



PROCESS MAPPING IN CONSTRUCTION:

Using process maps to improve efficiency,
consistency and performance



Textura is the leading provider of collaboration and productivity tools for the construction industry. Our solutions serve all construction industry professionals across the project lifecycle – from takeoff, estimating, design and pre-qualification to bid management, submittals, LEED® management and payment – on a single, integrated platform.

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INTRODUCTION

The Construction Executive ranks are dominated by former engineers and project managers who spent most of their careers building things. They are well acquainted with managing labor, subcontractors and suppliers. Many of them

“Each project combines concerns and information from professional and other project stakeholders, lifecycle project phases, and economic, environmental, and social contexts in unique ways that need to be integrated for its successful realization.”

-Stanford University

that often involve many individuals who are often unaware of the other steps that precede or follow his or her contribution. Sometimes the act of simply viewing a process from end to end will allow the participants to spot areas of risk, inconsistencies or simple redundancies. A process map may also reveal an obvious opportunity to use technology to automate or eliminate process steps.

advanced in their careers because of their ability to drive repeatable process and efficiency into constructing things that are different every time. From slump testing to RFIs to daily logs, building involves a lot of process. Behind the tower cranes and concrete pumps are other processes critical to erecting things, namely, the back office. Construction companies have historically not invested as much time or effort in optimizing process in project accounting and other back office functions.

One tool a contractor can use to create both consistency and efficiency is process mapping. Process mapping has the power to make tangible and viewable something that generally exists only in the minds of the participants. More importantly, it can provide a full picture of a series of repeated events

POTENTIAL ADVANTAGES OF ADOPTING PROCESS MAPPING IN PROCESS PROTOCOL

- 1 Provides a holistic project view
- 2 Recognizes interdependency of activities throughout entire project
- 3 Focuses on identification, definition and evaluation of client requirements
- 4 Enables coordination of participants and activities in projects
- 5 Identifies responsible parties
- 6 Encourages establishment of multifunctional teams
- 7 Encourages appropriate and timely communication and decision making

Source: Emirates Journal for Engineering Research

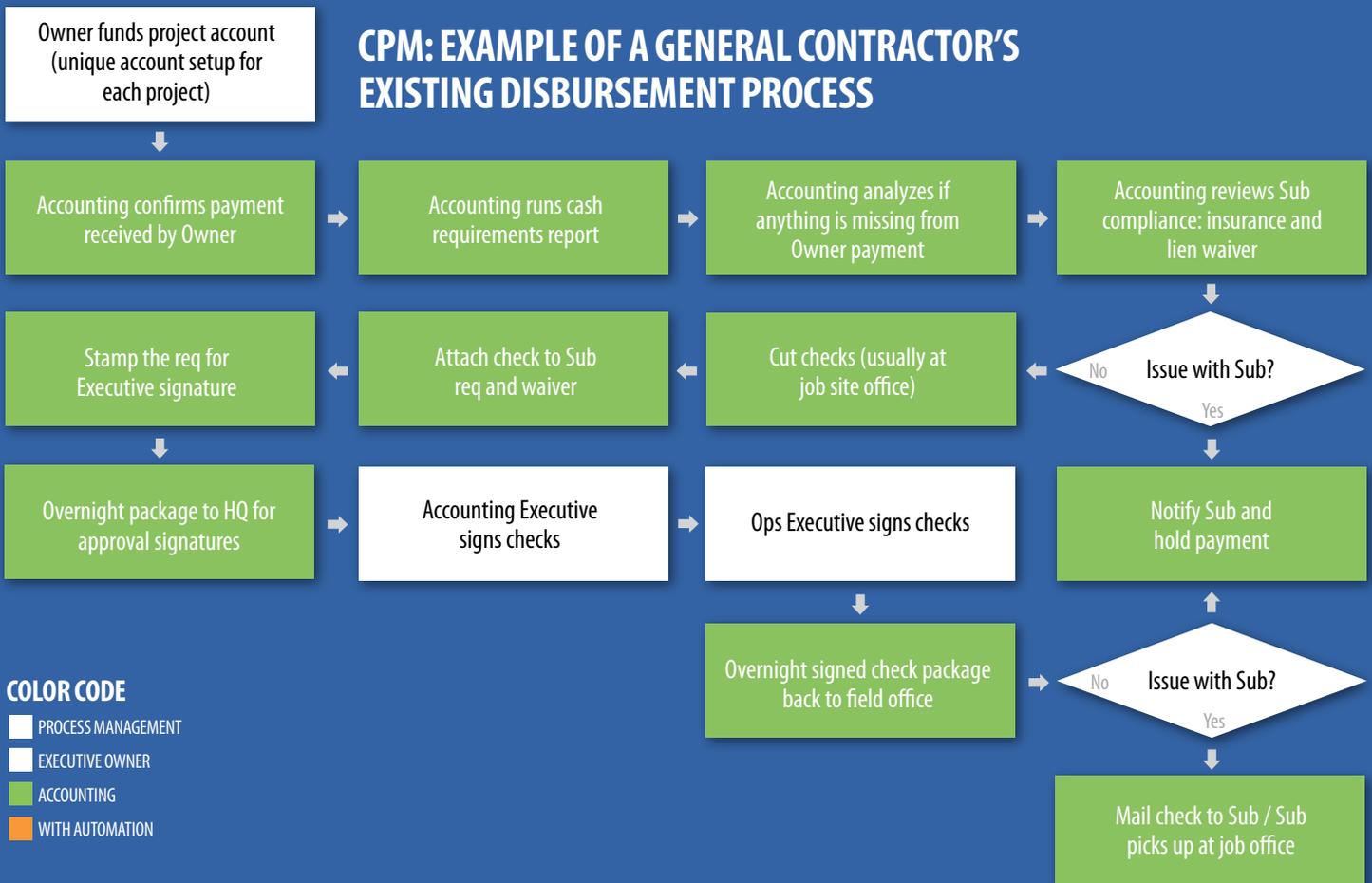
A PROCESS MAPPING SESSION AND DOCUMENT DRAFTING

There is no magic required to map a process. It generally works best when as many of the process participants as possible assemble in a room and a facilitator (either a process participant or not) leads the group from start to finish. This can take 15 minutes or several hours depending upon the complexity of the process. The discussion itself is often revelatory since team members often do not appreciate all of the steps that precede or follow their involvement. As the discussion proceeds, a white board or flip chart is the best way to capture steps since that allows the whole team to begin to visualize the process. Once the process is completed, one person should document the map that is created.

It is critical that the process map is circulated to the team members once it is created. The first draft is seldom the final product, since capturing steps is a difficult task.

Also, once the process participants see the map, they often think of other activities that were not initially considered. The revision process may take several iterations.

One important consideration is whether or not the team will record the time for each activity. This is often difficult in construction since "every project is a snowflake." A billion dollar stadium with 150 prime subcontractors and suppliers will generally involve more time consuming process steps than a \$3 million tilt-up warehouse. However, it is difficult to prioritize where to focus improvement efforts without this step. For example, it may be relatively easy to eliminate a five-minute activity that happens twice per project, but doing so provides little value. In contrast, a three-hour activity that occurs weekly on every project could reduce hundreds of manhours annually across a portfolio of work.

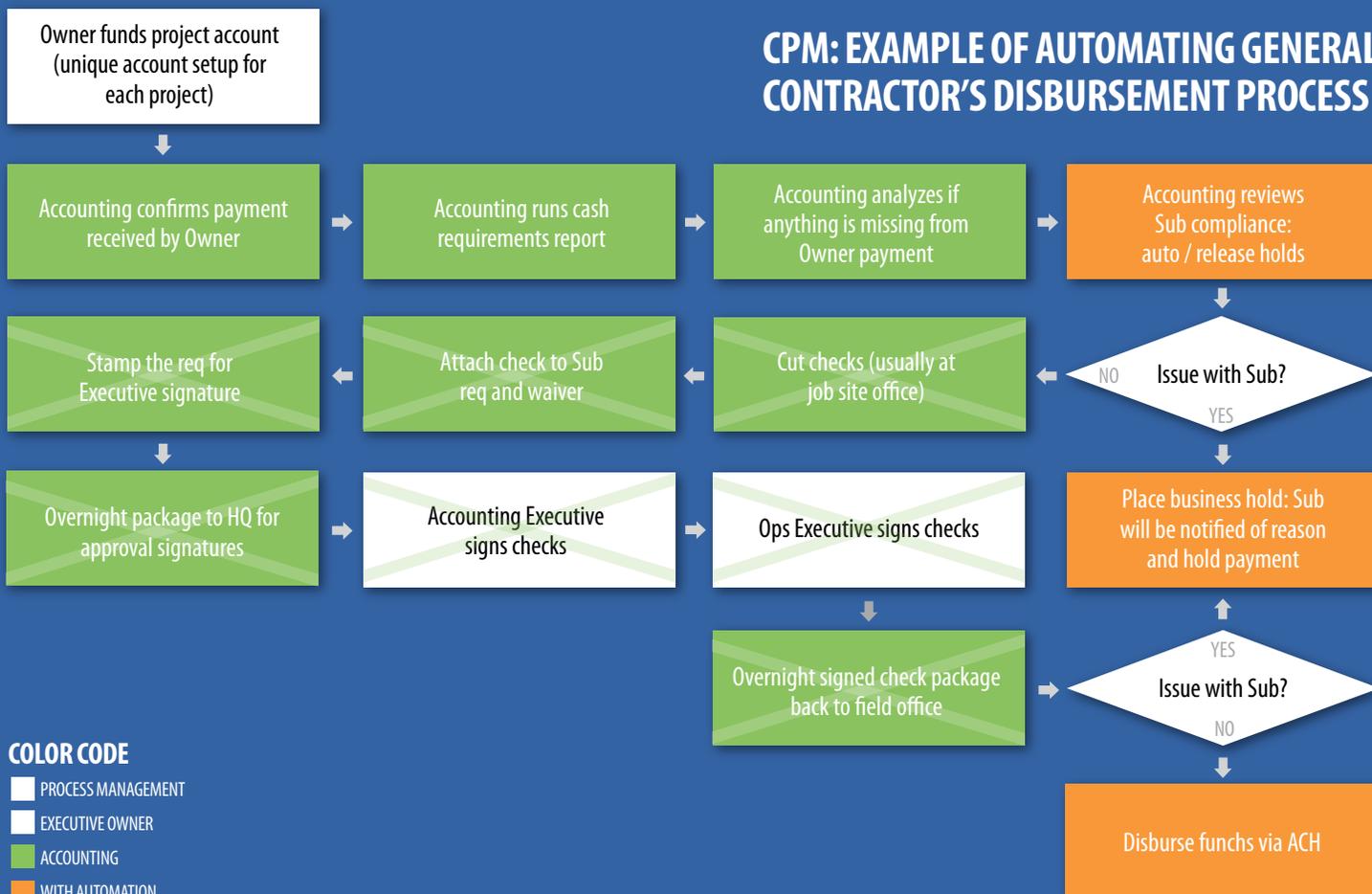


USING A PROCESS MAP

As mentioned, there is often value in simply creating the map so all participants can see how they fit into the flow. For example, an accounts payable clerk who realizes that a project manager has to create a work around while waiting for a payment approval may be able to easily reprioritize her activities to create the payable and eliminate steps for the PM. However, viewing the map often leads to a discussion of reengineering the process completely. Can technology such as scanning and e-mailing be leveraged to eliminate the need to maintain duplicate paper files? Does reordering activities have the potential to unlock efficiencies? Can tasks be delegated from project managers to clerks or from the field to a home office person with better access to technology? Is training all that is needed to speed up activities? Is there a technology tool that can help make participants more efficient?

The last question is often the most appealing to ask and most difficult to answer. The construction industry has generally been reluctant to adopt technology to improve process. The challenge is often both logistical (finding technology that can be effective in the often harsh conditions found on construction sites) and cultural (contractors sometimes think the claw hammer and duct tape are the only tools necessary to solve any problem). Further increasing the reluctance to adopt technology is the string of technology failures that contractors have experienced. Overpromised and underdelivered efficiency have led to IT fatigue and cynicism.

CPM: EXAMPLE OF AUTOMATING GENERAL CONTRACTOR'S DISBURSEMENT PROCESS



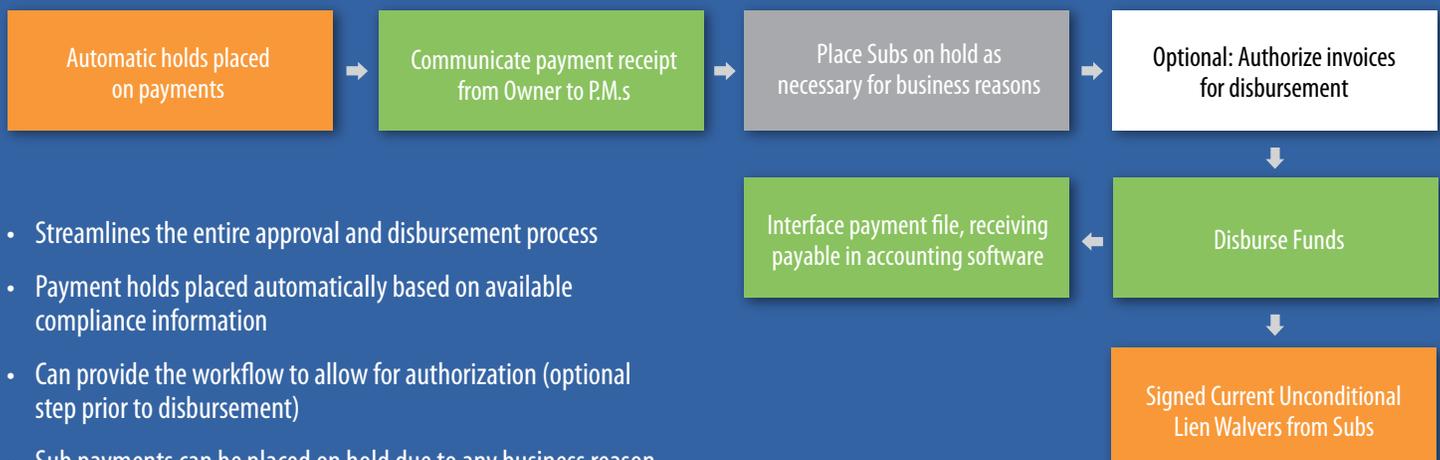
PUTTING IT ALL TOGETHER

Once the process map is completed and the decisions have been made about which areas to address, the exercise turns into a more traditional project management task. After project completion, a final map should be developed. Then the team, process owner or an executive sponsor may recommend or just implement process changes. Changes such as eliminating a step that long ago became unnecessary tend to be quick and easy to implement. In the case of overlaying a large technology solution or replacing an old technology with a new one, a return on investment analysis and business case may be a natural next step.

“Providing systems that grease the wheels of collaboration can be extremely empowering. You can often get things done a lot more quickly if you can tap into someone else’s knowledge, insights or skills.”

-Freeform Dynamics

CPM: DISBURSEMENT PROCESS WITH USE OF PROCESS MAPPING AND AUTOMATION



- Streamlines the entire approval and disbursement process
- Payment holds placed automatically based on available compliance information
- Can provide the workflow to allow for authorization (optional step prior to disbursement)
- Sub payments can be placed on hold due to any business reason
- Disbursement via ACH eliminates the need to print, sign, overnight, and distribute checks
- Signed current unconditional lien waivers for on-system subcontractors available 72 hours after payment is made via automated system

COLOR CODE

- PROCESS MANAGEMENT
- EXECUTIVE OWNER
- ACCOUNTING
- WITH AUTOMATION

A NOTE ON TECHNOLOGY

Technology can often be applied to solving back office inefficiencies. Sometimes an ERP system configuration can be modified to reduce waste and risk. Other processes might require the implementation of a new project management,

“A business isn’t systematized until every process is documented and everyone understands how to carry out each process.”

-For Construction Pros

payment or other system. While the process of selecting technology can be overwhelming and time consuming, the benefits may be great. Emerging Software-as-a-Service (SaaS) business models can make technology implementation cheaper, faster and easier than traditional installed software in many cases. The SaaS model when coupled with a service-intensive approach from the technology company can help avoid some implementation pitfalls. Finally,

buying a highly configurable system on a subscription model can create the flexibility, lower upfront investment and scalability that most contractors and designers require today when compared with building custom software or buying off the shelf installed software.

Whatever decision contractors make about how to improve processes, the process mapping session can often act as an eye opener to issues that they may not even know exist. Then, executives can make informed decisions about whether and how to remediate or live with the risk knowing it exists.

MANAGERIAL BENEFIT OF PROCESS MAPPING IN CONSTRUCTION

- 1 Identify activities, decisions, queues and required resources
- 2 Clarify process sequence and logic
- 3 Seek opportunities for improvement

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SOURCES

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