assess their organisation’s readiness for their journey up the data governance maturity curve.

Increased demand for more effective data governance is occurring at the same time as rapidly changing technology and rising needs for significant improvements in a CRE organisation’s business intelligence and analytical capabilities. More effective data governance provides the foundation for improved analytics by providing for high quality data aggregated from multiple sources. In a recent survey conducted by OSCRE International, almost 60 per cent of a mixed real estate and facilities audience have business intelligence initiatives underway, while 30 per cent are pursuing...
intelligent building technologies and 25 per cent machine learning applications. The high interest in business intelligence is a significant driver for more effective data governance. Intelligent building applications and emerging technologies call for significant improvements in data governance.

**WHAT DATA ARE WE TALKING ABOUT?**

Managing a diverse property portfolio calls for information relating to leases, occupancy costs, properties, people, spaces, utilisation, building systems, services, contracts, owners, tenants and a lot more. The data relating to these portfolios is increasingly complex, growing in volume and coming from multiple sources. Additionally, the data we are talking about flows from one end of the CRE process to the other from a beginning with strategic planning and capital budgeting to operations, maintenance, and disposition. This end-to-end process view also applies to the various stages in the lifecycle of an asset from the beginning of its life — say, as a project or an acquisition — till it is disposed of or recommissioned for another use.

**WHAT DOES DATA GOVERNANCE MEAN?**

The Data Management Institute defines data governance as ‘the overall management of the availability, usability, integrity, and security of the data employed in an enterprise … a sound data governance program includes a governing body or council, a defined set of procedures, and a plan to execute those procedures … the execution and enforcement of authority over the management of data assets and the performance of data functions … the decision-making process that prioritizes investments, allocates resources, and measures results to ensure that data is managed and deployed to support business needs’.1

**WHO ARE THE AUDIENCES AND WHAT IS IN IT FOR ME (WIFM)?**

Data governance has been gaining increased attention and support from the very top level of management, for both corporations and their service providers. While data governance sounds like an information technology (IT) practice, there are many audiences and stakeholders that benefit from the rigour and structure that data governance provides. The WIFM for data governance includes mutual benefits for CRE leaders and managers, internal customers and associates, as well as their CRE’s internal and external business partners (see Figure 1).

Examples include:

- **Head of CRE:** At the executive level, data governance provides a structured approach to managing data in all areas of the organisation and provides an opportunity to raise confidence and sophistication in analytics and decision-making;
- **Functional leads:** The most direct benefit for a functional lead is the increased trust in the quality of data for the function itself and for how the function integrates with others. Taking an enterprise-wide perspective on data allows for much better understanding of the linkages between the operations and strategies of each of the functions and for the portfolio as a whole;
- **Portfolio managers:** A data governance programme provides for consistent, cross-functional, quality data about the portfolio that becomes the foundation for improved analysis, such as scenario planning and optimisation;
- **Service providers:** Are able to show rigour in how operational data is gathered, managed, validated and shared with their clients and in keeping with the data management requirements of their contract. Data governance can be a source of competitive advantage and differentiation for service providers, and is an
opportunity to bring new capabilities and services to clients that do not yet have a mature data governance programme in place;

- **Chief Information Officer (CIO):** Allows for integration of CRE data model into the corporate master data model — this is also very beneficial to the CRE group because it formalises the data connections into areas such as finance, sourcing, legal, etc.;

- **Software selection and implementation team:** With improved data governance understanding and capabilities, internal teams are much better prepared to represent the CRE organisation in determining data needs and system requirements from a business perspective.

**UNDERLYING LITERATURE AND RESEARCH**

There are many useful and well-developed maturity models in the literature and from industry organisations specialising in areas such as business intelligence and data governance itself. None of the maturity models reviewed has all the elements needed for data governance in CRE. For example, it helps to look at maturity models for business intelligence and analytics when thinking about how to apply improved data management practices to real estate portfolio management. In the area of change leadership, the PROSCI model helps guide thinking about how to approach change aspects of implementing a new programme such as data governance.2 Combining the features of models such as these

The findings and suggestions offered in this article are also based on a variety of direct sources including:

- Case studies in data governance at global CRE organisations over a five-year period from 2012 to 2017;

- Input from large global service providers implementing data governance in their own organisations and in partnership with their clients;
• Cases studies and summaries of leading practices provided by firms and experts participating as faculty in the OSCRE Academy Data Governance in Real Estate programme;
• Research into a variety of maturity models in disciplines that fit with the needs of a global CRE organisation, such as business intelligence, business analytics, data integration and aggregation.3

HIGHLIGHTS
This paper contains seven sections starting with a basic introduction to data governance and data governance maturity.

(1) The building blocks of effective data governance in real estate: Data governance is a strategic framework that sets goals, direction and accountability for data. It helps to distinguish this from data management which is the development and execution of architectures, policies, practices and procedures to manage the information;
(2) Build data governance maturity in real estate: Capability maturity models have gained broad acceptance, including in data governance. While they do not necessarily fit all situations, they can provide very useful context and guidance on how to build a data governance programme. Classic maturity models have five levels of maturity. Experience shows that many organisations make good progress to Level 2 and often falter there finding it very difficult to rise to Level 3. Some of the characteristics of Level 3 and beyond are outlined in this paper. Significant advances in capabilities occur starting at Level 3 which makes Level 3 a reasonable target for CRE organisations setting goals for their data governance programme;
(3) Industry trends show increasing demand for data governance capabilities in CRE: Data governance is moving onto the CRE leaders’ radar, possibly for the first time. Even where some progress has been made, there is more work to do to bring data governance capabilities to the levels needed. No matter how far along any organisation is today, further action can be taken quickly, even this year. Advances and increasing sophistication in the CRE profession now make the journey into data governance a lot easier but not necessarily faster without getting ready.
   Data governance is not a fad. It is not new. It is not someone else’s responsibility. It cannot be outsourced entirely. It is not solely about technology or systems, although it is related. It is worth pursuing as a priority, even if it is just about putting the basic building blocks in place;
(4) Establish a compelling business case for data governance: CRE leaders are finding a broad range of benefits from building data governance capabilities in their people, strategies and operations. The business case is a combination of data quality and consistency, transparency, risk management, improved analytics, greater alignment across an organisation and competitive advantage for some. These are common goals for a CRE leader trying to bring better information and analytics to the organisation, using data governance and data management to get there;
(5) Build capabilities and skills for data governance: Building a new data governance programme calls for adding skills such as business analysis, business architecture, data ownership and data modeling. However, the demand is high for these skills in the increasingly digital economy and there is a real scarcity of qualified people just when they’re needed the most;
(6) **Link strategies for information management and outsourcing:**

Service providers are accountable for developing and managing large percentages of the total information any CRE leader needs. The result is an increasing need to link the strategies for information management with outsourcing. In turn, CRE functional leaders and managers will need to be able to structure data management agreements with service providers and guide the integration of systems, databases and roles around data;

(7) **Assess where your organisation is today and set plans for action:** Using a data governance maturity model for real estate, a CRE leader can assess where their organisation is today, understand readiness for change, and lay out a specific plan of action to take the organisation up to the next levels in the maturity curve.

**TRENDS INCREASING DEMAND FOR DATA GOVERNANCE IN CRE**

The trends driving the growth of data governance are the same ones that are opening opportunities for CRE leaders and teams to the more effective use of information in managing their portfolios and supporting their workforce. In general, understanding these trends will help teams become more effective in representing their business perspective when it comes to gathering, managing and utilising data.

**Information-enabled real estate businesses** and operations are becoming much more mainstream in the real estate industry. They are highly dependent on well-articulated data strategies that come from effective data governance. Examples include data integration and aggregation across functions, regions and service contracts. Retail companies are perfect illustrations in that the strategies for retailing are so closely aligned with the strategies for real estate, such as market coverage and store openings.

Another good illustration is the General Data Protection Regulation (GDPR) in Europe which comes with strict data protection requirements with penalties for non-compliance. Many companies are looking to data governance as their means of ensuring compliance with GDPR. An example of where GDPR will have an influence on CRE is managing people information in conjunction with reporting on utilisation and location information in a portfolio of properties.

Trends to watch and act upon include:

- **Improve data quality to support analytics.** Improved business intelligence and analytics is a high priority for CRE leaders, calling for high quality data from multiple sources. Data quality is one of the primary goals of effective data governance. However, research conducted by Deloitte and CoreNet Global found some serious questions about trust in information used to manage real operations and make decisions. This highlights the need for improvements in data quality for analytical use.

- **Strategies for information management and outsourcing are being linked.** Service providers are accountable for an increasing share of the total information that a CRE organisation needs. Additionally, service firms have invested heavily in technology in recent years to expand services and compete based on superior data management capabilities. As a result, clients are looking closely at service providers’ approaches to data management as a differentiator and are building data management requirements into outsourcing contracts;

- **Changes to lease accounting rules** mean that CRE organisations have much greater demands for improved lease reporting and analysis, in turn placing
demands on data strategies and data management practices related to leases. The accounting changes are resulting in close scrutiny of data management practices and information systems dealing with leases.

- **Data governance is a priority for the core business** at many companies, raising expectations that CRE will do its part. New data governance roles are emerging in many companies, such as the Chief Data Officer and internal Data Governance Councils. These roles call for new interactions with business stakeholders and new positions will be needed in the CRE group itself.

- **Emerging technologies** like Blockchain and machine learning, present new opportunities as well as challenges related to data governance. Additionally, technologies like Blockchain will be greatly dependent upon data governance practices and data standards. For example, as Blockchain applications expand in real estate, there will be new demands on how information is structured and shared. Artificial intelligence (AI) and machine learning technologies are growing quickly in lease abstracting and lease administration. These technologies will help accelerate and increase the capacity for the movement of lease-related information, say for a whole portfolio.

- **Changes in the market for software and services** call for marked improvements in data governance. For example, Software as a Service (SaaS) and cloud computing are much more common and ‘technology as a service’ is also growing where systems and data management are bundled with services. These approaches mean that CRE organisations must think more comprehensively about their overall data strategy and data management practices including how service providers’ systems and data are integrated with their corporate clients.

- **Expanding the amount and uses of data.** Emerging digital workplace and smart building technologies (eg Internet of Things [IoT]) are dramatically increasing the potential amount and frequency of data collection for CRE organisations, making data governance more critical than ever when collaborating with internal functional partners and outsourced service providers.

- **Intelligent buildings** and the IoT present the need and the opportunity to bring new data sources into the hands of the CRE team, driving new operating strategies, such as managing services based on better understanding of space utilisation.

### THE BUILDING BLOCKS OF EFFECTIVE DATA GOVERNANCE IN REAL ESTATE

**Understand the goals and disciplines of data governance**

Data governance is a strategic framework that sets goals, direction and accountability for data. It helps to distinguish this from data management which is the development and execution of architectures, policies, practices and procedures to manage the information lifecycle.

According to the Data Governance Council, the five goals of data governance include:

1. Understand the information needs of the enterprise and all its stakeholders;
2. Capture, store, protect and ensure the integrity of data assets;
3. Continually improve the quality of data and information;
4. Ensure privacy and confidentiality and prevent unauthorised or inappropriate use of data and information;
5. Maximise effective use and value of data and information assets.

The Data Governance Council also identifies disciplines that lead to effective data management, including:
• Data architecture management: An example would be data architecture designed for a global real estate portfolio that includes links to internal information sources and external service provider systems;

• Data development, data operations management and data security management: Including ties into corporate IT and data governance activities;

• Reference and master data management: Relates to standardised core data including a common data dictionary used by everyone in the organisation;

• Data warehousing and business intelligence management: Relates to the aggregation of data into a central repository and the preparation of data for improved analytics;

• Document and content management: Such as drawings and occupancy updates used for space planning and cost allocation;

• Meta-data management: Data about data, including where it comes from and how it is structured;

• Data quality management: The practices that ensure that data is of a high quality when those practices are built into daily operations and the processes managed by each of the functions in CRE.

With these disciplines as context, the following are examples of building blocks to consider when building a data governance programme in real estate.

LOOK AT THE ENTERPRISE DATA STRATEGY FOR CRE

An Enterprise Data Strategy is a comprehensive vision and actionable foundation for data-related or data-dependent capabilities. It also represents the umbrella for strategies such as Master Data Management, Business Intelligence and Big Data. The Enterprise Data Strategy is:

• Actionable;
• Relevant to CRE and not generic;
• Evolutionary — it is expected to change on a regular basis;
• Connected and Integrated — with everything that comes after it or from it.

Example

Building a single source of aggregate data ensures consistent information to all downstream systems and consumers. This was a primary driver for a global bank with seven years’ history of data governance in CRE. To help build that central data resource, the group leadership made two changes to the organisation, including: 1) appointed data owners (empowered to make budgetary decisions) and data stewards (responsible for ensuring data integrity); and 2) established group data steering committee(s) aligned to business organisations.

IDENTIFY THE INFORMATION SUPPLY CHAIN

A very useful early step in building effective data governance is to identify all the sources and uses of information along the Information Supply Chain (ISC). This has similar characteristics to the physical supply chain. Data is generated by multiple stakeholders along the ISC. It is acquired from multiple channels, undergoes transformation, and is formalised in data stores across the organisation’s data landscape. It supports business operations, internal and external reporting, compliance and regulations and policy and decision making. It generates data from multiple perspectives and functions, provides deep insights into business operations and enables process optimisation.

ESTABLISH THE MASTER DATA FOR CORPORATE REAL ESTATE

Master data refers to the foundational data that is typically used by multiple systems as
a single source of truth. In CRE, common forms of master data include a building, the portfolio, organisation structure, people or financial data. Master data is owned and managed by CRE and its functional partners, with inputs coming from service providers along the real estate asset lifecycle. Master data, such as organisational breakdown, is commonly made available to service providers for a periodic refresh the master data stored within their systems.

**BUILD A REAL ESTATE DATA MODEL AROUND THE ASSET LIFECYCLE**

Information is generated, needed and shared all along the life of an asset. For example, consider the life of a new building from the initial funding decision, to contracting, design, construction, occupancy, operations and eventual disposition. Multiply this many times over to get the composite view of a portfolio based on the lifecycles of all the assets and asset types it contains. To get this view means coordinating, gathering and sharing of information from early stages in the lifecycle of an asset with systems, functions, activities and people downstream. For example, consider linking design and construction information generated at the time of construction with data needed for condition assessment of building systems once a building is operational. The condition assessment is a useful pivot point for data flowing between these too often loosely integrated stages of a project — the project perspective on the one hand and facilities management (FM) on the other. This connection point is equally important when implementing data exchange standards in combination, such as the Building Information Model (BIM) for building design along with Uniformat Standards for condition assessment and OSCRE for portfolio management and service requests.

**BUILD IN DATA STANDARDS**

‘Often in large companies without unified data standards, the CEO eventually becomes frustrated by the lack of coherent and consistent data to answer even basic questions …’

A well-developed, mature data governance programme will include an enterprise-wide, industry-standard reference data model. The real estate industry has been evolving slowly in this direction over the last 10 to 15 years and is closer now than ever before. Data standards for real estate and facilities — such as a data dictionary, data exchange mechanisms or a data model — are getting increased attention as the interest in data governance grows. Data governance cannot be implemented effectively without the use of standards.

The real estate industry has a large set of separately developed standards that can be implemented together in a single strategy. For example, OSCRE Standards for space, occupancy cost management and leases can be effectively implemented in combination with the BIM and Uniformat Standards for design and construction. Data standards have been in place for more than a decade in areas such as leasing, space management, portfolio management, valuation and FM.

No single standard covers the entire asset lifecycle, and while a full industry-wide data model exist yet it is already coming to fruition through collaborations in the real estate community. The integrated use of standards is still emerging in the design and construction world. There is increased recognition that data standards are critical to effective data integration and aggregation.

Data standards encompass both the data ‘at rest’ (data model) and the ‘data in motion’ (data exchanges). Global standards can be also be implemented in conjunction with local practices.
BUILD DATA GOVERNANCE MATURITY IN REAL ESTATE

Capability maturity models have been around for a long time and they apply well to data governance.

‘An overview and analysis will show that most of the models do not cover the whole area of Business Intelligence, but they rather focus on a specific point of view and/or area of the problem domain. Results show that by using maturity models, only a short period of time is needed in order for to discover the areas within the company or institution that need special, more intensive attention and work. Namely, results of the analysis often expose problematic areas that could be easily overlooked.’

Figure 2 shows a classic 5-level maturity model applied to data governance for real estate. This model is a useful way to map out a path to more effective data governance.

Even though maturity models are generally well accepted, they are not prescriptive and they are not universal. Most maturity models focus heavily on process maturity, making it a better fit for larger, more formal organisations and not necessarily for the emerging businesses typical of the digital economy. It is important not to apply a maturity model rigidly. A maturity model is best used as a guide to setting the direction that best fits the business.

‘In the data economy, there is not a single data governance framework which

Figure 2  Building data governance maturity in real estate
Source: OSCRE International
works for all firms. Each will be different and highly tailored to the (data) business model … start now to learn a different approach: derive data governance objectives from business and IT objectives, and use that to drive governance structures, processes, and criteria. This brings coherence between objectives, organization design and data governance architecture.²

There is a significant hurdle that most organisations hit when trying to move up the maturity curve in data governance. Of the five levels of maturity, most organisations get stalled between Levels 2 and 3 — the transition between Levels 2 and 3 can be one of the most difficult transitions to make. This article emphasises the movement to Level 3 and beyond since this is where most organisations fail or lose momentum.

‘Many organizations try to master their processes and create lean, focused organizations that can continuously improve their processes and the quality of their outputs, producing more and more value for customers while growing, changing and constantly reducing their costs. Most don’t succeed. They get to (maturity) Level 2, but then can’t get the management commitment to press on toward real process mastery. Some do this repeatedly and never make the transition. And then there are those that do, that become … excellent organizations, and that inspire the rest of us to continue trying’.⁶

LINKS TO BUSINESS INTELLIGENCE MATURITY

CRE lends itself well to the use of business intelligence and improved analytical techniques. Gartner has published a Business Intelligence Maturity Model.⁹ As with other maturity models reviewed for this article, Level 3 is a common transition point to sustained improvements. The Gartner model labels Level 3 as ‘standards’, which is one of the building blocks of effective data governance. The Gartner Level 3 also identifies technology standards as an important step, which includes data standards and a reference data model for corporate real estate. Level 4 highlights the emergence of new analytical technologies and methods, with the resulting gains from more sophisticated analysis.

THE BUSINESS CASE FOR BUILDING DATA GOVERNANCE INTO REAL ESTATE OPERATIONS

The business case for data governance contains benefits far beyond the improvements in the data itself.

- **Analytics**: Better data analytics, better decisions, and optimised performance both in the organisation and the portfolio it manages;
- **Quality and consistency**: Relates to data gathered throughout the organisation, which includes improvements along the entire life of assets and portfolios, consistency across assets, regions and functions, as well as between service providers that either share service roles or are integrating services with other firms for the same client;
- **Credibility**: Helps give credence to data and the actions and decisions based on that data;
- **Transparency**: Providing clear visibility into the source data used for, say, transactions and decisions;
- **Risk**: Manages risk of unplanned costs, misleading data, business losses or missed opportunities such as missed dates on leases, or overstated occupancy resulting in higher occupancy costs or lower utilisation;
- **Alignment**: Ensures organisational
alignment around data quality and integrity, including with internal stakeholders and external service providers and business partners;

- **Competition**: Source of competitive advantage for service providers that have built data governance practices into their service offering;

- **Data Standards**: Significant benefits from the use of data standards, including definitions, classifications, data exchanges and a reference data model.

### BUILD CAPABILITIES AND SKILLS FOR DATA GOVERNANCE IN REAL ESTATE.

New skills and capabilities will be needed to build and sustain an effective data governance programme in CRE. Some of the capabilities needed are specific to data governance, others relate to real estate analytics and business architecture. A primary objective for the organisation will be to get a cross-functional team trained in the basics of data governance and how it applies in CRE. The new skills will be very helpful when rolling out some of the practical aspects of data management, selecting and implementing new systems or establishing a new outsourcing programme with a global service provider.

In general, there is a tremendous opportunity the opportunity to leverage the higher awareness and technology savvy of the emerging workforce and as these professionals make their way into leadership ranks, it becomes paramount to transfer and formalise that knowledge into the CRE organisation. Capabilities needed for data governance in the future include:

- Data owners and data stewards;
- Data architects;
- Business architects;
- Data and business analysts;
- Data modelling.

### ADD BUSINESS ARCHITECTURE AND ANALYTICAL SKILLS TO THE CRE TEAM

One of the primary benefits of data governance is better data for improved analytics. Unfortunately, these analytical skills are in high demand and short supply. The same goes for skills related to gaining a better understanding of the business. As IT budgets and the complexity of analytical projects have risen in recent years, a premium is being placed on skills to better understand the business.

A 2017 survey of CIOs conducted by Harvey Hash and KPMG identified a serious skills gap and scarcity in talent in areas that will prove vital when thinking about the future of corporate real estate. Some skills are in short supply now and it will take several years for skills to emerge in the numbers needed. The greatest scarcity is in three areas, including:

- Big data/analytics — most in demand by large employers;
- Business analysis — most in demand by smaller employers;
- Enterprise architecture — fastest growing.

Business and data analysis skills will need to expand in CRE in general, and is especially important when building a data strategy and data architecture. Once the data resources are stable, this skill will become even more important.

Additionally, business architecture skills will be needed to build data governance in a CRE organisation. A business architect can be a person; it can also be a skill set vested in the people in the group as a whole.

### BUILD FAMILIARITY WITH DATA MODELLING

Data modelling is a ‘must-have’ skill. A CRE data model can be designed like any other architecture project. In fact, having a
well-articulated data architecture is one of the most useful tools for setting an organisation on the right path. Data modelling skills are not as difficult to build as it might seem, especially from a functional and business perspective.

**Example**

**Training the core team.** A CRE organisation managing a very large portfolio of projects, leases and the associated occupancy took several months to train a core team in the essentials of data modelling starting with identifying data needs all along the asset lifecycle. As this team matured, they were able to represent the organisation much more effectively on several fronts, such as building an overall data model and driving a new information systems strategy.

Three levels of data modelling will come into play — conceptual, functional and physical. The first two are generally more business-oriented while the third is of most use to the IT team building a database or implementing a system (see Figure 3).

There is also a direct connection between the information supply chain and data modelling. Data models are built to contain what are called ‘entities’— essentially logical groupings of attributes associated with subsets of the data, such as a lease or a building.

The information supply chain should be defined to include the critical data entities, the business-critical data elements that each entity needs and the trusted sources of data and systems-of-record.

**Example**

**Tying the CRE model into the overall enterprise data model.** This step is foundational to integrating CRE functions in the business. For example, a global retailer developed its data model for FM to reflect the prevailing structure of the company’s overall
retail-related data model. Collaborating with the company’s global data management team, links were built in around areas such as locations, regions, properties, charts of accounts, people, contracts and services.

UNDERSTAND THE PERSPECTIVES OF CRE STAKEHOLDERS
One of the more important capabilities needed to build an effective data governance programme is the ability to clearly articulate the needs and impacts on stakeholders inside and outside the company.

Example
**Better understanding current levels of maturity.** The CRE organisation at a global financial services company set aggressive targets for transforming their entire approach to information management and data governance and made the mistake of overstating their own current level of maturity. When it came to building a global data model for real estate and the related analytics, the level of sophistication of analytics that had been discussed early in the project suggested that the functions in the organisation were operating at somewhere between maturity Levels 3 and 4 in their business processes and portfolio analysis. Later in the project, it became clear that the group had overstated its capabilities and that it was not ready to go immediately to the more complex analytics it had originally asked for. This resulted in changes to the scope and pace of development of new analytical capabilities and the associated data management practices.

LINK STRATEGIES FOR INFORMATION MANAGEMENT AND OUTSOURCING

Example
**Use data governance to drive consistency with global service providers.** Another global retailer tied its real estate data model to service delivery from its Tier 1 vendors. This includes standard definitions for work orders and FM services and links into condition assessment of major building systems. Likewise, a global insurance company built data governance practices into its contracts for integration with service providers.

Characteristics of linked strategies for information management and outsourcing include:

- **Purpose-driven data governance:** Decisions regarding data collection and retention are increasingly purpose-driven based on business needs and desired outcomes. CRE organisations are challenging the cost and effort involved with data collection relative to the insights the data will enable. This process of challenge informs sourcing strategies and is part of data governance;

- **Migrating to cloud strategies:** Many organisations are adopting cloud migration strategies. These strategies are driving an increased focus on data governance at the enterprise level, which is conveyed to functional teams such as CRE. Evaluating cloud options involves data governance considerations relative to storage location, data collection/processing and costs of collection;

- **Expanding business intelligence capabilities:** CRE organizations are increasingly adopting business intelligence solutions that span complex, multi-source environments. This further amplifies the need for strong information management practices in the context of an outsourced contract;

- **Leveraging machine learning:** CRE teams and their service providers are partnering to leverage data to improve service delivery outcomes and efficiency. Examples include optimisation of FM activities leveraging heat maps of occupancy trends for a given-day, and machine
learning algorithms being explored to improve efficiency of service;

• **Service provider contract implications:** Outsourcing contracts often include data management and data integration requirements that call for a growing scope of data to be furnished by the providers, data exchanges compliant with standard definitions and frequencies. Industry collaboration in the development of data standards is essential to the building effective data governance across the real estate industry. Contracts that include data management will typically encompass the following:

  • **Applicable policies and standards:** Standard protocols and requirements (at the company/CRE functional levels) addressing data access control, retention periods, etc.;
  
  • **Data model:** Structure the data so that it can be integrated and shared with the CRE client organisation and company more broadly;
  
  • **Data typology:** Standardised data terminology, definitions, storage locations, frequencies, retention requirements, owners/stewards, etc.;

  • **Expected interface:** Mechanism by which service providers’ data will be fed into the organisation’s systems/data repositories;

  • **Data migration and systems roadmap:** Overall timeline for collection, cleansing, and migration of data to ready systems; sets expectations as to when quality data become available;

  • **Service levels and implications for cost and resourcing:** Defined service levels for outsourced data management, with any implications for cost and resourcing defined up front.

**ASSESS WHERE YOUR ORGANISATION IS TODAY**

This section outlines a simplified approach to assessing where a CRE organisation is today in its preparedness for building an effective data governance programme. When assessing where an organisation is today, six dimensions come into play (see Figure 4). Look at more

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**Figure 4 Assessing readiness for data governance in real estate**

Source: OSCRE International
than just data governance. Extend the scan to include how data governance is applied to real estate function and the enterprise it relates to. Look at each of the six dimensions individually, and then at the overall picture. From there, areas of strength and areas for improvement will become apparent.

**Core data governance capabilities**

There is a variety of tools to assess the maturity of data governance capabilities specifically. Stanford University has published one that is particularly useful. It looks at two areas — foundational components, which relate to the organisation's capabilities and project components. People, policies and capabilities are assessed in each case. Foundational components include awareness, formalisation and metadata (data about where and what data is). Project components look at data stewardship, data quality and master data for the project. It helps to first look at core data governance capabilities and then move on to the specifics of real estate.

**Information-enabled business model in real estate**

As noted throughout this paper, Level 3 is a very useful place to set targets for capabilities in an organisation. In this case, information enablement at Level 3 includes aspects such as a clear technology roadmap, enterprise-wide information and a systematic focus on data quality (see Figure 5).

**Business process maturity and lifecycle perspectives**

Achieving Level 3 maturity is a consistent theme in this paper. Desired characteristics at Level 3 in this dimension include:

- Processes are integrated and optimised;
- End-to-end process perspective is tied to asset lifecycle;
- Process ownership is formalised;
- Assets and portfolios are managed along the entire lifecycle;
- Data and metrics are fully integrated along the asset lifecycle;

![Figure 5 Information-enabled business model maturity](image-url)
• Comprehensive performance management is in place.

Link strategies for information management and real estate outsourcing

When these strategies are linked at Level 3, an information architecture and data strategy are well documented, supporting a single source of truth for CRE data. At Level 3, a Performance Management System encompasses in-house and service provider activities and is supported by data aggregation. The CRE information supply chain is fully integrated with service provider contracts and the services supply chain. Service providers are integrated with CRE data governance and systems across the asset lifecycle. Data is owned and managed centrally by CRE with standard interfaces to service providers and data management and reporting is seamless.

Information standards strategy for CRE

An information standards strategy is an approach to the selection and implementation of information exchange and data standards as part of a consistent approach to enterprise information management. It ties directly into information lifecycle management by associating standards to stages or business processes along the asset lifecycle (see Figure 6).

Desired characteristics at Level 3 and beyond include:

• Awareness and working knowledge of what standards are and how they relate;
• An enterprise-wide data model for the CRE function;
• Alignment of the real estate functional data model with the overall enterprise data model;
• An information standards strategy is

![Figure 6 Maturity of information standards strategy](image-url)
gaining recognition for its value and operational benefits;

- Data governance and systems strategies incorporate an information standards strategy, including data ownership and data management practices along the entire asset lifecycle.

**Change leadership and programme management**

For a new data governance programme to succeed, an executive sponsor would have to be willing and able to build a sponsorship coalition for the change, and manage resistance from other managers and supervisors. A comprehensive approach for managing change would be applied in multiple projects. Stakeholders are well understood and are collaborating to implement the programme. The change management competency is well-developed in the organisation. Programme management techniques are applied to building sustainable data governance and are integral to the capabilities of the organisation.

**CONCLUSION**

This paper offers some practical guidance on the meaning, benefits and steps involved in building an effective data governance programme in corporate. While there are some very good examples of successful programmes in the CRE profession, there is still a long way to go for the majority. Trends around continued expansion of outsourcing, data integration, emerging technologies and increased demands for improved business intelligence and analytics emphasise the need to get started with data governance.

Industry research suggests that most organisations struggle to grow out of Level 2 maturity whether in process management, business intelligence, change leadership or any of the other dimensions of a maturity model. The steps and lessons learned in this article provide the CRE leader with options for starting the journey with an intent to raise levels of maturity on multiple fronts to Levels 3 and higher on multiple fronts.

**Implications for practice**

As data governance becomes more prevalent in CRE, new practices will become business-as-usual. Pace, agility and the ability to lead change will be significant challenges for most organisations. Additionally, while data governance is not necessarily an IT oriented discipline, it also calls for significant improvement and awareness among business and functional professionals relating to issues such as data strategy, data models and standards.

The ability of an organisation to mature in business intelligence and analytics is directly dependent on their ability to mature in data governance and data management. Additionally, data governance cannot be completely outsourced. Ultimate responsibility for data quality and data strategy sit with the CRE leadership. The shift to broader implementation of data governance in CRE will accelerate once CRE leaders and managers realise that it is not IT’s responsibility. It will take leadership from a business and functional perspective to make data governance effective in CRE organisations.

**Implications for research**

Most CRE organisations are likely to be operating at Levels 1 and 2 in data governance maturity today. Most examples of progress along the maturity curve tend to be limited to process re-engineering, advances in service delivery in partnership with service firms and improved ability to participate in information systems projects. There is a real need for experience to be shared across the industry on how to make a sustainable shift to Level 3 and beyond in each of the dimensions outlined here for data governance maturity. With the high demand for improved analytics, research is needed to identify the techniques that have the greatest payback especially involving business intelligence and to raise awareness more broadly across the industry.
Additional research will be needed around areas such as:

- Critical success factors enabling the shift from Levels 2 to 3 in data governance maturity;
- Lessons learned around how to build more effective business intelligence and analytical skills;
- Implications of the emergence on an industry-standard reference data model;
- Design of a new data governance enabled CRE organisation;
- Implications for service-provider integration around emerging data governance practices;
- Change leadership needed to support effective rollout of a new data governance programme.

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OSCRE International is a not-for-profit, member-based organisation dedicated to 1) the development and implementation of data standards and industry-standard data models as well as providing education and training in standards-based data governance for the real estate industry.

REFERENCES

(1) DAMA International (2009), The DAMA Guide to the Data Management Body of Knowledge, Technics Publications, Denville, NJ.