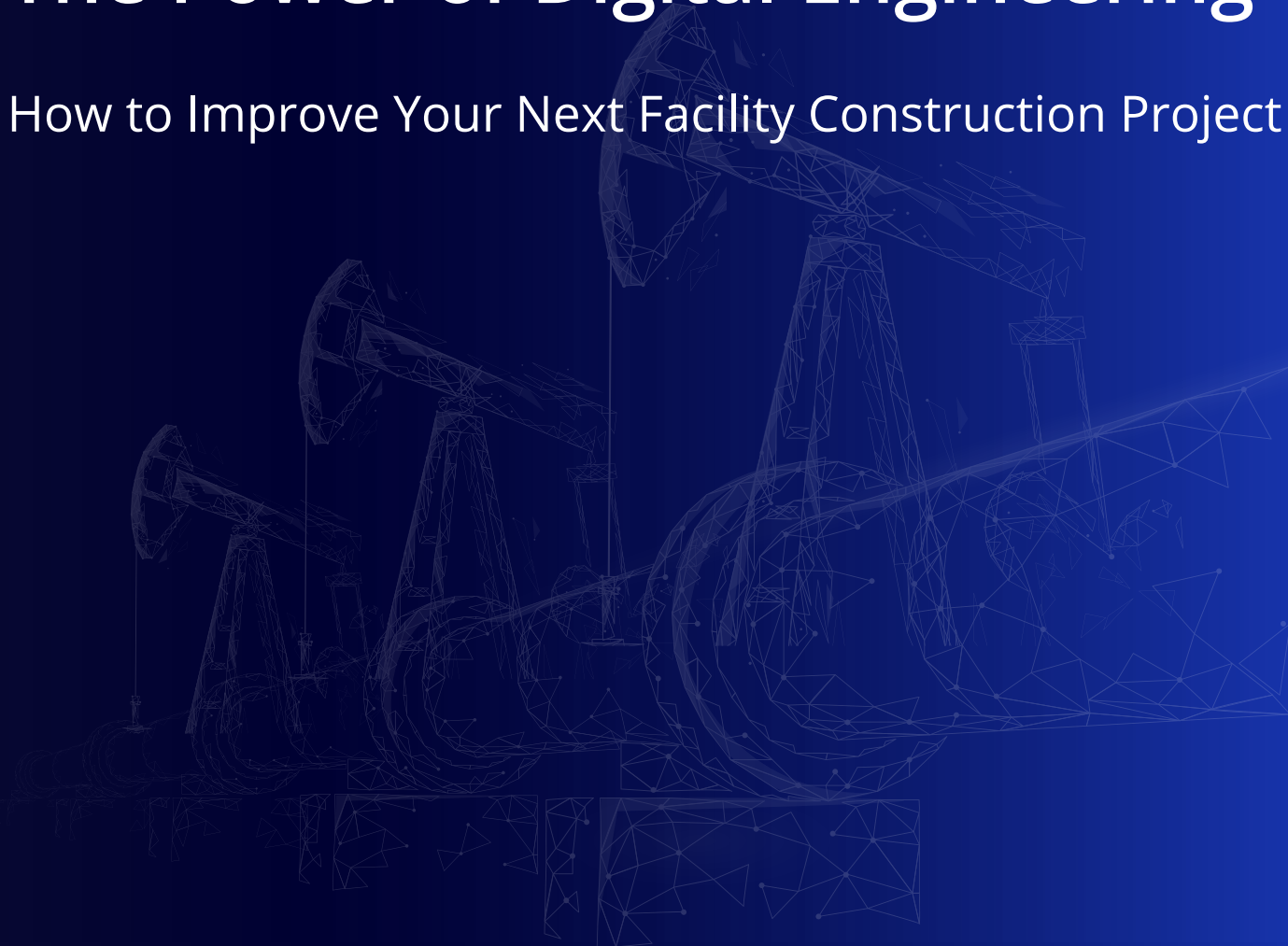


# The Power of Digital Engineering

How to Improve Your Next Facility Construction Project



# It's Time for Better Facility Construction

Old-school facility build management won't cut it anymore. Whether it's a build that comes in late, cost overruns, bad or missing project information, or finding out the crew built something plain wrong, you can't afford to waste time and resources.

That's why smart, efficient project managers take advantage of digital engineering technology and techniques to finish builds on time and within budget – and extend the lifecycle of the facility.

# Defining Digital Engineering

Change is a constant in construction, no matter what the project. At every step of the way through the lifecycle of a build, each team member needs to have access to the most updated datasets and be aware of any changes – so they can plan accordingly. Digital engineering, put simply, is smart engineering using the best digital tools available to make projects efficient and cost-effective.

This means three key components:

## 3D Models

Prior to construction, these models are created as a baseline for the construction process. 3D models serve as a blueprint for the team to follow and execute.

## Point Clouds

Point clouds are millions of points measuring existing conditions (as-is). Through detailed measuring, they're used to compare construction progress to a 3D model for QA, budgeting, scheduling, and efficiency purposes.

## Digital Twins

Digital twins are the combination of point clouds and BIM models along with asset information. They give an accurate representation of a facility which allows teams to see aspects of the facility from off-site locations.



# Facility Construction Challenges Every Engineer Faces

## Point Clouds and Large BIM Files

Point clouds and BIM models representing complex environments can be large. Nevertheless, this data needs to be shared with engineers and updated often during a build. Traditionally, this has meant physically mailing hard drives, which introduces time delays and risk.

Even after the point cloud is received, updates can be tricky. If a new drive is sent, that's more time and more risk. If surveyors communicate manual changes, the potential for error is high.

A better solution is to upload 3D data to a shared interface in the cloud.





# Facility Construction Challenges Every Engineer Faces

## Remote Management and Quality Control

During a build, engineers need to keep tabs on progress, and contractors need to communicate issues quickly. Sometimes, design specs need to change on the fly, and surveys need to reflect these changes. For example, if contractors discover a clashing to a planned pipe run, what can they do?

In the past, they would have to improvise, which could have negative design implications later. Engineers need to be able to properly make changes when new information is encountered in the field.



# Facility Construction Challenges Every Engineer Faces

## Collaboration and Communication

One of the major problems in any facility's lifecycle is communication and documentation. In many facilities, crucial data like maintenance records and inventory are kept in crude spreadsheets, physical paper, or even simply in the memories of long-time employees.

This data is hard to access, often out of date, and vulnerable to loss if an employee leaves. Keeping documentation and records in a central location and connected to design schematics is crucial.





# How JP Global Digital Can Help

## Centralize Modeling Data

JP Interactive Viewer makes up-to-date point cloud and 3D model data available to every member of your team. Now, instead of mailing hard drives or painstakingly communicating changes over the phone or email, surveyors can simply upload data to a shared interface in the cloud.

Engineers can immediately access this data and compare the BIM model to as-designed, as-is, as-constructed, and as-projected. Surveyors can make updates in the same interface, and discrepancies can be pointed out on the software.





# How JP Global Digital Can Help

## Eliminate Guesswork

Construction crews and on-site managers no longer need to improvise or put a hold on a construction project when faced with obstacles. With a central interface and good communication, construction only needs to halt long enough for engineers to make the right change.

Contractors can access the changed design immediately, surveyors can update the point cloud in the interface, and engineers can reconcile the physical changes with the new or updated design.

JP Interactive Viewer is designed to make this kind of collaboration and agility available in the cloud at all times.



# How JP Global Digital Can Help

## Keep Accurate Records

JP Interactive Viewer keeps all critical documentation in one place, accessible by every team member with clearance, and connected to facility assets represented in the digital twin. So, there's no need to dig through old file cabinets hoping to find the right records. Now, just navigate to the equipment or component in question and find out everything you need to know with a simple click.





# How JP Global Digital Can Help

## Efficient Project Management

Facility construction can be complicated. Inefficiencies such as inaccurate, imprecise, or misplaced data, bad communication, or inaccurate models can make projects even more time consuming and expensive.


JP Interactive Viewer brings together all crucial players in a facility build by putting every piece of information in one place, remotely accessible via the cloud.

Engineers and contractors need to keep a construction project on schedule and on budget, and owners need to keep a facility operating smoothly for the duration of its life. They can do that with:

- ✓ MOC (management of changes)
- ✓ BIM models
- ✓ Point clouds
- ✓ As-is documentation
- ✓ Operational data
- ✓ Operational and business KPIs
- ✓ Maintenance and inspection plans







With our innovative approach to digitalization, JP Global Digital can help companies like yours transform how work gets done in the new era. We call it industry 4.0. For us, digital transformation isn't just about changing industry, it's about transforming lives.

If you're ready to implement an interactive solution that puts your facility build squarely into the modern age and makes your life easier, **contact JP Global Digital** today.

