



WHICH CONDITION DATASET IS RIGHT FOR YOU?



INTRODUCTION



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- President & CEO of Roth IAMS
- Co-Founder of SLAM Technologies
- Over 28 years of experience collaborating with higher education institutions across North America on all aspects of facility and infrastructure asset management
- Active member of APPA at the national, regional and local levels

AGENDA



Setting the Table

What is Integrated Asset Management

Lifecycle Modeled Data

Time -Forecasts

Element-Level Inventory



SETTING THE TABLE



QUESTIONS FOR YOU

- Do you currently have an FCA dataset that you are managing for your portfolio?
 - What's an FCA?
 - Yes, but it was done a long time ago
 - Yes, it was gathered within the last couple of years
 - Yes, and we keep it up-to-date regularly



QUESTIONS FOR YOU

- How did you gather your FCA data
 - We don't have a dataset
 - The State or some other group did it for us
 - We used in-house resources
 - We used a third party
 - We used a hybrid of in-house and third-party resource



WHAT IS INTEGRATED ASSET MANAGEMENT?



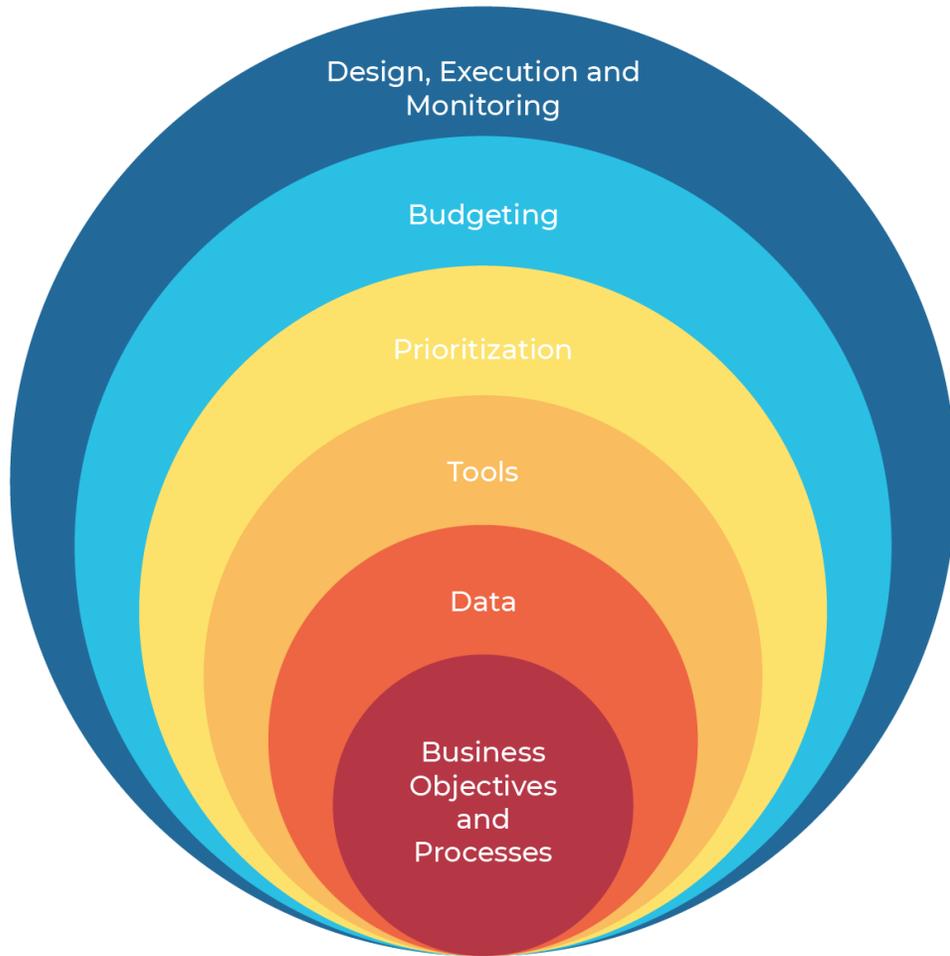
IAM – WHERE IS OUR FOCUS NOW?



THE QUESTION THAT WE ARE GOING TO ANSWER

If I don't have a current asset condition dataset for my portfolio, or I need to update my current dataset, which is the right one for me?

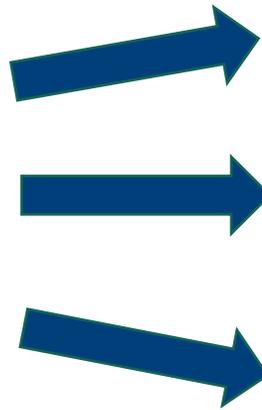




The IAM Framework – “The Onion”

- As with everything related to Asset Management, we recommend that you start with gaining clarity of your Business Objectives and Processes
 - Base your data decisions on the clarity gained about your business objectives and processes, considering both your current and future definitions of success.

MAIN TYPES OF DATA



Lifecycle Modeled Data

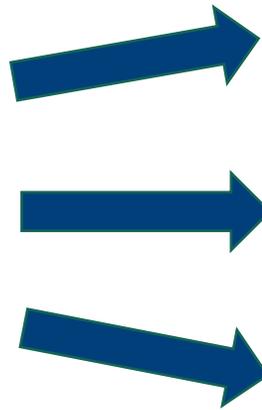
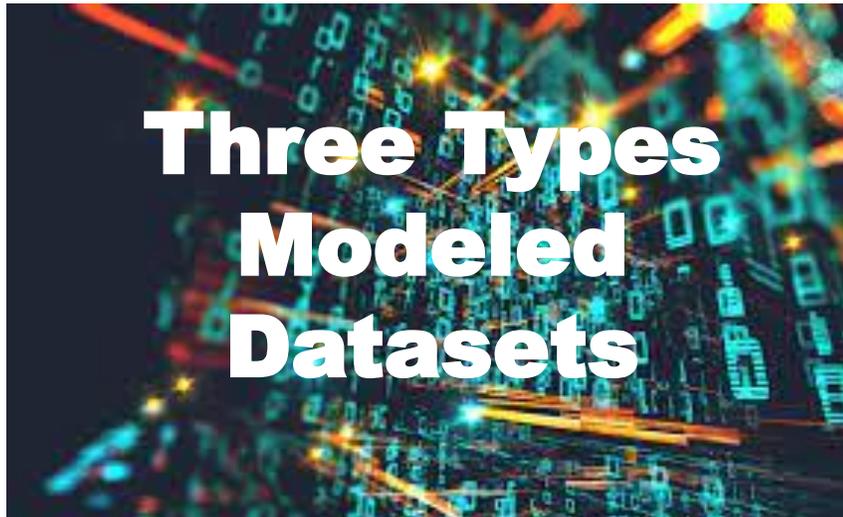
**Time-Limited Forecast
of Needs**

Element-Level Inventory



MODELED/LIFECYCLE DATA

MODELED DATASETS



Building-Type Models

Client-Informed Models

Validated Models

Building Type Models

- Categorize your portfolio into building types (use, construction type, etc.)
- Develop a high-level list of elements within a typical building or each type, with unit costs and Expected Useful Lives (EULs)
- Use the date(s) of construction and/or major renovation of the building as the baseline
- Create a lifecycle model for the theoretical elements within each building

Region	Construction Year Class	Additional Classification	SFH	TH	MFH	AB	
			Single-Family House	Terraced House	Multi-Family House	Apartment Block	
1	National	... 1918	generic	 RS.N.SFH.01.Gen	 RS.N.TH.01.Gen	 RS.N.MFH.01.Gen	 RS.N.AB.01.Gen
2	National	1919 ... 1945	generic	 RS.N.SFH.02.Gen	 RS.N.TH.02.Gen	 RS.N.MFH.02.Gen	 RS.N.AB.02.Gen
3	National	1946 ... 1960	generic	 RS.N.SFH.03.Gen	 RS.N.TH.03.Gen	 RS.N.MFH.03.Gen	 RS.N.AB.03.Gen
4	National	1961 ... 1970	generic	 RS.N.SFH.04.Gen	 RS.N.TH.04.Gen	 RS.N.MFH.04.Gen	 RS.N.AB.04.Gen
5	National	1971 ... 1980	generic	 RS.N.SFH.05.Gen	 RS.N.TH.05.Gen	 RS.N.MFH.05.Gen	 RS.N.AB.05.Gen
6	National	1981 ... 1990	generic	 RS.N.SFH.06.Gen	 RS.N.TH.06.Gen	 RS.N.MFH.06.Gen	 RS.N.AB.06.Gen
7	National	1991 ... 2011	generic	 RS.N.SFH.07.Gen	 RS.N.TH.07.Gen	 RS.N.MFH.07.Gen	 RS.N.AB.07.Gen
8	National	2012 ...	generic	 RS.N.SFH.08.Gen		 RS.N.MFH.08.Gen	 RS.N.AB.08.Gen

BUILDING-TYPE MODEL DATASET

Uniformat Code	Date of installation	EUL	Replacement Year	Cost
D30-HVAC	1967	35	2024	\$2,000,000

Client-Informed Model

- Standard list of elements is reviewed by knowledgeable staff within a client organization
- Actual elements present are confirmed and those not present are eliminated
- Confirmation and expansion on specific types of certain elements (Roof, Walls, Finishes)
- Date of Installation/Construction are updated at the element-level.

Building Elements Checklist

BCIS ref	System	Comments
1	SUBSTRUCTURE (all work to underside of screed or lowest floor finish)	
	Excavations	
	Foundations	
	DPM Concrete floor	
2A	FRAME	
	Load bearing frame	
	Floor and roof beams	
	Roof trusses Stanchion and beam casings for structural or protective purpose	
2B	UPPER FLOORS	
	Upper floors	
	Continuous access floors	
	Mezzanines	
	Structural screeds Suspended floors over basements	
2C	ROOFS	

	Roof structure construction including eaves and verges, plates and ceiling joists, gable ends, internal walls and chimneys above plate level, parapet walls and balustrades	
	Roof coverings	
	Roof screeds and finishing	
	Flashings and trims	
	Insulation	
	Eaves and verges treatment	
	Roof drainage (note 5C)	
	Roof lights	
	Pavement lights	
2D	STAIRS	
	Construction of stairs, ramps and landings other than floor levels	
	Ladders	
	Escape staircases	
	Stair finishes Balustrades and handrails	
2E	EXTERNAL WALLS	
	External enclosing walls	
	Chimneys forming part of external walls	
	Curtain walling, rails and cladding	

BUILDING-TYPE MODEL DATASET

Uniformat Code	Date of installation	EUL	Replacement Year	Cost
D30-HVAC	1967	35	2024	\$2,000,000

CLIENT- INFORMED MODEL

Uniformat Code	Date of installation	EUL	Replacement Year	Cost
D30-HVAC	1992	35	2027	\$2,000,000

Validated Model

- Limited on-site assessment to adjust the modeled data
 - Adjusted replacement values
 - Condition rating
- Typically validates short-term modeled needs (5-Years) and leave the rest as purely modeled data
- Can include photos of elements, but not always



BUILDING-TYPE MODEL

CLIENT-INFORMED MODEL

VALIDATED MODEL

Uniformat Code	Date of installation	EUL	Replacement Year	Cost
D30-HVAC	1967	35	2024	\$2,000,000

Uniformat Code	Date of installation	EUL	Replacement Year	Cost
D30-HVAC	1992	35	2027	\$2,000,000

Uniformat Code	Date of Installation	EUL	Replacement Year	Condition	Cost
D30-HVAC	1992	35	2027	Fair	\$2,000,000

Element Photo



Natural gas fired atmospheric heating water boilers



Air Handling Unit (AHU) with heating coils



A unit ventilator with heating coils connected to the boilers



Rooftop condenser

Benefits

- Great Place to Start Building Momentum
- Can be developed relatively quickly
- Least expensive method of gathering condition assessment data
- Provides an order of magnitude financial forecast of DCRM where none previously existed.



Limits of Modeling

- Not a real-world representation of the actual buildings within a portfolio
- Data cannot be used as the basis of an actual capital or maintenance plan due to a lack of granularity
- Critical to understand the limitations and reliability of the data when working with non-facility stakeholders



When Modeling Works Best

- Getting started on an AM program
- Funding/time/resources are limited
- Looking for an order of magnitude for your Deferred Capital Renewal and Maintenance (DCRM) Backlog
- Portfolio has similar building types
- Limited availability of internal resources to manage data
- Don't have or plan to have Asset Management Software in-place



TIME-LIMITED FORECAST (TLF)

Time-Limited Forecast (TLF) of Needs

- On-Site Assessment that gathers data only on elements that have a recommended need within a specific time frame (Typically between 5 and 10 Years)
- Only anecdotal information gathered on the “rest” of the building
- Photos captured of all elements within the evaluation period of the report



TIME-LIMITED FORECAST

Uniformat Code	Date of Installation	EUL	Replacement Year	Condition	Cost
D3040-Boiler	1988	30	2024	Poor	\$71,933
Element Photo			Narrative		
 <p>Heating water boiler</p>			<p>Building heating is provided by a natural gas-fired heating water (cast iron) boiler, which has a heating capacity of 625.5 MBH (625,500 BTU/hr). Deficiencies observed at the time of the assessment included corrosion and reports of poor performance. Given the observed deficiencies and age, a lifecycle replacement is recommended in the immediate to short term.</p>		

Benefits of TLF

- Give a picture of the actual elements within a building and their actual condition beyond modeling
- Begin to gather condition rating and photos for some elements within a building
- Less expensive than a full element-level inventory





Limits of TLF

SHELF LIFE
BY _____ DATE _____
EXPIRES _____

- Data has a limited shelf life as time passes
 - Rots on the Vine
- Cannot project longer-term Facility Condition Indices or DCRM
 - Leads to short-term planning
- Reassessments are essentially “starting over”
- Limited ability to calculate CRV based on the dataset (Sum of the Parts)



When TLF Works Best

- Finance or acquisition-level reports for the private sector
- Initial on-site assessments
- Limited ownership time horizon



ELEMENT-LEVEL INVENTORY (ELI)

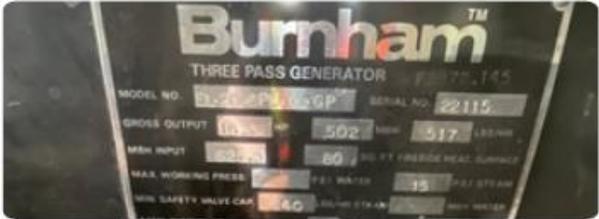




Element-Level Inventory

- Gather detailed information on all elements within the building, regardless of remaining useful life
 - Capture photographs
 - Can include gathering of additional data (Make, Model Serial Number) on some elements
- Can include cyclical renewals
 - Future additional replacement of certain elements with shorter Expected Useful Lives
- Most advanced condition dataset

ELEMENT-LEVEL INVENTORY

Uniformat Code	Date of Installation	EUL	Replacement Year	Quantity	Unit of Measure
D3040-Boiler	1988	30	2024	625.5	MBH
Condition	Make	Model	Serial No.	Unit Cost	Recommendation Cost
Poor	Burnham Corporation	EL.20.SPL.G.GP	22115	\$115	\$71,933
Description Narrative			Condition Narrative		
Building heating is provided by a natural gas-fired heating water (cast iron) boiler. The boiler manufactured by Burnham Corporation is Model No. EL.20.SPL.G.GP, Serial No. 22115 and as a heating capacity of 625.5 MBH (625,500 BTU/hr).			Deficiencies observed at the time of the assessment included corrosion and reports of poor performance. Given the observed deficiencies and age, a lifecycle replacement is recommended in the immediate to short term.		
Element Photo			Element Photo		
					
Heating Water Boiler			Boiler Nameplate		

Benefits of ELI

- Ability to plan for the entire lifecycle of a building
 - Longer-term FCI trends
 - Unlimited forecasting period
- Detailed data that can easily integrate with Operations and Maintenance Planning (CMMS Integration)
- Reassessments require reduced effort
 - Assuming the data is kept up-to-date based on completed capital renewal projects
- Supports CRV calculation (Sum of the Parts and Other methodologies)



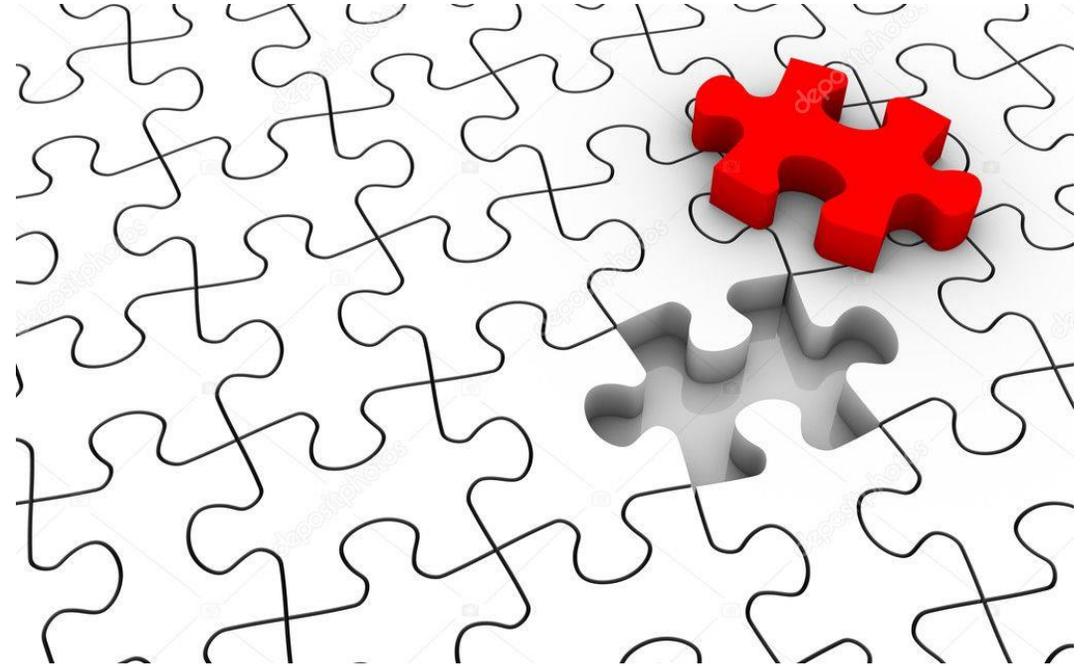


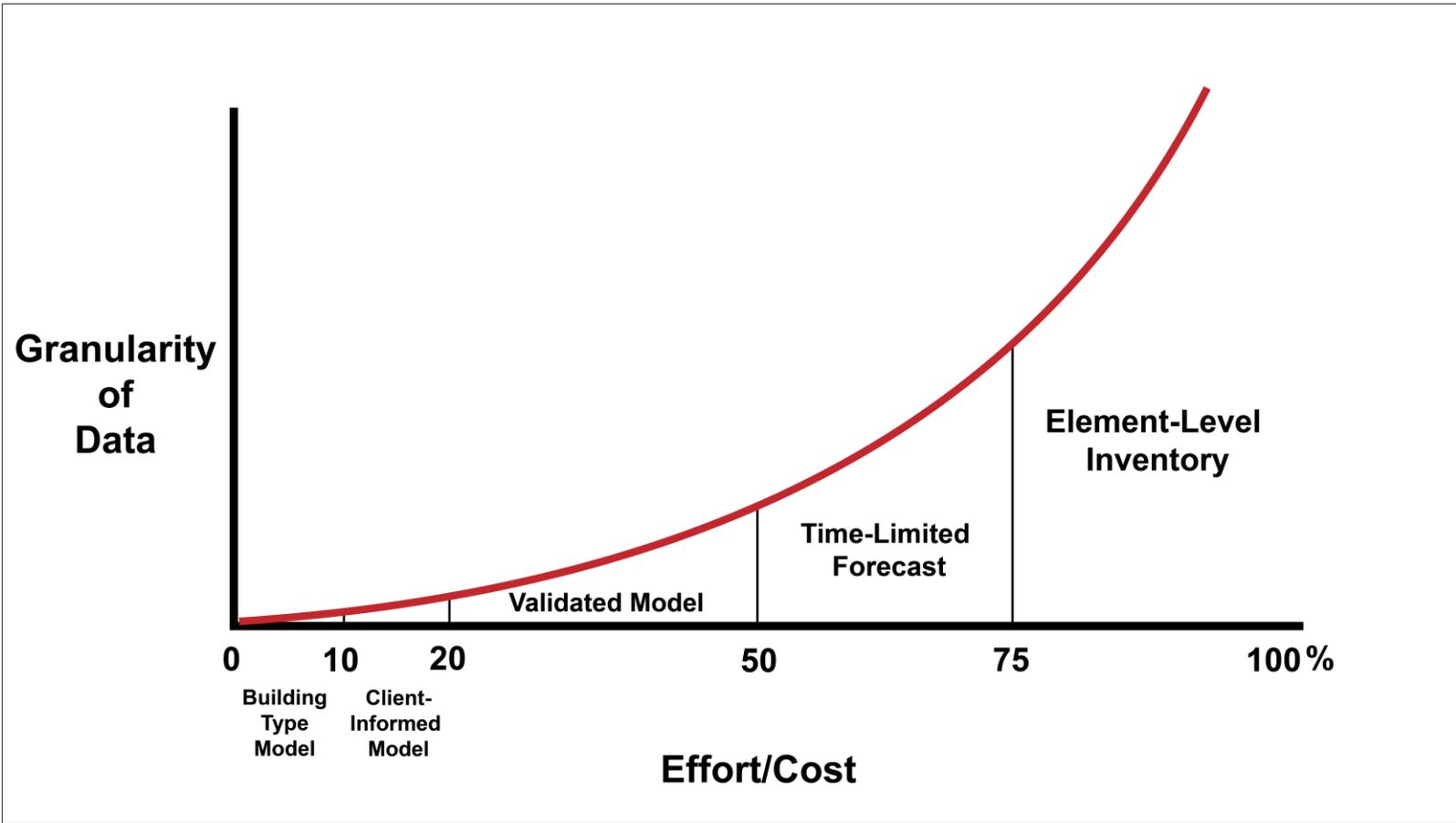
Limits of ELI

- Highest cost scope of work
- Requires significant input from knowledgeable stakeholders
- Granular dataset requires additional resources to maintain overtime

When ELI Works Best

- Mature facility and asset management system/program in-place
- Desire to accurately forecast over a longer period of time (20 plus years)





THE CONDITION CONTINUUM



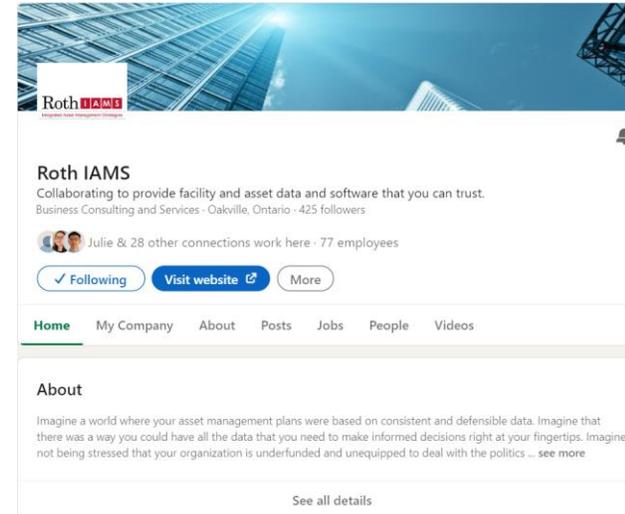
Q & A



To receive a supplemental document providing specific details of the different datasets please leave your card

THANK YOU FOR ATTENDING

- ▶ Visit our website at rothiams.com
- ▶ Follow us on [LinkedIn](#)
- ▶ Connect with us directly through email at bill.roth@rothiams.com or call **(727) 247-9419**



Roth IAMS
Integrated Asset Management Strategies

X MENU

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**Dive Into
Our Thought
Leadership**

