

# Why Data Quality Is the Foundation of High-Performing Facilities

How Broken Handover Undermines Operations  
and How Nexus Fixes It



---

# Executive Summary

In today's complex-built environment - where digital technologies like IoT and digital twins promise operational excellence - poor data quality remains the primary barrier to realizing measurable value. For owners and operators, data delivered at project handover is the core ingredient that transforms static project deliverables into dynamic operational tools.

When data is fragmented or unreliable, organizations pay the price through wasted time, inefficient maintenance, rising operating costs, and impaired decision-making.

## 1. The Real Problem Isn't Data – It's Trust

Most facility owners don't lack data. They lack confidence in it.



**Asset Lists  
Exist**

But teams double-  
check them  
anyway



**Drawings  
Available**

But no one is sure  
they reflect field  
conditions



**Systems  
Populated**

Yet technicians still  
walk the building to  
confirm

When teams don't trust their data, they compensate with manual work, workarounds, and institutional memory. Over time, this erodes efficiency, delays decisions, and quietly inflates operating costs.

This is the real operational problem - and it almost always starts at handover.

---

## 2. Why Handover Quietly Breaks Operations

In many construction and delivery processes, data generated during design and construction is poorly structured for operations. Traditional handover involves exporting disparate files - PDFs, spreadsheets, unlinked BIM objects, and scanned manuals - that do not easily integrate with operational systems. The result: facility teams often spend weeks or months manually reconciling information.

Industry data confirms a dramatic loss of captured information between project completion and operational readiness:



These gaps contribute to poor operational readiness - delaying occupancy, obstructing maintenance planning, and forcing teams to resurvey assets before critical systems can be managed effectively.

## 3. What "Good" Data Actually Means in Operations

In operations and asset-intensive environments, "good" data consists of several key dimensions:

- ✓ **Completeness** – All required attributes, documents, and asset metadata are present
- ✓ **Accuracy** – Data reflects true field conditions and is verified
- ✓ **Consistency** – Assets are identified consistently across systems
- ✓ **Timeliness** – Data is delivered when teams need it to operate
- ✓ **Context** – Data is linked to 3D context, systems, and relationships

Data delivered without structure or context cannot fulfill operational needs - no matter how rich it may appear in raw form. In operations, data quality isn't theoretical - it determines whether teams act with confidence or hesitation.

---

## 4. The Cost of Poor Data Quality in Operations

Poor data quality amplifies costs throughout facility operations:

### Operations Spend Dominated by Maintenance

Facility operations and maintenance (O&M) can account for up to 80% of a facility's total lifecycle cost, far outweighing initial design and construction expenditure.

### Financial Impact of Poor Data

**80%**

Of facility lifecycle cost is O&M

**\$1.84T**

Lost globally in 2020 due to poor data

**14%**

Of rework due to bad data

Poor data quality acts as a hidden tax on operations, undermining performance, increasing reactive maintenance, and diminishing the value of technology investments.

### Time Wasted Searching for Information

Even before facilities become operational, teams face inefficiencies. It's not uncommon for operations teams to re-survey equipment that already exists in handover documentation - because trusting data is riskier than starting over.

In short, poor data quality acts as a hidden tax on operations, undermining performance, increasing reactive maintenance, and diminishing the value of technology investments.

---

## 5. Data Quality as a Strategic Asset

When data quality is treated as an operational asset rather than a project deliverable, organizations unlock measurable performance gains.

### High-quality data enables organizations to:

- Reduce unexpected downtime and increase asset uptime
- Optimize maintenance workflows, particularly predictive maintenance
- Inform budgeting and lifecycle planning
- Support sustainability and compliance initiatives

Digital twin implementations provide the framework to operationalize quality data.

### Measurable Impact



These outcomes are direct results of connecting accurate, contextualized data to operations workflows - precisely the gap Nexus addresses.

## 6. Nexus: Preserving Data Quality from Handover Through Operations

**Nexus's digital twin platform shifts the paradigm:**



### **Structured Data Ingestion**

Captures asset data, BIM context, systems relationships, and documentation in an operationally ready data model



### **Common Data Environment**

Ensures asset identifiers, attributes, and workflows are consistent across systems



### **Continuous Integration**

Maintains connections to CMMS, BMS, IoT sensors, and maintenance logs

**By treating data as a live operational asset, organizations can:**

- Cut time spent searching for information
- Enable predictive and condition-based maintenance
- Support strategic decision-making with reliable data

---

# 7. Making Data Quality Stick

Operationalizing data quality requires intentional practices:

## Best Practices

- **Early Data Requirements Definition** – Bring operations stakeholders into project planning to ensure deliverables are fit for ongoing use
- **Standardized Schemas and Terminology** – Adopt consistent naming conventions and data schemas (e.g., COBie standards) to underpin interoperability
- **Automated Validation** – Use automated data checks to identify missing or inconsistent attributes before delivery
- **Digital Twin Readiness** – Prepare data to be consumed by digital twin platforms like Nexus INFINITY, ensuring contextual continuity

## Measuring Success and Sustaining Data Quality

### Completeness

% of assets with complete data attributes

### Timeliness

Timeliness of updates (data freshness)

### Accuracy

Number of data errors found per audit cycle

### Efficiency

Reduction in time spent searching for information

Regular validation and integration of updated work order data, sensor feeds, and maintenance histories ensure that data quality improves over time rather than degrades.

---

## Conclusion

**Asset-intensive organizations don't struggle because they lack systems or technology. They struggle because the data those systems depend on was never delivered in a way operations could trust.**

**When data quality breaks down at handover, the consequences persist for years, forcing teams into verification, workarounds, and reactive decision-making that quietly inflate costs and risk. In that environment, even the most advanced platforms fail to deliver their promised value.**

**Data quality is not a documentation issue. It is an operational one.**

**By preserving structured, contextualized data from handover through day-to-day operations, Nexus enables organizations to replace uncertainty with confidence - turning handover from a recurring liability into a durable operational advantage.**

**The organizations that treat data quality as a strategic priority today will be the ones that operate faster, smarter, and with greater resilience tomorrow.**