AUTODESK. UNIVERSITY

BLD473618
Delivering the Value of BIM to Owners with a Digital Twin

Robert Bray

General Manager & Senior Director, Autodesk, Inc.

Tim Kelly

Senior Product Manager, Autodesk, Inc.

About the Speakers

Robert “Bob” Bray

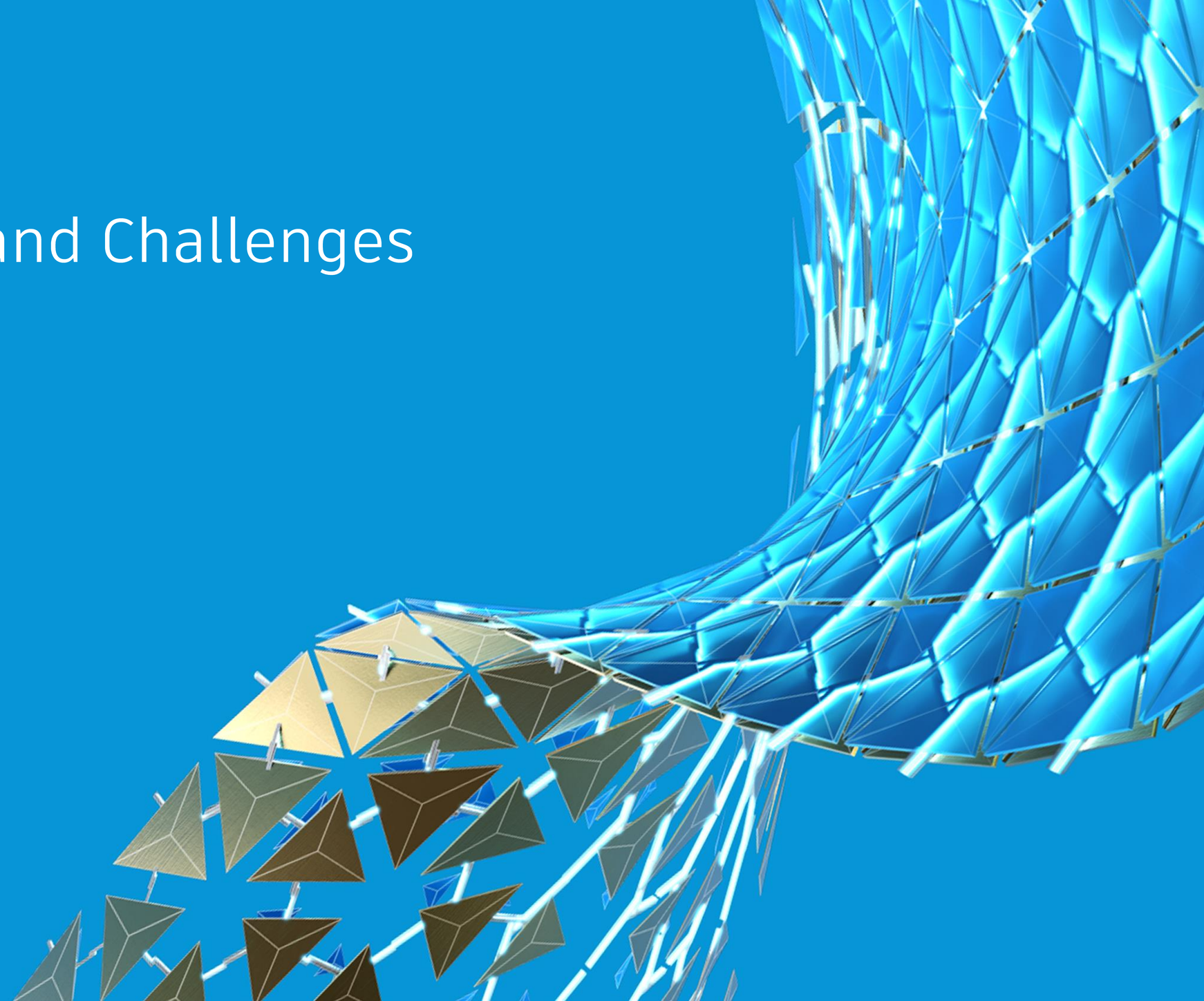
As the General Manager of Autodesk Tandem™, Bob is incubating a new business initiative within Autodesk. Our mission is to transform the built asset lifecycle with Digital Twin technology and solutions. In the past 23 years at Autodesk, Bob has served in several critical product development roles and has led the product development of BIM360 Design and Autodesk InfraWorks. Bob holds a BS in Computer Science from the University of Missouri.

Tim Kelly

As the Product Manager of Autodesk Tandem™, Tim is responsible for shaping the product and workflows. Tim has a wealth of industry and product experience having worked as a BIM Manager for Satterfield & Pontikes Construction, and as a Product Manager at Assemble Systems and Autodesk. Tim holds a BS in Construction Science from Texas A&M University.

Digital Twin

Opportunities and Challenges



What is a Digital Twin?

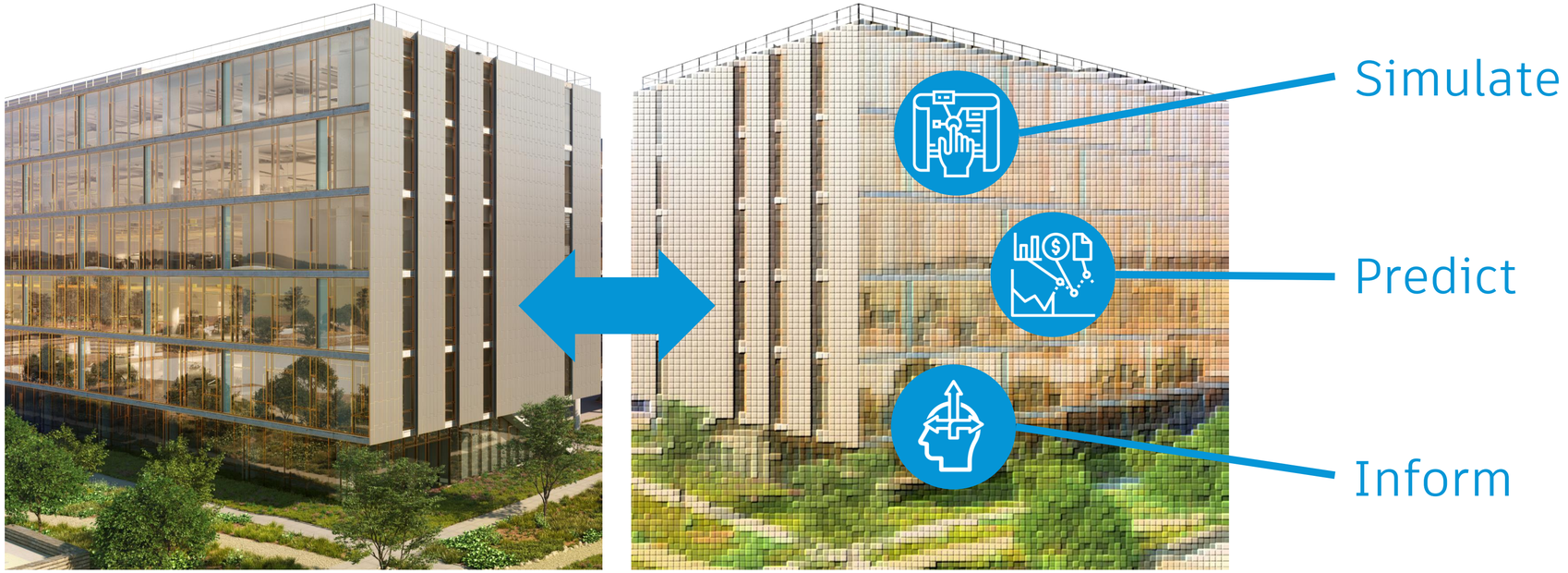


Image Courtesy of BNIM

Transforming the Asset Lifecycle with a Digital Twin

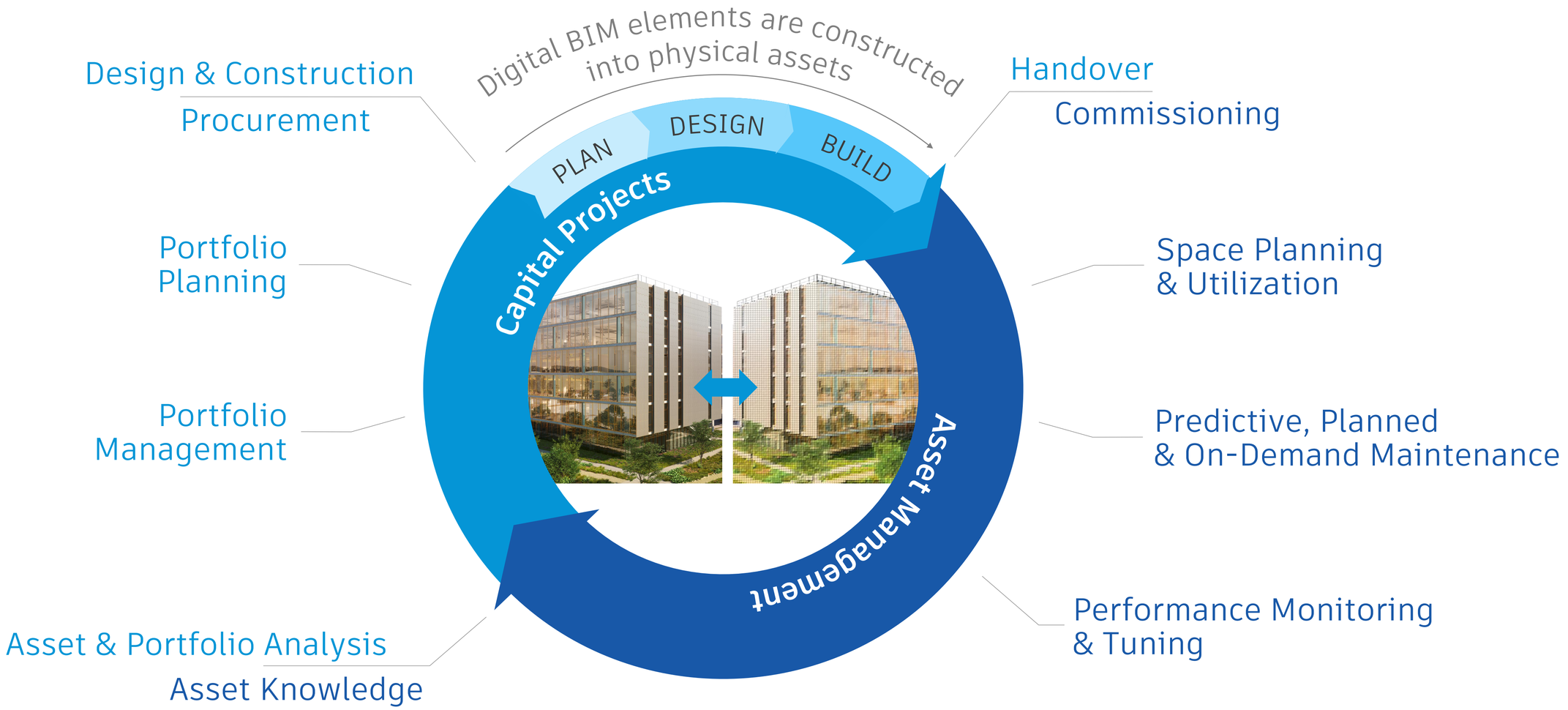
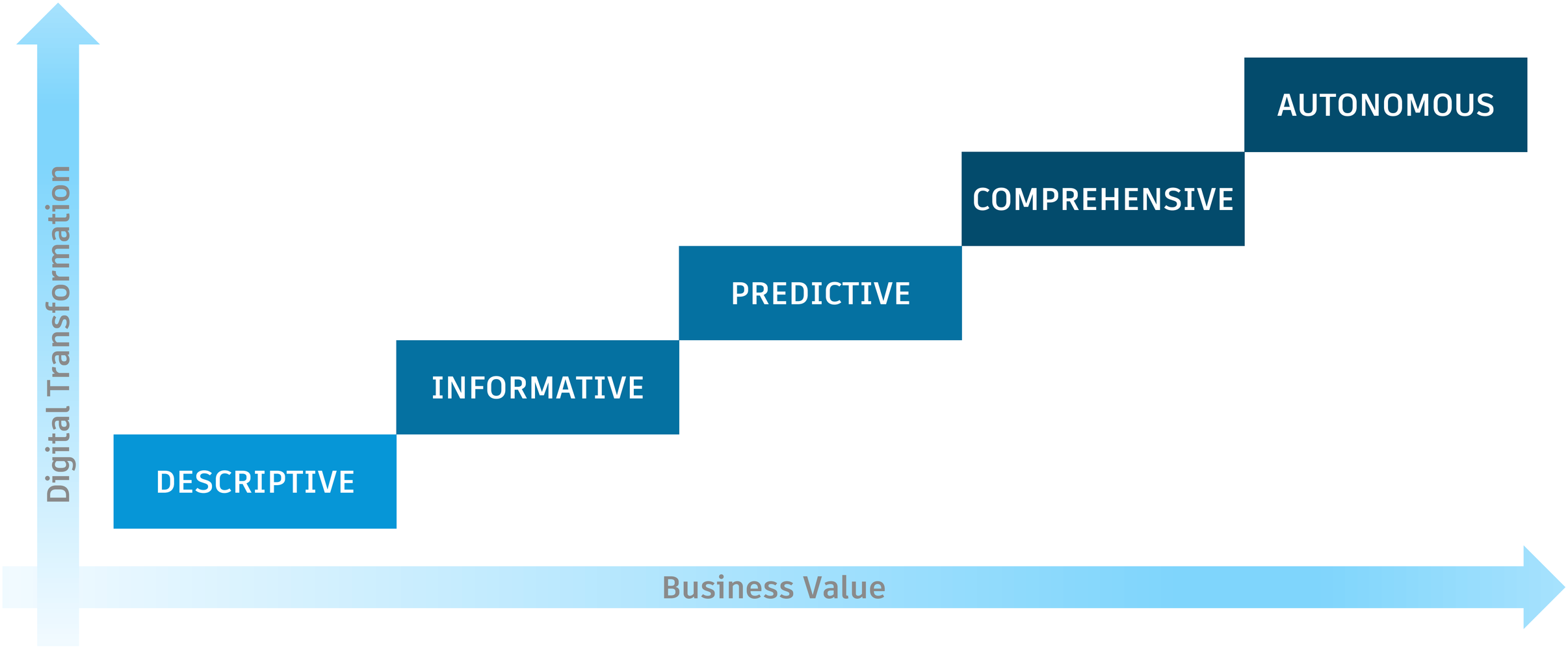


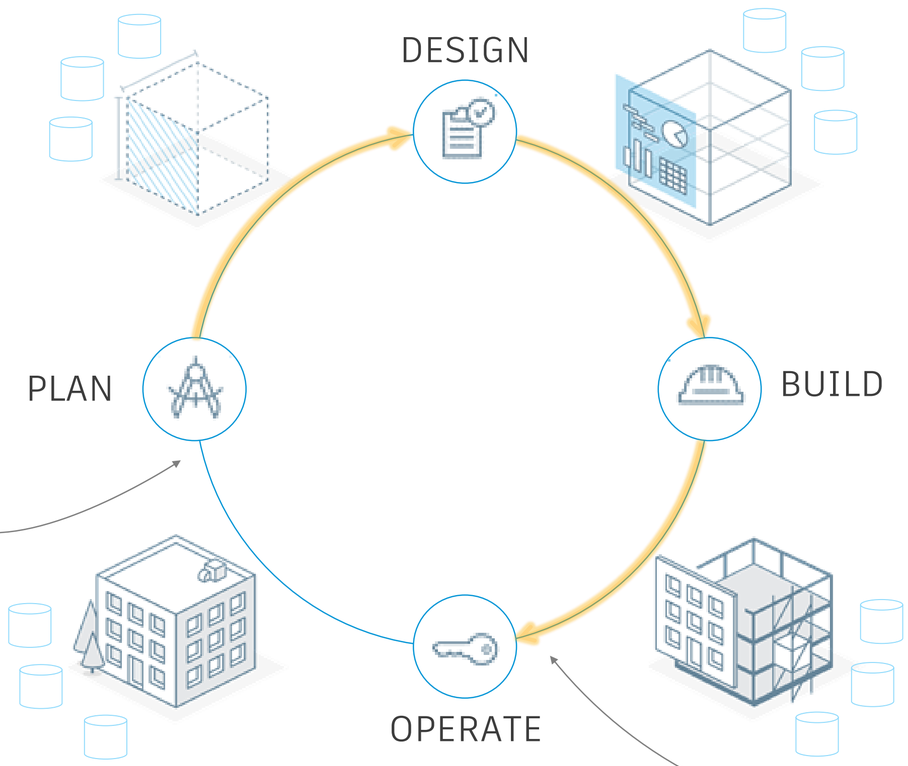
Image Courtesy of BNIM

Digital Twin Maturity Model



Source: Verdantix - Smart Innovators: Digital Twins For Buildings, June 2020

Industry Challenge



Owners may ask for “BIM”

Project teams deliver data locked in files

Industry Challenge

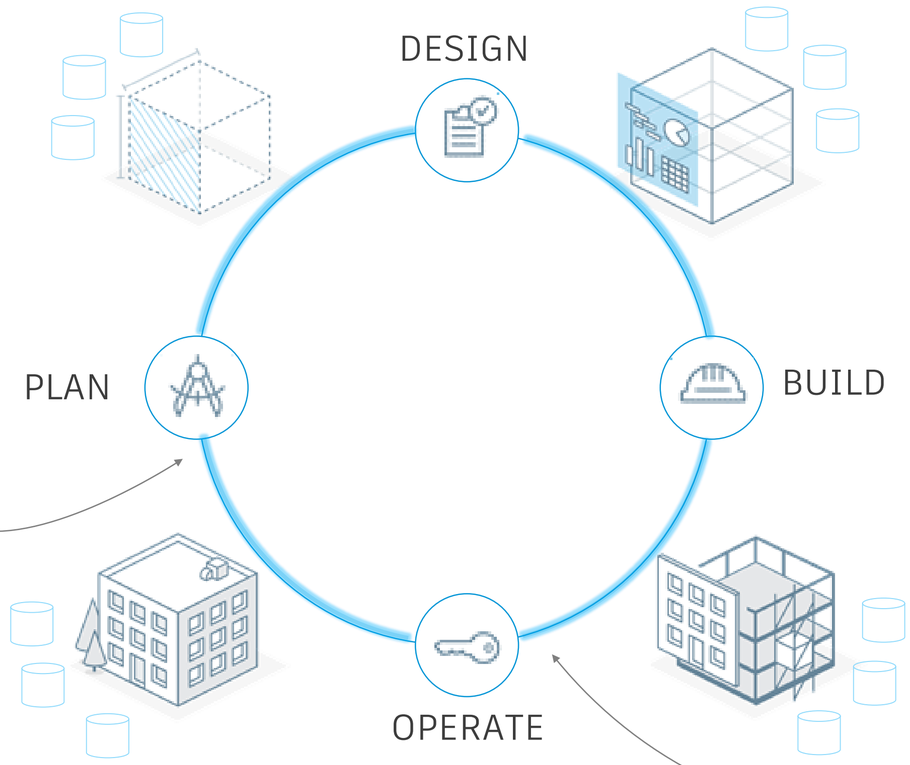
Owners receive this…

…when they need this!

Image Courtesy of BNIM

Industry Challenge

How do we deliver on BIM's promise of a data-centric workflow?

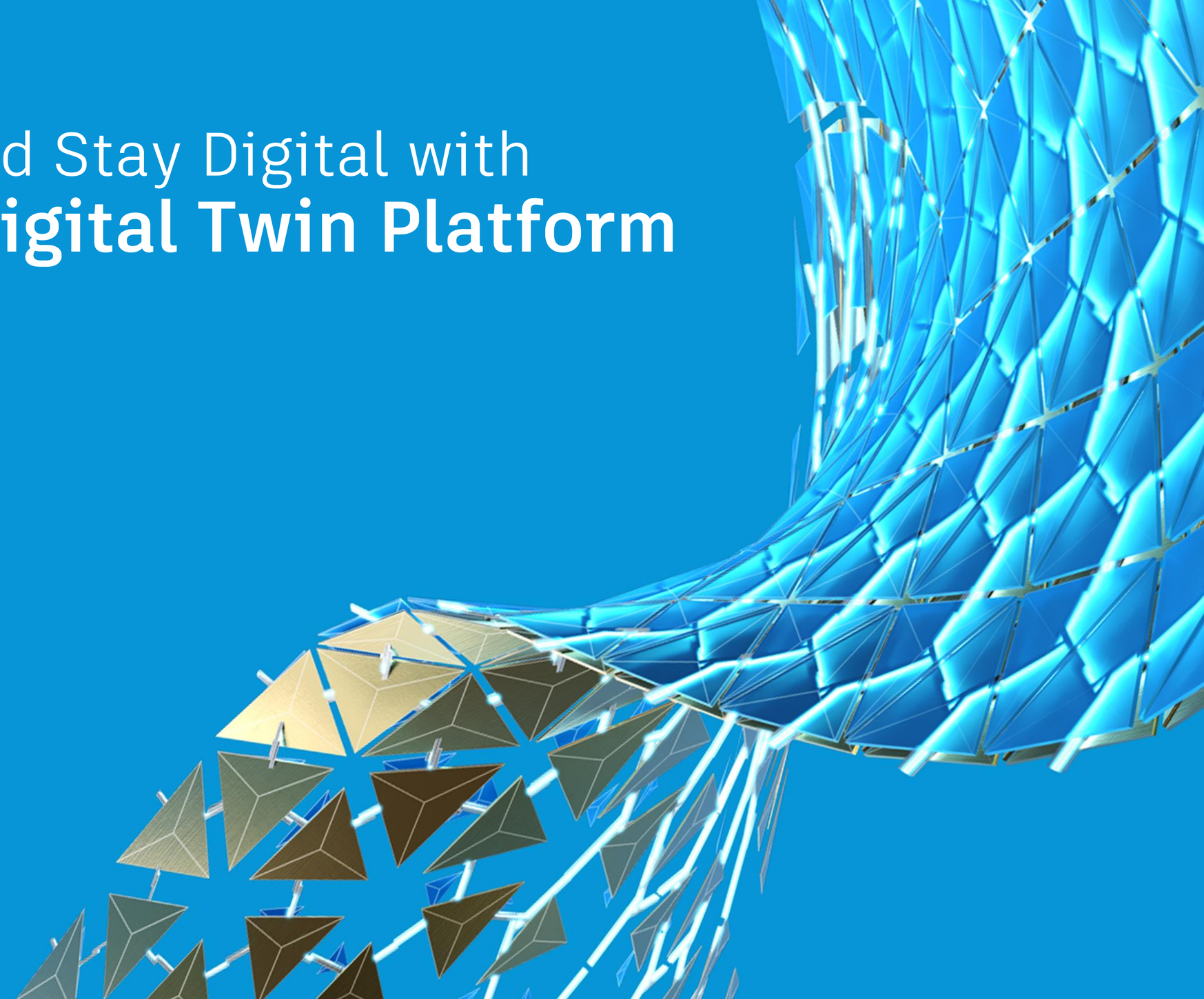


Owners may ask for "BIM"

Project teams deliver data locked in files

Start Digital and Stay Digital with

Autodesk’s Digital Twin Platform



Start Digital and Stay Digital

Autodesk **Tandem**™ will normalize project data and track a **digital thread** of information for each component of a facility from the time it's designed to the day it's decommissioned

Images Courtesy of BNIM

Start Digital and Stay Digital

Autodesk **Tandem**™ is a **digital hub** that can integrate with new and existing systems to connect the digital model to the operational and performance data of its physical counterpart

Digital Twin

DESIGN & CONSTRUCTION DATA

EXTERNAL DATA

GEOSPATIAL SYSTEMS & DATA

BUILDING & INFRASTRUCTURE SYSTEMS & DATA

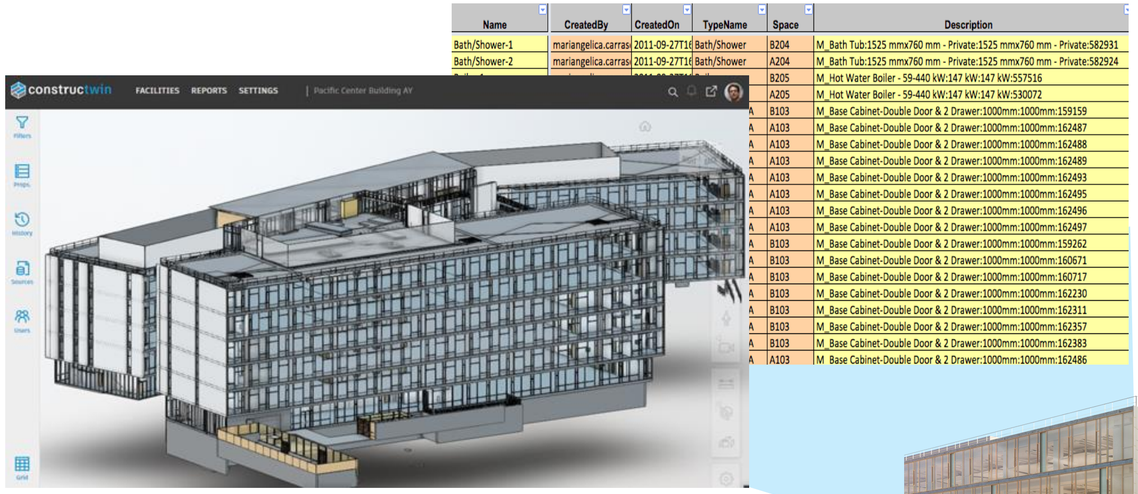
PROCESS SYSTEMS & DATA

IoT SYSTEMS & DATA

BUSINESS SYSTEMS & DATA

Images Courtesy of BNIM

Extending the Value of BIM



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Bath/Shower-2	mariangelica.carras	2011-09-27T16	Bath/Shower	A204	M_Bath Tub:1525 mmx760 mm - Private:1525 mmx760 mm - Private:582924
				B205	M_Hot Water Boiler - 59-440 kW:147 kW:147 kW:557516
				A205	M_Hot Water Boiler - 59-440 kW:147 kW:147 kW:530072
				A B103	M_Base Cabinet-Double Door & 2 Drawer:1000mm:1000mm:159159
				A A103	M_Base Cabinet-Double Door & 2 Drawer:1000mm:1000mm:162487
				A A103	M_Base Cabinet-Double Door & 2 Drawer:1000mm:1000mm:162488
				A A103	M_Base Cabinet-Double Door & 2 Drawer:1000mm:1000mm:162489
				A A103	M_Base Cabinet-Double Door & 2 Drawer:1000mm:1000mm:162493
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				A A103	M_Base Cabinet-Double Door & 2 Drawer:1000mm:1000mm:162486

Owner

CLASSIFICATION
- OmniClass
- Uniformat
- Masterformat
- Custom/Other

DATA MODELS
- Standards
- COBie
- . . .
- Custom
- . . .

Digital Twin

- Data Validation
- Analytics
- B2B System Integration

Architect

RVT

Engineer

RVT

Contractor

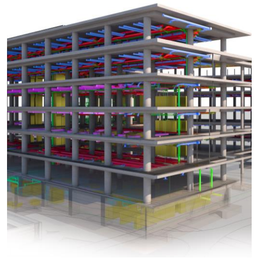
Image Courtesy of BNIM

Enabling a Digital Twin Lifecycle – New Facility

DESIGN

Specify Desired Operational Outcomes and Data Requirements

BUILD



Commission Facility with Digital Twin

OPERATE

Physical Facility

Digital Twin

Continuous Iteration & Improvement

Define System Models & Enable Simulations

Connect & Collect Operational & Performance Data

Capture & Classify Object & Asset Data

Images Courtesy of BNIM

Enabling a Digital Twin Lifecycle – Existing Facility

OPERATE

Physical Facility

Scan & Model as built Facility

Define System Models & Enable Simulations

Connect & Collect Operational & Performance Data

Capture & Classify Object & Asset Data

Commission Digital Twin

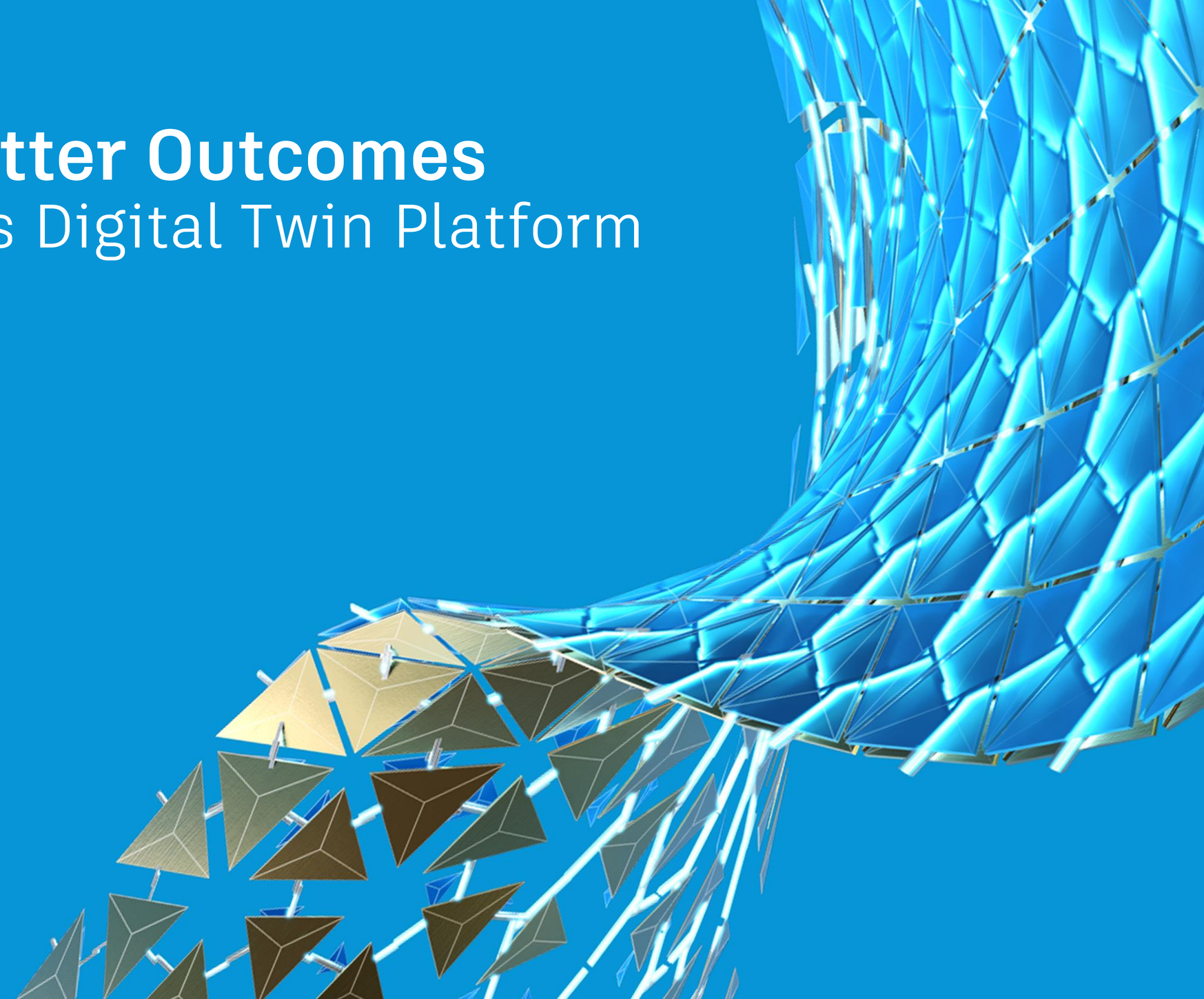
Digital Twin

Continuous Iteration & Improvement

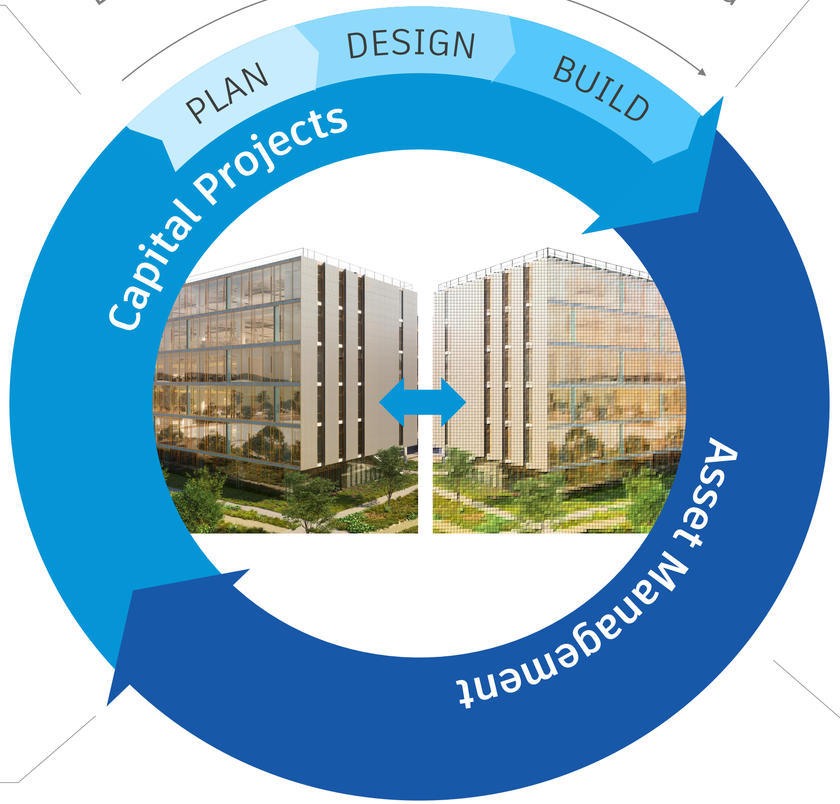
Specify Desired Operational Outcomes and Data Requirements

Images Courtesy of BNIM

Achieving Better Outcomes
with Autodesk’s Digital Twin Platform



Digital Handover



Design & Construction

Procurement

Handover

Commissioning

Portfolio Planning

Space Planning & Utilization

Portfolio Management

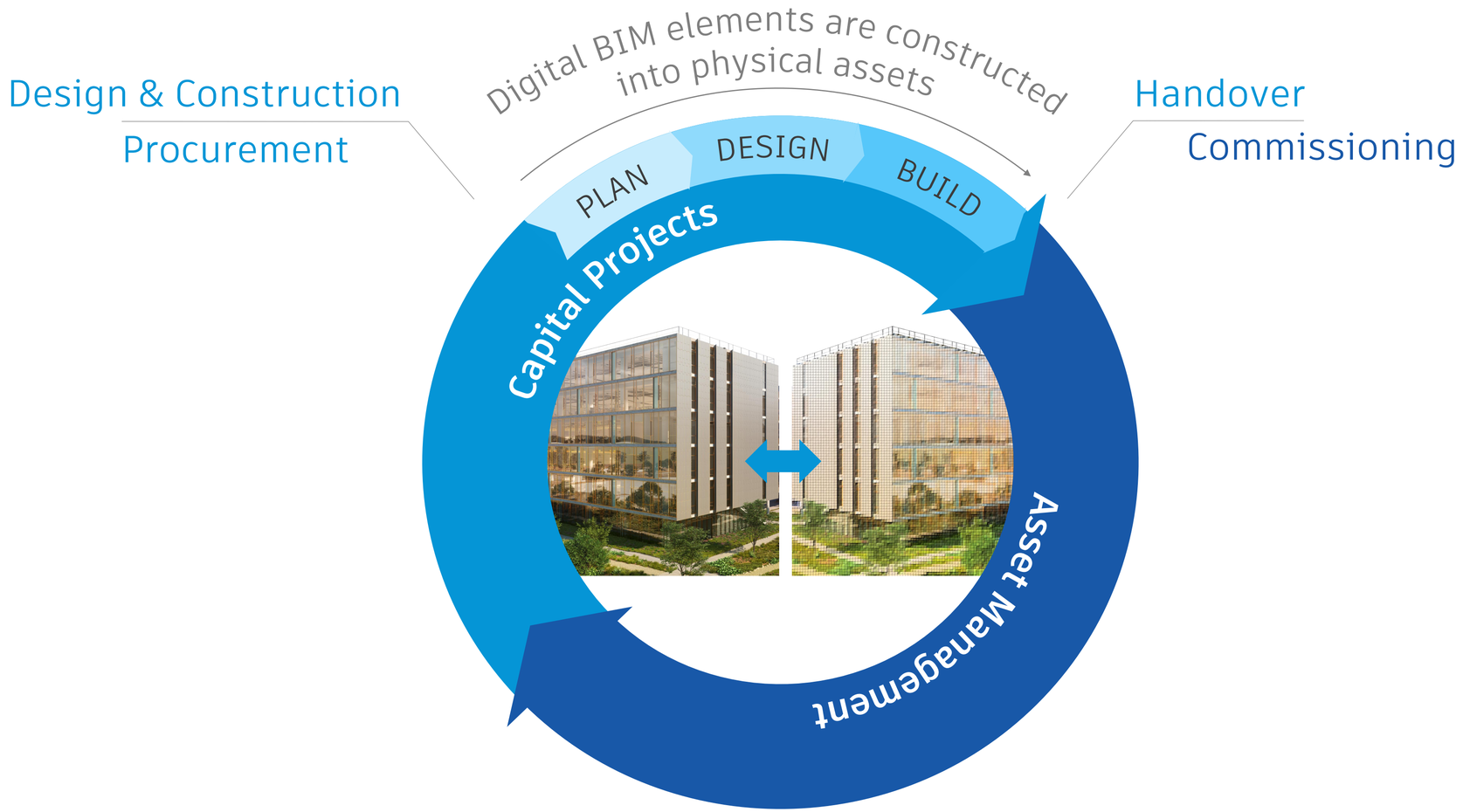
Predictive, Planned & On-Demand Maintenance

Asset & Portfolio Analysis

Asset Knowledge

Performance Monitoring & Tuning

Digital Handover



Digital Handover

Capture and **Verify** the data in Autodesk Tandem during design and construction

Specify the desired operational outcomes and data requirements in Autodesk Tandem

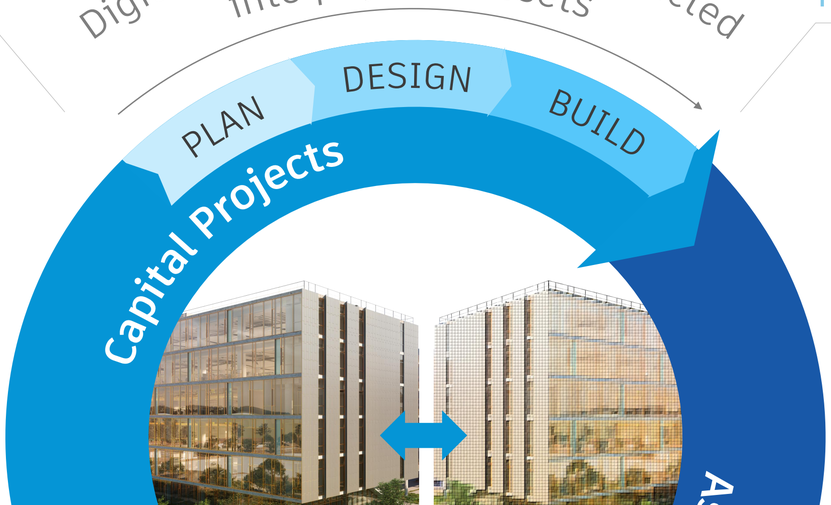
Commission the facility and leverage Autodesk Tandem to accelerate operational readiness

Design & Construction

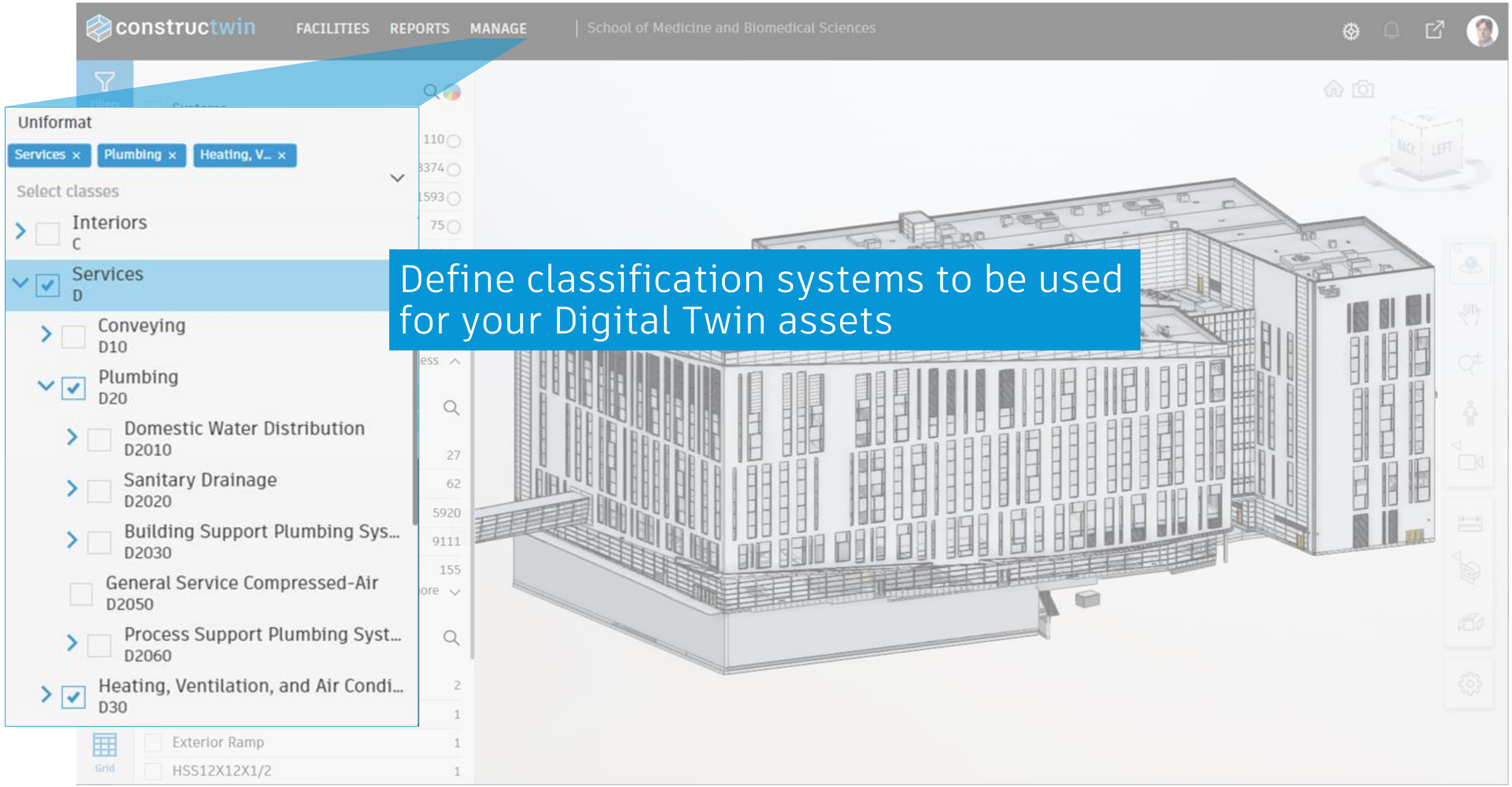
Procurement

Handover

Commissioning

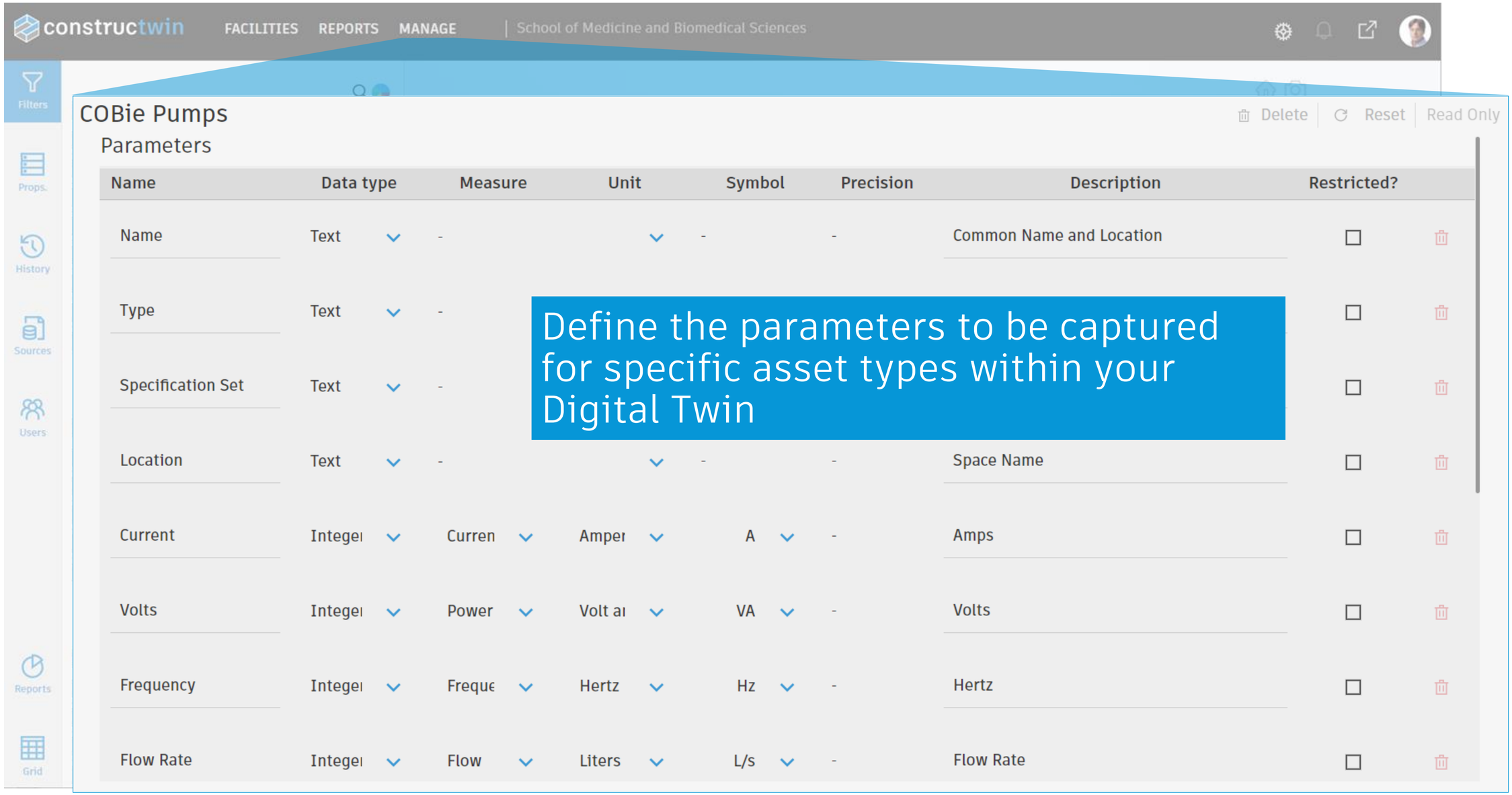


Digital Handover – Specify



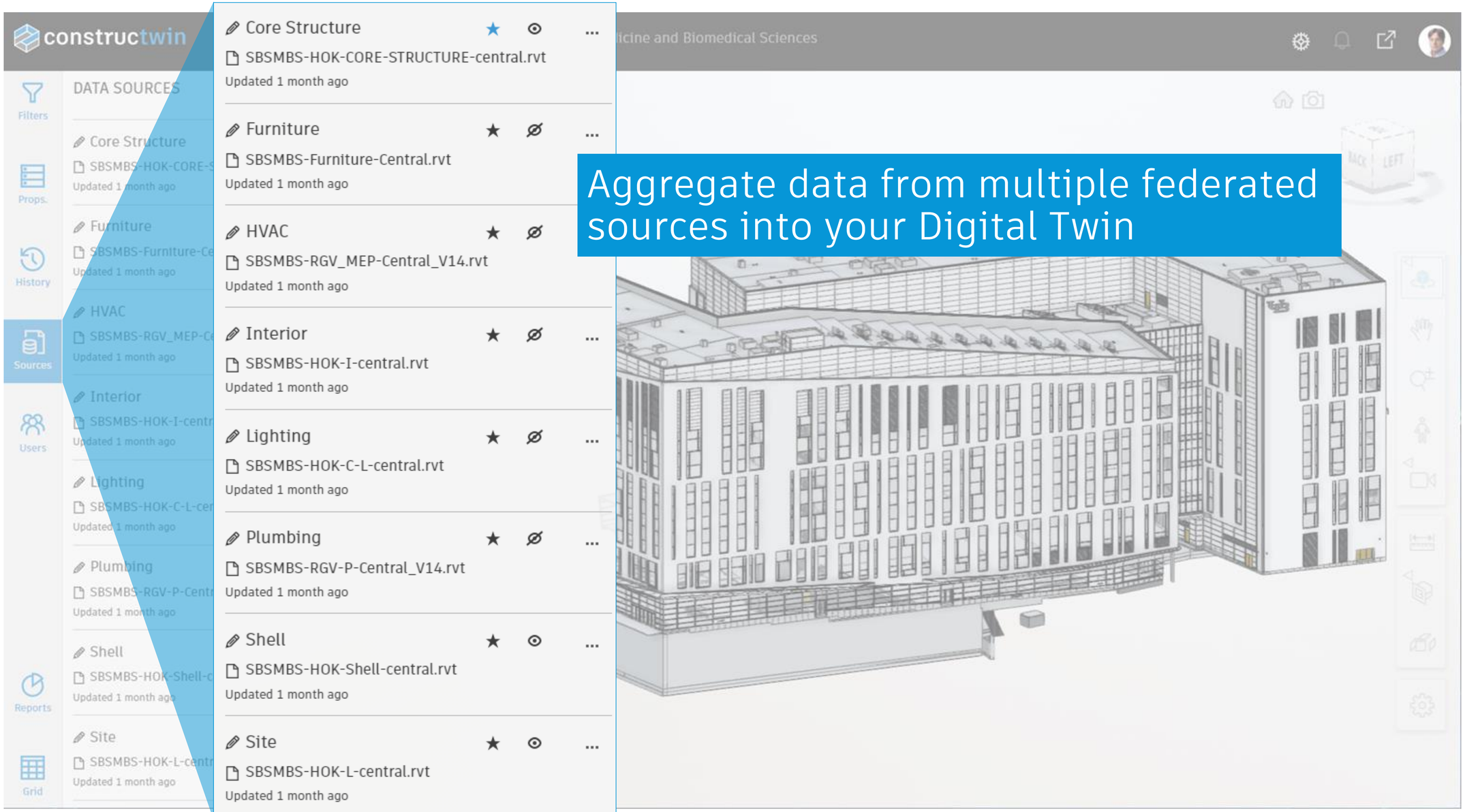
Model Courtesy of HOK

Digital Handover – Specify



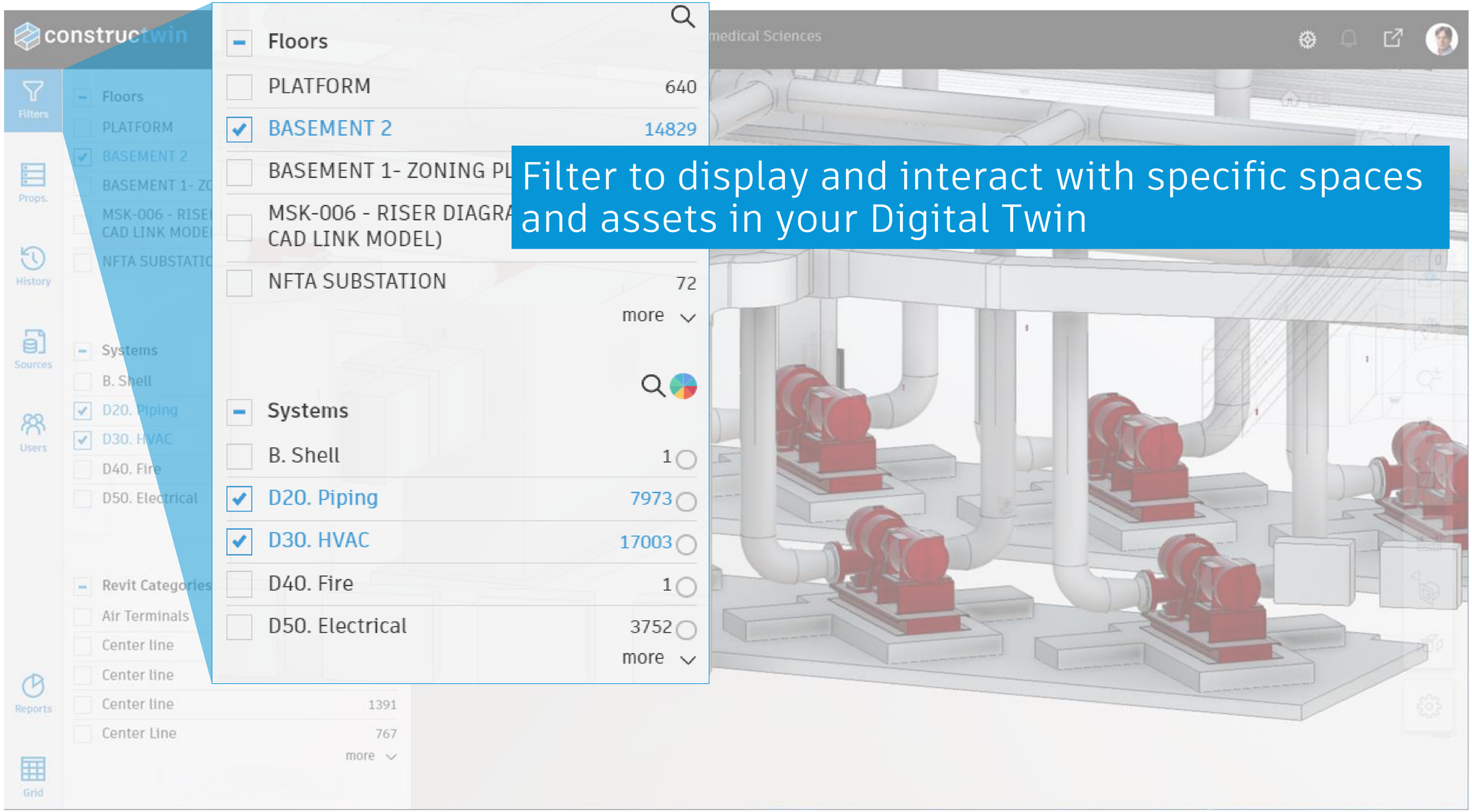
Model Courtesy of HOK

Digital Handover – Capture and Verify



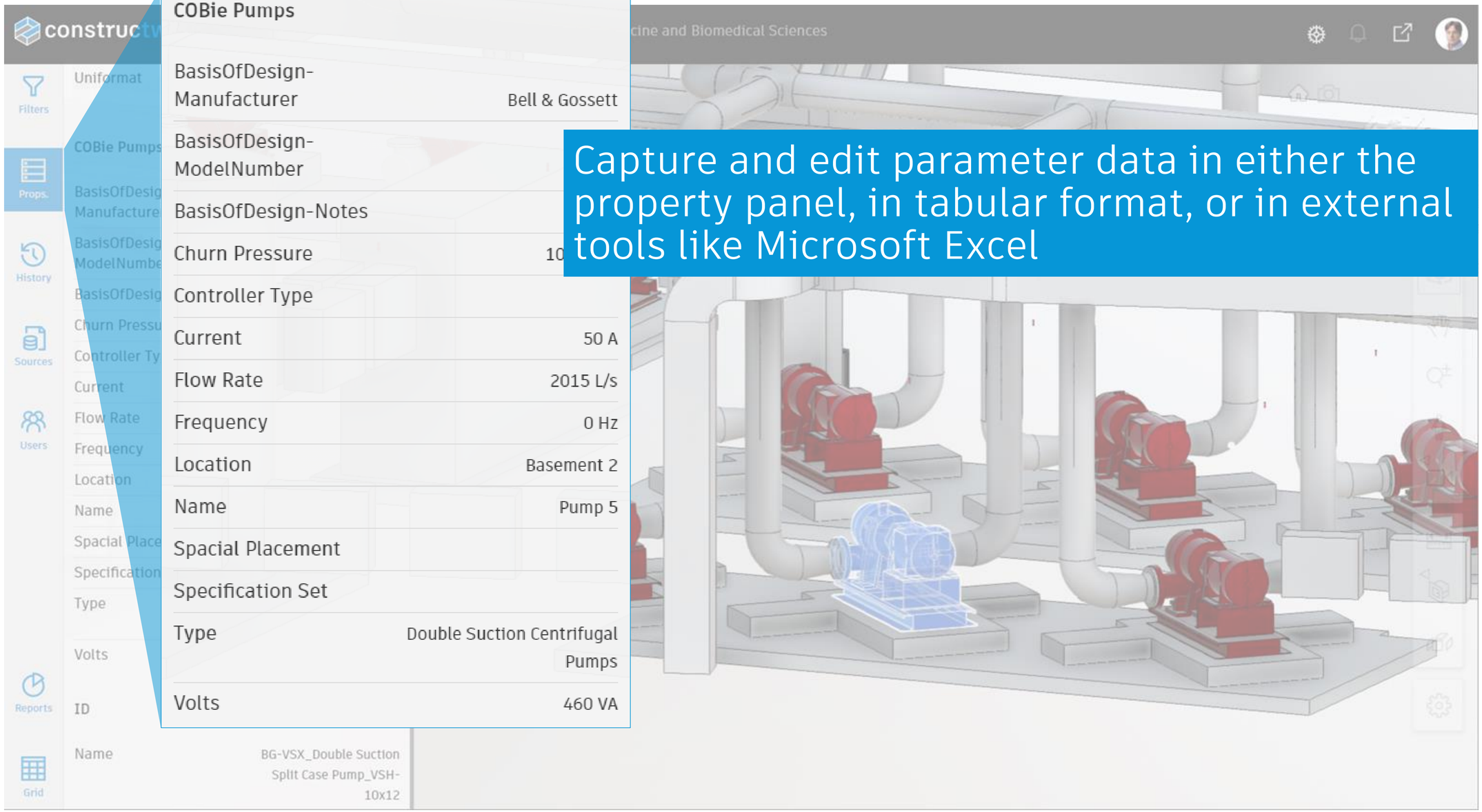
Model Courtesy of HOK

Digital Handover – Capture and Verify



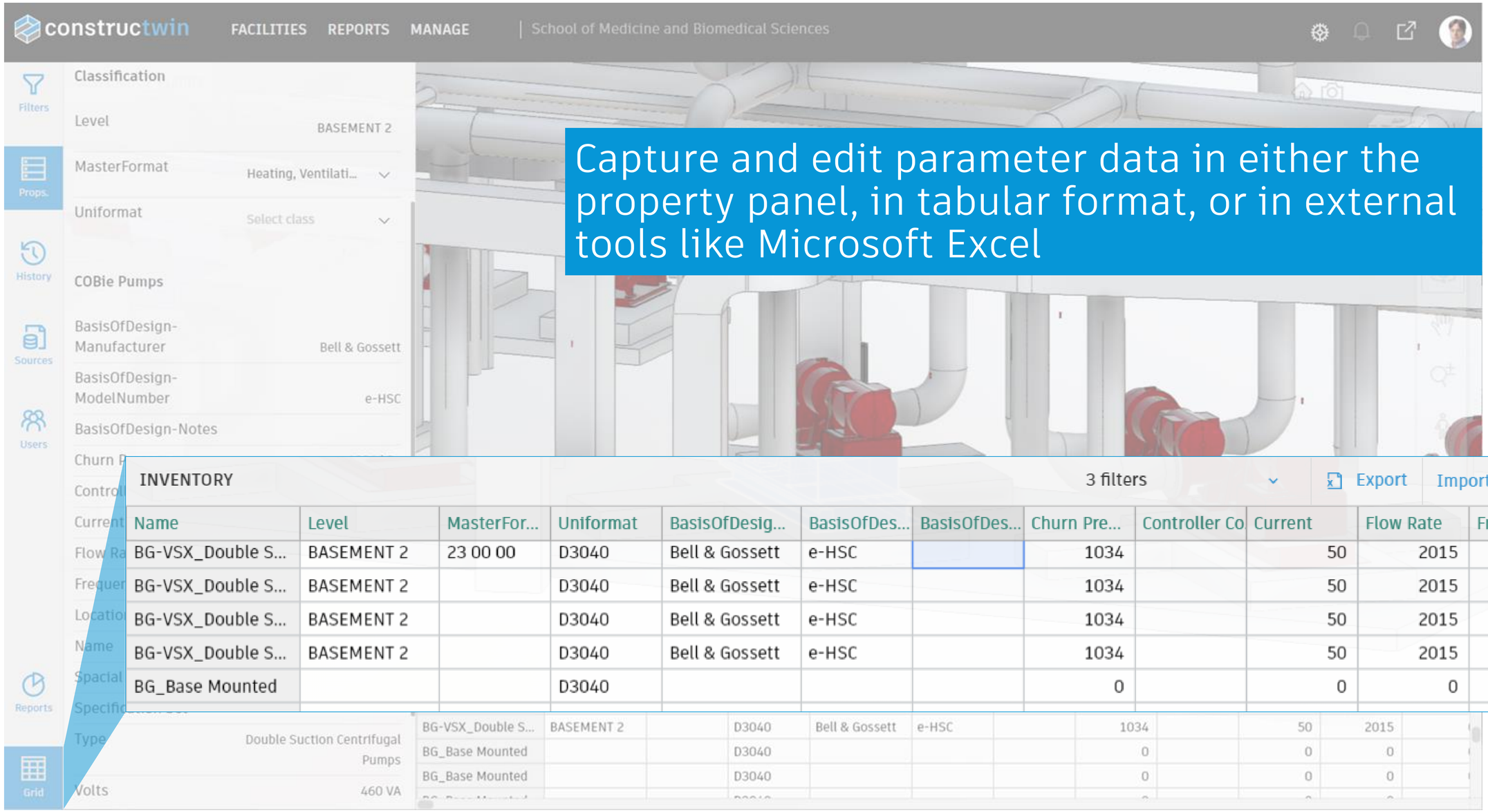
Model Courtesy of HOK

Digital Handover – Capture and Verify



Model Courtesy of HOK

Digital Handover – Capture and Verify



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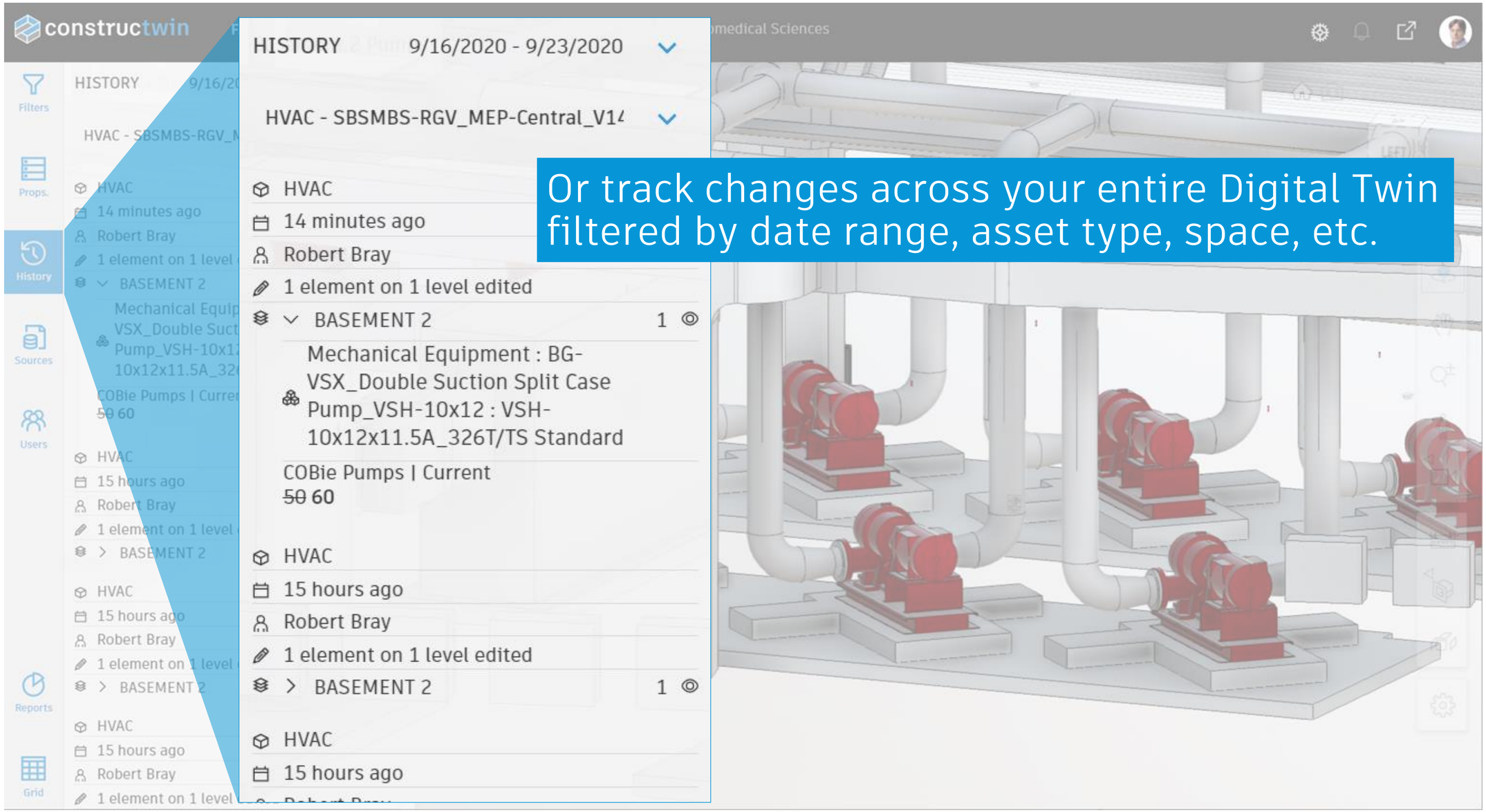
BG-VSX_Double S...	BASEMENT 2	23 00 00	D3040	Bell & Gossett	e-HSC		1034		50	2015	
BG-VSX_Double S...	BASEMENT 2		D3040	Bell & Gossett	e-HSC		1034		50	2015	
BG-VSX_Double S...	BASEMENT 2		D3040	Bell & Gossett	e-HSC		1034		50	2015	
BG-VSX_Double S...	BASEMENT 2		D3040	Bell & Gossett	e-HSC		1034		50	2015	
BG_Base Mounted			D3040				0		0	0	

Model Courtesy of HOK

Digital Handover – Capture and Verify

Model Courtesy of HOK

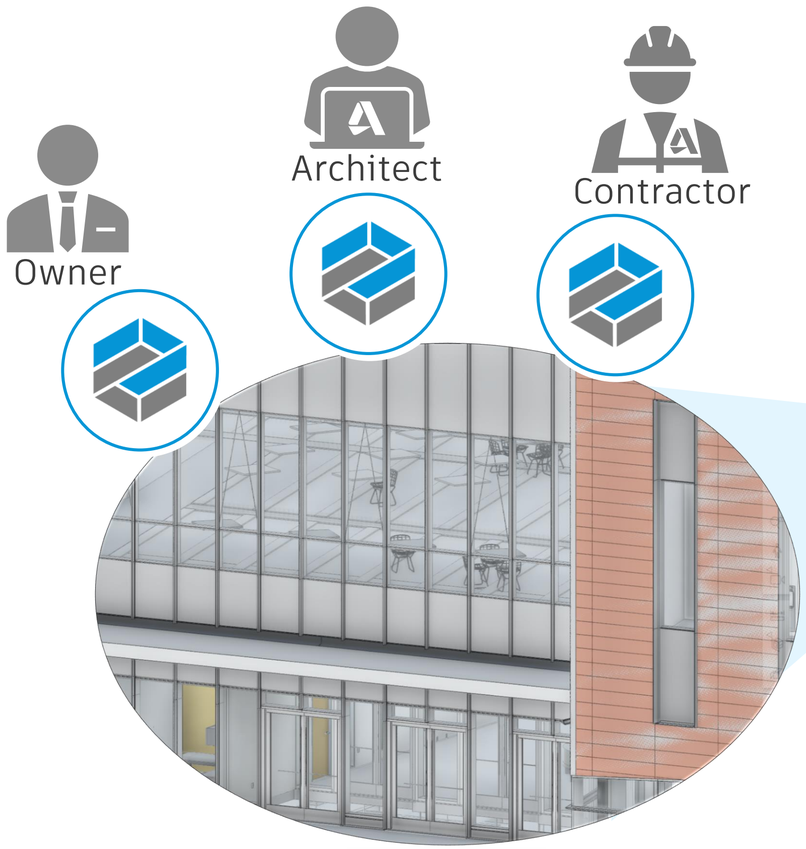
Digital Handover – Capture and Verify



Model Courtesy of HOK

Digital Handover

Transparent collaboration to improve decision making and reduce rework



Accelerate operational readiness by providing easy access to detailed facility information

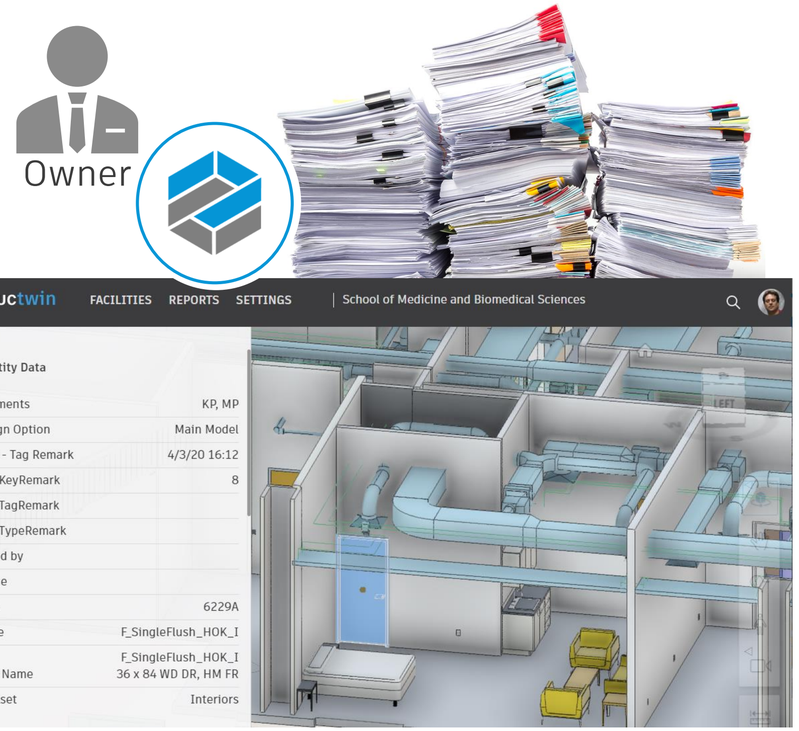


Image Courtesy of BNIM

Together we can Achieve Better Outcomes

Autodesk **Tandem**
Community Program

Monthly
Webinars

Discussion
Forums

Quarterly
Updates

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