

Own Your Data

What Data Portability Means for the Construction Industry



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Introduction to Data in Construction

To many in the construction world, project data is a new topic for discussion. When that conversation does occur, it's typically driven by the general contractor (GC) or the project owner. Everyone else on the team is along for the ride, meaning they may not get a say in how their data is managed, or even if they can retain access to it when the work is complete. This lack of transparency isn't in the best interests of many working on the project.

There are three important topics when thinking about data in the construction industry: data ownership, data structure and data portability.

Data ownership defines who actually owns and can keep the data. This also includes who can export the data to ensure it's retained throughout the lifecycle of the building. Data structure focuses on how teams should organize their data to better create living as-builts that are useful to the owner. Data portability is the ability to have nimble, mobile data at the fingertips of the end user. It exists in a system that reduces (or eliminates) the loss of design and construction data during the lifecycle of a project, while increasing transparency and accountability throughout all phases of work.



Data Portability in Today's Construction Model

Current data management practices in construction allow for gaps in the collection and distribution of data. On many projects, a different tool is used each step of the way for design, construction and facility operations. These tools often don't talk to one another—and even when they do, the type and quantity of data fields may not line up, creating information gaps. Gaps exist where data isn't transferred from one software system to the next or when project data isn't properly captured by those building out in the field.

As the number of software tools and team members on a project increases, more and more transfers of data take place. Each data transfer creates an opportunity to lose more detail about the project, causing the final as-built data set to be incomplete. On a typical construction project, up to 30% of data is lost by the time it is turned over to the owners.

Data Silos and the Landscape of Construction Data

Before we jump headfirst into what teams should be doing with their data, we need to clarify where the data actually is. The majority of critical lifecycle data needed to maintain and operate a facility after construction is collected on the job site where the facility is being constructed. The wide range of data created is immense and as new technology develops, that volume continues to rise exponentially¹. From the GC creating

RFIs to the subcontractor submitting revised material cut sheets, a lot of documentation moves across a project.

Teams struggle with this immense volume of information in part due to the siloing of data between architects, GCs, subcontractors and owners. This is how the "old school" construction tools operate. Each member of a construction team will typically store data in a different location or within a tool available only to their own group. Other team



members don't have access to each other's data, which makes collecting all the important information in one central location a difficult task. The silo effect is also a roadblock to data and information transparency. A system without transparency is not functional in a modern, tech-enabled construction environment.

Design Teams

Design teams are involved in a project before anyone else and use tools that fit their specific needs during programming and design. These tools were not built with consideration for the transfer of project data to the remaining phases of the project. Design tools help create the facility being constructed and generate the blueprints that the general contractors will build from. Once the design team completes their work, the final drawings often end up residing in their own project management system, uploaded somewhere into the cloud or stored on external hard drives. This makes handing the data over to the GC in a usable form needlessly complicated. It is especially apparent in most traditional project delivery methods, since design teams are focused on creating the bid set. As a result, much of the coordination data created during preconstruction is lost and not handed over to the GC at all.

General Contractors

The biggest manager of data throughout a construction project is the GC. They are the driver of capturing data as construction progresses, typically using software suites that are firmly planted in the office. These systems are often robust in what they can achieve, but are complicated to implement and use. Since the tools don't integrate well with other software systems, they're not suitable for use in the field. Office-focused construction management tools create a missed opportunity for robust data collection, since the majority of construction data comes from the field. Also, typically, there isn't an easy way to pass that data on to the owner without some loss.



Subcontractors

Subcontractors are usually forgotten in the data ownership discussion and are forced to comply with the GC's system of record. When this occurs, they lose the ability to maintain ownership of their critical business data. Many subcontractors don't have data collection tools of their own in place (especially if it's not required by the GC or owner) and often they don't fully understand the importance of data ownership. After closeout, they may walk away without any project data at all. Since many of the "old school" project management suites that GCs use don't allow for easy data exports, the subcontractors may not ever be given access to their data at all.

This scenario creates a major challenge for subcontractors. Not having access to project data that shows a trail of where design and construction changes originated from may open them up to potential liabilities during any warranty claims made by the owner. They also don't have anything from previous work to analyze, making future data-driven decision making an impossible challenge.

Owners and Operations Teams

Owners have their own software to help organize and manage the information that their facilities teams use every day. These tools are called Computerized Maintenance Management Systems (CMMS). Essentially, a CMMS is a software tool that helps maintenance workers do their jobs more efficiently.

Facility management tools are typically heavily office focused, with robust databases to track assets and work orders. These tools lack a functional mobile component available to those team members working out in the field and walking the facilities daily. This is a downfall when facilities teams are halfway up a ladder and need to better understand where the electrical work in the wall they're about to drill into is really located. With tools like PlanGrid, they can pull up the drawing on the spot and verify before they start drilling. This fits right into the old construction saying of "measure twice, cut once."

It is important to note that PlanGrid does not replace a CMMS, nor is it intended to. It's a complement to these powerful systems, arming facilities teams with instant access to the the information they need when they're out in the field. This is unlike the database-heavy CMMS platforms that are built for use back in the office.



Data Portability on Today's Construction Site

Progressive teams are putting tools like PlanGrid in place from the inception of the project, starting with design and moving all the way through to closeout. Owners can (and should) dictate that team members upload all of their documents into PlanGrid from the start, beginning with napkin sketches made by the designer all the way through to RFIs and turnover documentation created by the GCs. To go one step further, it is good practice for owners to sit down with their contractors from the beginning of construction and decide collaboratively on what data structure is most suitable for their facilities teams to use.

Tools like PlanGrid eliminate information gaps as the different parties move their data along the course of a project. In the old construction model, when the designer exported their data from their system onto a jump drive or a shared server, the GC would then pick that information up and import it into their own tool.

Unfortunately, these tools don't integrate well. A design model might have 100 different data fields that are collected. When data is transferred over to the GC, their platform might only have 10 data fields available. This means 90 data fields don't get transferred over and are forgotten about or end up stored somewhere that nobody can find. Between the inception of a project and the final turnover to the owner, up to 30% of data can get lost, corrupted or misplaced altogether.

Data Portability (and Ownership) for Everyone

A common pitfall with many legacy construction project management systems is a silo effect created by the tool itself. In these legacy tools, it's simply not possible to seamlessly move and capture data like is possible in PlanGrid. In most legacy tools, if an owner and a subcontractor both

wish to retain project data, there is an export and import process to go through—even when everyone is using the same tool to manage their data. They will still have to initiate an export process and then import it into their own separate instance of the software. This is yet another opportunity for data loss and human error to manifest itself.



PlanGrid is currently the best option for forward-thinking owners and construction teams intending to create a transparent record set of every piece of data on a project. The ideal use of a tool like PlanGrid begins when it is implemented at project inception and is used all the way through to turnover. When this is executed correctly, teams simply have to add new users to the project as they start their portion of work. When they're done, it's easy for a subcontractor or designer to continue using PlanGrid on their own, making a copy of the project data for themselves. This allows for easy access to important information, whenever the need arises. There's no exporting process to go through, no complicated integrations to manage—and, most importantly, no loss of data.

The value of modern data management practices can be seen during the lifecycle of a typical healthcare facility. Here, the maintenance and operation is inherently more complicated than in most facilities, due to ongoing innovation in healthcare technology. Consider a typical non-healthcare project where the building lifecycle goes from design to construction to operations and, finally, renovations. For healthcare, add many more iterations of renovations and operations to the mix. Healthcare facilities experience an ongoing cycle of renovations repeated over many years. Not having clear documentation of what has changed will create headaches down the line, not to mention wasted time and money.

Transparency Is Everything

Today's construction projects should strive for transparency across their project sites, while empowering everyone involved to own their data and easily take it with them when work is complete. Moving from the current model while adopting the right tools to make this process seamless and simple will allow everyone to own and retain their data with just a few swipes on an iPad. For the longest time, GCs have managed the flow of most documentation on a project. With modern tools, this may no longer need to be the case. Transparency of project data is important to everyone on a project, especially for owners. Simply put, owners should have access to the data that details everything that occurred on a project they've paid to have built.

Device Portability

As alluded to earlier, data portability extends beyond bits and bytes and includes how teams can access that data once it's stored in the cloud. Many legacy project management tools struggle to keep up with field teams. This is because many of them do not offer mobile solutions that are accessible on an iPad or cellphone. Even the tools that do offer a mobile solution haven't fully optimized the experience, so the interfaces are clunky and hard to use. When teams struggle to use the tools they are provided, adoption levels will be low. Low adoption of technology yields even more gaps in the data, since people go back to relying on email and other communication formats that are hard to document.

The Future of Data Portability

Teams with truly transparent access to their data will drive tomorrow's software tools and influence the evolution of data portability in construction. These forward-thinking teams will continue to disrupt the "old school" data management models for years to come.

Predictive Analytics

As modern tools like PlanGrid become standard and the volume of data available continues to grow, teams will be able to infer exciting things from an analysis of that data. Predictive analytics is the next exciting tool available to the modern construction professional. It is the practice of extracting information from existing data sets in order to determine patterns and predict future outcomes and trends². Predictive analytics does not show what will happen in the future. It forecasts what might happen with an acceptable level of reliability and includes what-if scenarios and risk assessment².

In relation to the construction site, teams will now be able to get insights all the way down to the individual team member level. They will be able to identify the high-performing individuals on every team. They will also be able

to better understand how successful partnerships on the job actually are. This means a GC can infer which subcontractors they work best with or an owner can better evaluate which GCs deliver their projects on time. And when they don't deliver, there will be opportunity to better understand why.

"The next generation of construction tech lines up exactly with what PlanGrid is doing. Predictive insight and analytics will let teams flag incidents before they happen. But guess what? If you don't own your data, you're never going to benefit from it. With PlanGrid, you are going to be able to plug it in and play right away."

– Josh Progar, Customer Advocate at PlanGrid.

Since the majority of construction work is repeat business, teams should be looking for ways to better analyze their projects to determine what was—or was not—successful.



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– Josh Progar

Conclusions

Ultimately, everyone should be given the right opportunity and a platform own their data on a construction project. Legacy tools may get the job done, but they don't offer the proper structure to confidently and easily implement modern standards of data ownership and portability. Furthermore, with the industry trending towards tools like predictive analytics, not having control over the data will prevent teams from making more educated decisions on future projects.

With tools like PlanGrid, project data can be future-proofed by empowering everyone on the project to go home with their data in tow. Teams can seamlessly move information through each phase of the project and turn over a complete package to the owner, without the data loss they once struggled with. This keeps teams on the cutting edge, so when the next step in construction technology comes around, they're already ready to go.

References

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Vangie Beal



See a Live Demo

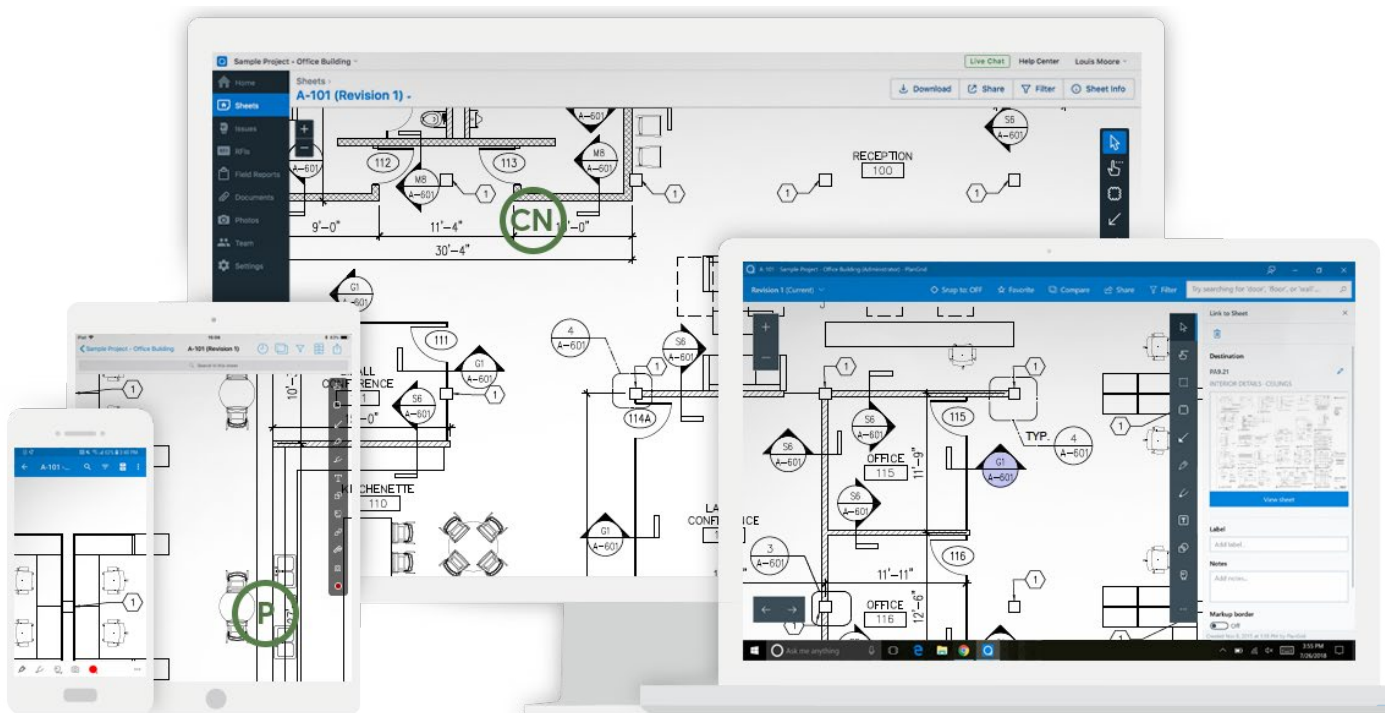
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PlanGrid's Construction Productivity Software is the easiest and most cost-effective way to get substantial return on your investment in construction mobile apps. By using PlanGrid you will:

- **Complete projects faster:** 90% of project costs occur in the field and not in the office. This includes wasted time and project delays. With PlanGrid, you can reduce wasteful trips to the trailer and time delays, while eliminating costly rework. PlanGrid also allows for faster collaboration and communication.
- **Reduce costs:** PlanGrid allows you to optimize productivity in the field, which eliminates time waste that causes project overruns. By completing projects early or on time with PlanGrid, contractors will benefit from reduced costs.
- **Win more bids:** The best way to bid more competitively is not just to track costs so you can provide more accurate estimates — it's to improve your overall productivity. PlanGrid's Construction Productivity Software will allow you to increase productivity so you can reduce costs and win more bids.



PlanGrid is construction productivity software used on more than 1 million projects across 90 countries. Our software helps teams collaborate more efficiently with access to an intelligent record set on any device.





Used on more than 1,000,000 projects around the world, PlanGrid is the first construction productivity software that allows contractors and owners in commercial, heavy civil, and other industries to collaborate, collect, and share project information from any desktop or mobile device through the entire project lifecycle.

PlanGrid increases project efficiency by streamlining document management, providing construction teams with easy access to all project information from any device, and enabling seamless collaboration within teams.

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