

## Beyond Onsite Planning

A key constraint on the effectiveness of a system is the supply of information and material from outside the system. In project terms, this includes people and enterprises supplying information, intellectual property, and physical materials and equipment. These people and enterprises are considered second-party performers because their primary points of contact for coordination purposes have responsibilities to several customers and are not regularly interacting with the primary project team.



Frequently, the time required for second-party performers is taken as a constraint to project workflow, resulting in detours to the way the project should ideally progress. This constraint impacts design flow, such as when the long lead time for a particular type of mechanical equipment requires heating and cooling system design to take place in a less than optimum sequence. It impacts construction workflow, with onsite activities planned to accommodate a distant, and often variable, delivery date.

As project teams become more adept at planning workflow, through the implementation of strategies that base planning on identifying loosely coupled workstreams, the impact of second-party performer constraints becomes more pronounced. Rather than treat procurement and delivery dates as fixed constraints it is beneficial to collaborate with second-party performers for mutually beneficial experiences and outcomes.

It's helpful to categorize second-party performers.

1. Intellectual Property Providers. In building design these include technical consultants such as soils engineers or building code experts providing specialized design recommendations, and in-house architectural specifications preparers. In building construction these include all the trade contractors and material suppliers required to provide production and process submittals prior to beginning field work.
2. Bulk Material Providers. These produce materials that are normally readily available and have short lead times. In building construction these include items such as concrete, drywall, walls studs, and electrical conduit.

3. Custom Material Providers. These produce items that normally have longer and sometimes very long lead times. In building construction these include curtainwall systems, electrical switchgear, ductwork, large air handling equipment, and millwork. Some of these materials may be provided by the first-party trade contractors on the project team yet have production cycles managed independent of the project team.

The procurement and flow strategy for each category of second-party performer varies.

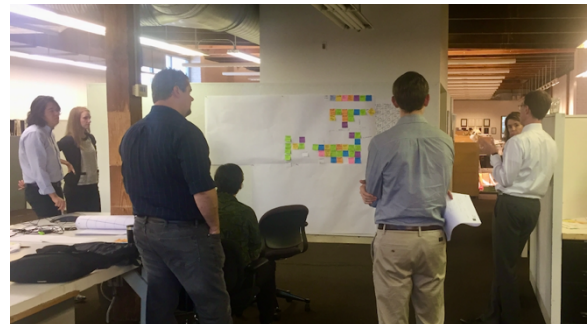
### Intellectual Property Provider Strategy

The most significant factor contributing to the length of time required for knowledge work is not the work itself, rather it is the frequency and durations of interruptions to that work. Many knowledge workers are juggling multiple projects, each requiring check-ins and updates that are additional demands on time, and additional cognitive load for the performer.

A part of procurement conversations with second-party performers ideally focuses on the process the performer will use to develop and provide the intellectual property. This process conversation is important whether the performer is an external enterprise or a specialist internal to a primary project stakeholder enterprise with limited engagement on any one project. As an example, a specifications writer for an

architectural firm may be supporting a dozen or more projects.

Working with the second-party performer, plot their process for performing the work. This plot is based on the typical experience of the performer, or at least their best estimate of the workflow. Then collaboratively design the ideal process, which will be as close as possible to the performer providing the intellectual property in one session of work.



That one-session ideal is often not possible, because the performer needs information from others and/or the uninterrupted duration of the work is longer than a day. Pull the process to understand and be deliberate about the gaps in the work. Work together to find ways to shorten the gaps. Eliminate requirements for the performer to be in meetings and keep progress check-ins brief and to a reasonable frequency.

The one variable that is not in that process is interruptions from other projects. Agree on ways to construct barriers to those interruptions. One method requires that the work be

performed at a project location, so the performer is not as available to outside demands. This may appear to impinge on the other project responsibilities, however because you are reducing the performer's cognitive load you are improving their ability to support those projects when they are not working on yours.

### **Bulk Material Provider Strategy**

As bulk materials are normally readily available, aside from ensuring availability when needed the procurement strategy focuses on material flow to the project site. Large stocks of materials on a project site, even when the site has plenty of material laydown space, create the unnecessary complexity of managing and maintaining stored materials. Aside from the normally hidden cost of this additional work, project owners often pay for materials stored onsite, compounding the negative financial impact of early material deliveries.

The bulk material procurement conversation has three elements that inform the strategy for how materials are delivered to the point of installation.

1. Coordinating timing the shipping of materials with onsite installation dates.
2. Shipment batch size.
3. Onsite material flow.

For readily available materials the coordination with onsite installation is

less an issue that shipment batch size and onsite material flow. Often materials are shipped in large batches as a cost saving measure. These savings are illusionary due to the previously mentioned cost of extra onsite material handling. They are also imaginary for the bulk material provider, as the reliance on large batches to reduce shipping costs incurs a need to dedicate space at their production facility for finished goods inventory.

Along with the project trade contractors, begin to work with second party suppliers before construction begins to deliver materials in small batches. Daily batches are ideal, with a buffer that allows for material availability on days crews exceed production targets. If a daily pace is logistically difficult to manage then developing a twice-weekly cadence is the next approach to test, with a goal of achieving daily deliveries later in the project.



Small batch material delivery across multiple trades creates the need to manage delivery times and material flow through the site. Your planning needs to address the following concerns at the beginning of the project.

- Providing zones for quick unloading of trucks independent from the zones for shipments requiring more time to unload.
- The ability to move and drop materials at or close to the point of installation immediately after unloading.
- Horizontal and vertical pathways and modes for material handling.
- Including material delivery and onsite handling tasks in constraint management and weekly coordination planning.
- Onsite storage, which is especially challenging if the materials need to be stored inside.
- Rented storage space, such as a warehouse, near the project site. This entails additional costs for both the rented space and the handling costs for transporting items from the storage space to the jobsite.
- Storage at the provider's manufacturing location, which is a cost to the provider, who must pay for the space and incur the risk of damage while at their facility.

### Custom Material Provider Strategy

Custom material providers produce custom and semi-custom components such as millwork, curtainwall, air handlers, process equipment, switchgear, and carpet. Because these materials are produced for specific projects, production of these materials is not scheduled by the provider until there is a firm commitment, and sometimes a deposit, from a project stakeholder.

A major concern for custom material providers is the ability to coordinate production in their facilities with actual onsite demand across multiple construction customers. Their experience is that construction schedules often slip, and demand can be widely variable. This creates a need for one of three types of buffers for the materials produced ahead of when needed, keeping in mind that custom materials usually require significant physical space and often protection from weather elements.



Reportedly, as a hedge against these concerns there are providers who plan production in anticipation of delayed construction schedules, meaning they cannot deliver their product on time if the project progresses as planned. Regardless, by engaging these second-party providers in a conversation regarding your construction strategy you will in many cases be able to start a dialogue about aligning their production timeline with your project timeline. The time to start this conversation is before your formal procurement process

begins, ideally as design nears the end of the conceptual stage. There are no assurances that all providers will want this level of coordination, yet those open to the dialogue provide opportunities for mutual benefit.

At this early stage your goal is to provide a general timeline for your onsite delivery needs, and understanding of their production requirements, and a basis for negotiating a fair price for their products. Initially your onsite delivery window may be a few months wide. That's fine, as it at least provides a sense of when material production needs to begin. Anticipate narrowing your window, with the need to establish a delivery date shortly before the provider's production start date. Open and frequent communication with the provider is required, with the goal of minimizing the time and work required for management of the procurement process.

Realize that a healthy portion of the time involved in the pre-production process is related to the provider need to protect itself from their misconceptions regarding your construction schedule performance. Through an awareness of the provider's production requirements, you can act to mitigate risks to the provider and assure them you have done so.

Working early in the design stage you will be working with a custom material provider prior to developing a specification for what they are to provide. When you are selecting a second-party provider based on anticipated performance and not price, then you will need a basis for agreeing on the price you will pay for their work. Having this conversation early, along with independent cost information as a reference, is important for building a strong and collaborative relationship.

### **Extending Strategic Collaboration to Second Parties**

Just as projects benefit by engaging the full array of design consultants and trade contractor professionals in the planning process, projects can similarly benefit by extending planning collaboration to second-party project stakeholders, initially at a strategic level and then tactically as the work of the second party provider as about to begin. The goal of second-party collaboration is to improve the reliable coordination of workflow between all project participants.

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