CAPITAL PROGRAM SUCCESS STRATEGIES

Closing Costly Disconnects

How to bridge the divides that hurt capital asset delivery and performance

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To improve asset delivery and performance,

prioritize interoperability

Stop for a moment and imagine this:

Your capital projects are progressing on time and on budget. Design changes are communicated quickly. Teams are communicating consistently.

Construction is being monitored in real-time. And any issues that could threaten deliverability are identified early and fixed—before they spiral out of control.

Once your assets are built, operation runs just as smoothly. Performance data is continually available and analyzed. Issues are mitigated before they happen.

Maintenance is no longer reactive, but predictive. Energy use is optimized. And unplanned downtime? That happens rarely, if ever.

Sounds too good to be true? It isn't.

It's what's possible when you prioritize system interoperability across the infrastructure asset lifecycle.

By ensuring your systems are interoperable—able to work in concert and share information effortlessly—you can cut waste, slash costs, and see huge improvements in how your assets perform.

And, as you'll learn in the pages that follow, it's more achievable than you may realize.

What is interoperability?

The ability of different systems, software, applications, devices, and products to connect, communicate, and exchange data seamlessly and effectively.

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How hidden system disconnects could be costing you

85%

of the expenses that make up an asset's total cost are incurred in O&M

Owners and operators are under pressure to deliver and manage projects more predictably, cost-effectively, and sustainably. Yet the traditionally fragmented nature of the capital facilities industry makes it hard to move the needle in any of these areas.

Too many projects and facilities suffer from missed deadlines, blown budgets, and unpredictable outcomes because the various software systems being used across the asset lifecycle don't communicate with each other.

Despite technology advances, fragmented workflows and systems that don't communicate with each other are still the norm. These disconnects are typically most obvious during project delivery. Rework, change orders, schedule delays, and budget overruns are all indicators of disconnected workflows and systems.

But these are just the start of even costlier issues after the project is handed over to operations and maintenance (O&M). In fact, the financial impact of these disconnects cut most deeply during O&M, where 85% of the expenses that make up an asset's total cost of ownership are incurred.

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These hidden disconnects create a domino effect of negative impacts:

- **Inefficient data exchange:** Teams waste countless hours manually re-entering data or reconciling inconsistencies between datasets.
- **Poorly informed decision making:** Critical data gets trapped in isolated systems, leaving teams to make decisions based on incomplete information.
- **Lower productivity:** Because data isn't accessible when they need it, teams spend too much time searching for information or waiting for other teams.
- **Increased errors:** Manual data transfer and lack of version control lead to mistakes and rework.
- **Delayed projects:** Poor information flow causes bottlenecks and slows down project delivery.
- **Unplanned maintenance and downtime:** Limited or no data access prevents operators from proactively planning maintenance or identifying brewing performance issues.
- **Shorter asset lifespan:** If performance data is inaccessible, operators run the risk of operational inefficiencies that accelerate asset deterioration.
- **Inflated total cost of ownership:** Inefficiencies, errors, delays, and unplanned maintenance add up over time, ultimately driving up the total cost of ownership (TCO) of assets.

Picture what's possible with interoperability

Going back to the vision we laid out earlier, here's what's happening in the background...

Instead of software systems being disconnected, they're seamlessly exchanging data. All of the information about your assets is being stored in shareable formats and in a centralized repository that's accessible to all stakeholders.

As an asset moves from initial planning and design through construction to operations, maintenance, and eventual decommissioning, all of the data is right there.

Common BIM models, construction documentation, materials specifications, estimates, change orders, schedules, contracts, warranties, and more are accessible to the stakeholders who need them, when they're needed.

Information flow is seamless, decision making is data driven, and outcomes are improved across the lifecycle.

The positive impacts of interoperability are cumulative and cost reducing, yielding TCO savings of up to 40%.

Just as the negative impacts of disconnected systems build on each other over time, the positive effects of data accessibility, connected workflows, and data-driven decision making also compound over the asset lifecycle.

And the cost savings do, too. Interoperability can reduce an asset's total cost of ownership (TCO) by upwards of 40%.

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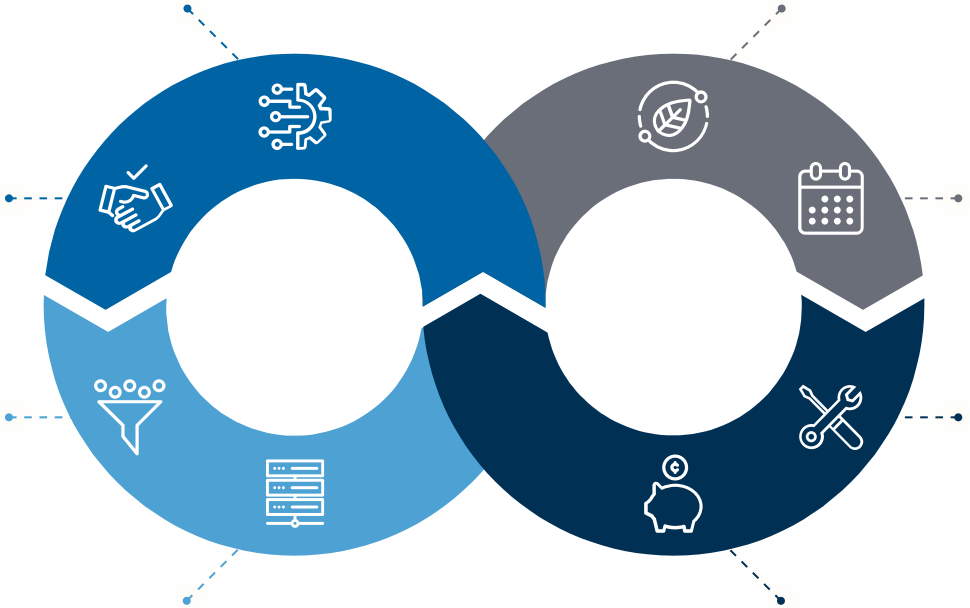
The Vision:

A Connected and Interoperable Ecosystem Across the Asset Lifecycle

Data flows freely: Information entered once is instantly available to all stakeholders who need it, eliminating redundant data entry and reducing errors.

Sustainability is built-in: Designers have the data and insights needed to make design decisions that optimize resources and operational efficiency.

Collaboration is easy: Teams across disciplines are working together efficiently, sharing information and ideas, problem solving issues, and resolving issues quickly.



Project delivery is improved: Seamless information flow facilitates more accurate scheduling and budgeting, while simultaneously reducing rework and delays.

Everyone's on the same page: All stakeholders share access to a continually updated single source of truth, as well as an understanding of the project and desired outcomes.

Maintenance is predictive: Real-time data from IoT devices and sensors is analyzed alongside historical data to proactively anticipate and plan maintenance needs and minimize downtime.

Decisions are data-driven: Data from across the asset lifecycle can be easily accessed, aggregated, and analyzed to make smarter decisions.

TCO is lowered: Eliminating inefficiencies and enabling data-driven decisions also reduces costs across the asset lifecycle, lowering TCO by as much as 40%.

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How to overcome the obstacles that stand in your way today…

The benefits of interoperability are hard to ignore. But if disconnected workflows and teams are your current situation, it will take some effort to realize both the savings and the gains that interoperability provides.

The obstacles you need to overcome will depend on your specific circumstances. But they likely include:

- **Software limitations:** Some software systems are proprietary and don't play well with others, or they simply weren't designed for today's need for data exchange.
- **Inconsistent data standards:** When data lacks uniformity in format, structure, or quality across teams, data sharing is difficult if not impossible.
- **Siloed organizational structures:** Traditional divisions between departments reinforce fragmented workflows and isolated decision making.
- **Short-term thinking:** The upfront costs of implementing interoperable systems can overshadow the long-term benefits and advantages.
- **Resistance to change:** Stakeholders may be reluctant to adopt new systems or processes, especially if they're unclear of the benefits to them — or the need to do so.

…and make interoperability your reality moving forward

The challenges aren't insignificant, but they also aren't insurmountable.

By following the seven steps detailed here, you'll lay the groundwork needed to experience the seamless information flow, smarter decision making, and improved outcomes possible only through interoperability.

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7 Essential Steps

to Connect Systems, Workflows, and Data

1 Adopt open standards

Require the use of OpenBIM and industry-wide open standards, such as IFC, COBie, and IDS, to facilitate easy data exchange between systems.

2 Establish data governance standards

Define and communicate data management policies and procedures to ensure data continuity and availability across systems.

3 Implement a common data environment (CDE)

Centralize the storage and access of BIM models and standardized project data in a central, cloud-based repository to provide accessibility to all stakeholders.

4 Choose integrated solutions

Prioritize software point solutions that are designed to work together across the asset lifecycle to eliminate the most common interoperability headaches.

5 Start small

Beginning with a pilot project is a safe way to demonstrate the value of interoperability and build momentum for wider implementation.

6 Prioritize training

Make sure staff are comfortable using all new systems and processes to ensure successful adoption.

7 Foster a collaborative culture

Lastly, and most importantly, facilitate and encourage cross-functional teamwork to actively break down organizational silos.

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Deliver and manage

projects more predictably, cost-effectively, and sustainably

As an owner or operator of capital assets, you have the influence to drive the changes needed to ensure interoperability across the asset lifecycle.

By prioritizing interoperability today, you're positioning your organization to deliver better project outcomes, optimize asset performance, and maximize the value of your infrastructure investments for years to come.

Don't let a few obstacles hold you back. With a technology partner like Trimble by your side, you get the technology tools and the expertise you need to make the benefits of interoperability a reality.

Learn how to close costly system disconnects that hurt capital asset delivery and performance

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