

Information Management Committee

Data Governance | Data
Management | Data
Dictionary

Panelists



Maritza Matlosz
Chairperson



Ronald Singh
1st Vice Chairperson



Tim Kuhn
2nd Vice Chairperson

Virtual Conference / Ground Rules



EVERYONE WILL BE MUTED DURING THE PRESENTATION. IF YOU RAISE YOUR HAND, YOU MUST ALSO UNMUTE YOURSELF.



IF YOU HAVE DIALED-IN OPPOSED TO ACCESSING THE PRESENTATION VIA THE LINK PROVIDED BY NCREIF YOU WON'T BE ABLE TO ASK QUESTIONS.



CLICK THE “HAND ICON” TO ASK QUESTIONS. WE WILL UNMUTE YOU AND CALL YOUR NAME SO THAT YOU CAN ASK YOUR QUESTION.

During the Time of COVID-19

- ▶ Information Technology/Data Capabilities Opportunities
 - ▶ Making internal assessments on the performance and resiliency of investments.
 - ▶ Effectively managing risk and generating alpha through periods of volatile market swings demonstrates value to clients.
 - ▶ Digital Capabilities can provide insights during CHAOS to support decision making and client communications.
 - ▶ Investment Managers that reviewed weaknesses exposed during their response to the pandemic will probably improve both operating models and operational resilience and be better-positioned to thrive in the next market cycle.
 - ▶ This is an opportunity to improve and correct systems and procedures that may operate effectively during normal times, but may fail under stress.

During the Time of COVID-19

- ▶ What have we learned?
 - ▶ The benefit of artificial intelligence (AI) and alternative data grow if leaders think broadly about their implementation and how to strengthen relationships between the IT and securities analysis parts of the organization.
 - ▶ Collaboration between Data Scientists and Investment professional, supported by great data and strong analytics, can help them operate faster keeping up with the speed of the cycle.

Data Governance / Data Management

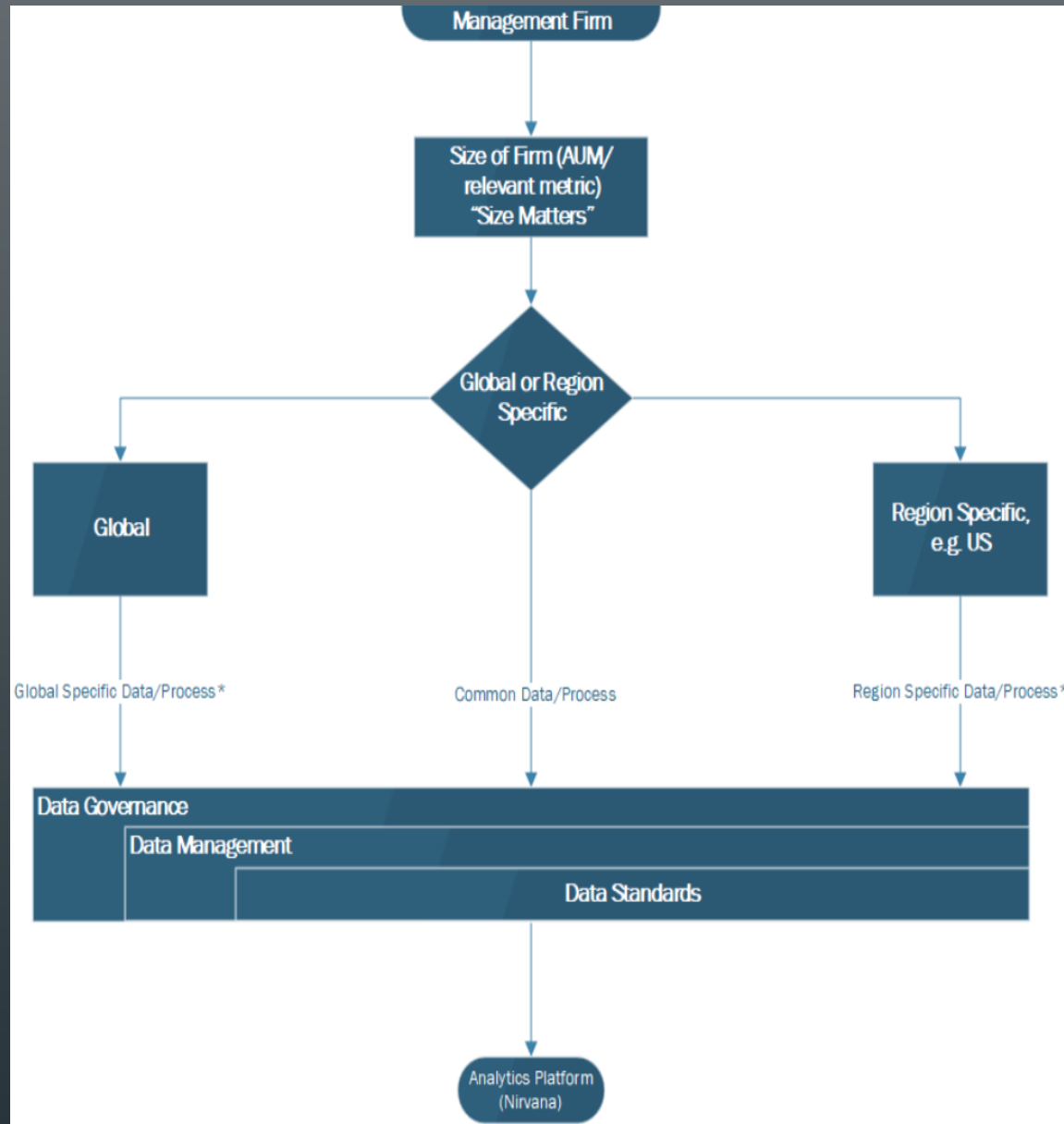
Ron Singh and Tim Kuhn

Data Management & Governance

- ▶ How did your data governance model hold up during the current crisis?
- ▶ Were there new asks of data that had not been previously requested?
- ▶ Was there a need to collect additional data not previously tracked systematically? How easy or difficult was this if additional data was required?
- ▶ Is there a greater understanding of the need for an explicit data governance, data management, and data dictionary paradigm?
- ▶ Is your business grateful or frustrated with its information management capabilities?

Information Management Guidance

- ▶ Data Governance/Management Goals
 - ▶ Data Quality, completeness checking, sourcing and management of data are key components of data governance and management. Determine business goals and objectives. How can a data strategy move these goals and objectives forward.
 - ▶ Determine business goals, budget and objectives.
- ▶ Assess the firm's current and desired data levels.
 - ▶ Approaches to capturing & cleaning data. Define your current data sets and standards.
 - ▶ Create & Organize the firm's Data Dictionary
 - ▶ Define/Create data management roles. Using your organizational structure to clarify roles and delineating responsibilities are a key component of this action.



Data Management & Data Governance

Data Management & Data Governance

- ▶ Size of Firm drives several decisions.
 - ▶ Size of budget.
 - ▶ Accounting - Inhouse or use of an Administrator
 - ▶ Technology solution - Software staffing (Internal External)
 - ▶ Culture
- ▶ Global versus Region specific
 - ▶ Global needs will drive you to a “global specific data/process”
 - ▶ Regional needs will drive you a “region specific data/process”
 - ▶ Better to choose a “common data /process “approach to Data Governance, Data Management and Data Standards.
- ▶ Data Management
 - ▶ Data validation - define and standardize data relevant to real estate investment concepts, with the primary goal of facilitating uniform data collection by providing a platform of real estate terms with corresponding definitions and data elements
 - ▶ Exception handling - setting thresholds
 - ▶ Data Lineage

Data Management & Data Governance

Investment Firm

"Right-size" Solution (size does matter)	Best Practices
In-House vs 3 rd Party Fund Administrator	
Technology Solution: Software/Staff: Internal External – Vendor/Product Hybrid ---	

Data Standards

Classifications		
Client	Time Dimension: Static Slowly Changing Dimension (SCD) Daily, Monthly, Quarterly	Sourcing: Internal External Intermediary: Yes (e.g. Data Aggregator, Administrator) No (direct from Source)
Manager		
Fund		
Asset		

Data Management & Data Governance

Data Management

Data Validation – Enforce Data Standards	Best Practices
Exception Handling - Thresholds	
Data Lineage	

Data Governance

Determine Data Governance Model	Best Practices
Assess Current Data Maturity Level	
Plan: Current State to Target State	
Define Data Standards	
Define Data Management	
Measure Progress / Iterate	

Data Management & Data Governance

Data Dictionary Standards (Sourcing can be either internal or external, so the firm becomes a data aggregator. Data fields to be collected include data related to different levels of investment. Time dimensions of the types of data collected at each level will be split between “static”; “SCD or Slowly Changing Dimension” or “Daily/Monthly/Quarterly/Annual/Other?” updates. The data standards will list the data fields recommended to be collected and some best practices related to the architecture of the data tables based on level and time dimension.

- ▶ Client
 - ▶ Static
 - ▶ SCD
 - ▶ Updated
- ▶ Manager
 - ▶ Static
 - ▶ SCD
 - ▶ Updated
- ▶ Fund/Portfolio/Account/Investment
 - ▶ Static
 - ▶ SCD
 - ▶ Updated
- ▶ Asset
 - ▶ Static
 - ▶ SCD
 - ▶ Updated



Questions are the path to learning

Anyone have any...

Questions?

DATA DICTIONARY / CATALOG

Maritza Matlosz

Information Management Guidance

- ▶ Goals of Standardized Data Dictionaries
 - ▶ Speeds up existing processes
 - ▶ Can provide a new format with which to provide new functions/analytics
 - ▶ Increasing analytics by drawing on sentimental data tied to financial and market data.

Data Dictionary - Steps for progress

- ▶ Data Standards/Data Catalog:
 - ▶ Determine your data needs for reporting/analytics by
 - ▶ Create an inventory of known data assets, classify them, and organize them in a data catalog.
 - ▶ Build a data catalog - a data catalog is a collection of data, which combined with data management and search tools can help analysts and other data users find data they need. (Sort of a data inventory).
 - ▶ Determine how your data is sourced, transformed, managed, accessed and used across the business.
 - ▶ Sourcing Data from - Internal/External Sources - Meet with teams that own data and operate data systems to better understand what data they have and how it is stored. Understand your data lineage and history.
 - ▶ Understand your data and what users should have access and how it should be used. Understand the frequency of use, where it's stored, definitions and quality of the data. **Catalogs provide a bridge to analytics.** You need a centralized data catalog before making ANY changes. This would allow you to understand what ETL programs, database schemas, reports, analyses, and users will be affected by changes upstream from them.

Data Dictionary - Data Field Relationships

Data Types

- ▶ Financial
- ▶ Non-Financial
 - ▶ Static
 - ▶ Non-static

Data Dictionary Fields should be collected at Various Levels

Fund/Portfolio Level	Investment Level	Property Level
<ul style="list-style-type: none">• Fund-level debt• Fund-level expenses	<ul style="list-style-type: none">• JV Agreements & Waterfalls• Debt Structure	<ul style="list-style-type: none">• Property NOI• Property Capital• Property Debt

PROGRESS SO FAR...

FIRST STEPS

- ▶ Create a standardized data dictionary with definitions
- ▶ Tie definitions with other definitions within RS, NCREIF and Global definitions.

NEXT STEPS

- ▶ Apply investment entity levels to the data dictionary.
- ▶ Categorize fields by these levels

NPI Submission						BUSINESS GLOSSARY	Data Owner - Department
Product Level	Fieldnumber	REFERENCE NAME	Format	Variable or Static	Valid Field Values		
Asset	1	Manager Property ID	Numerical or text	Static			
Asset	2	Period Ending	MM/DD/YYYY format	Variable	MM/DD/YYYY		
Asset	3	Net Operating Income (NOI)	numerical	variable	no parameters	<p>Operating Revenues less Operating Expenses The net operating income (NOI) that is reported should be consistent with the results of the property's operations. Most classifications of income and expense and ground rent used to account for properties' operations are universal (e.g., rental income, property tax expense, etc.). Where alternative accounting treatments exist, reporting to NCREIF should be consistent with the accounting practices of your fund (upon which the audit report is based). Properties owned as joint ventures should report as if owned at a 100% basis. Note: 1) Appraisal costs and fund-level asset management fees charged by members are excluded from this calculation. 2) Include property management fees. All income and expense items that are related to individual properties are included in the data submitted. Whatever policy is followed internally regarding what is expensed should be reflected in the data submitted to NCREIF.</p>	
Asset	4	NOI: Ground Rent Expense	numerical	variable	no parameters	<p>Ground rent expense for a ground lease. Ground rent is considered a part of NOI but a separate line item from the Expense fields.</p>	
Asset	5	Capital Improvement: TOTAL CapEX	numerical	variable	no parameters	Total Capital improvements to the property.	
Asset	6	Partial Sales Amount	numerical	Variable	no parameters	Instances where a portion of an asset is sold and not the entire asset.	



Questions are the path to learning

Anyone have any...

Questions?