

CONSTRUCTION SCRUM

How to Deliver Projects **Easier,**
Better, and **Faster**

Felipe Engineer-Manriquez

Foreword: Dr. Jeff Sutherland





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The stories included in this book are a work of fiction. The characters, names, incidents, organizations, and dialogue in Part I of this book are either the products of the author's imagination or are used fictitiously.

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DEDICATION

This book is dedicated to my favorite product owner, partner, and best friend, Ali. Her ever-present backlog has guided our family to achieve well beyond our sprint goals. Equally, I am forever changed by the best developer I know, my son Noah. He helped me recognize the value of being present, planning for tomorrow, and enjoying limitless learning and play.

Dr. Jeff Sutherland and the entire Scrum Inc. team know how sincerely grateful I am for their contributions and partnerships over the years. Without Jeff and Ken and their commitment to inspecting and adapting Scrum, I wouldn't be thriving in the construction industry since 2014.

I sincerely appreciate the whole construction industry. Mentors, coaches, and friends have supported and trusted me while experimenting with Lean Construction and Scrum projects worldwide. Equally important are the skeptics that have provided priceless feedback and constructive doubt to help me refine and improve my approach, methods, and engagement with people building our world on design and construction projects everywhere.

My vision for this book is to bust the myths and assumptions around Scrum and simplify your life as a construction project manager, superintendent, field engineer, executive, or a business owner. This book is dedicated to all of you who take action and make project delivery easier and better for construction today.

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FOREWORD

When Felipe first approached me in 2016 to learn more about Scrum and to earn the ScrumMaster® certification, I was thrilled, as he was the first construction professional eager to explore how he could increase his capacity and overall productivity using the Scrum framework.

As the co-creator of Scrum and CEO of Scrum Inc., I continue to share best Scrum practices with organizations around the globe. I have witnessed how the framework has evolved over the years to meet the needs of many businesses in many industries. I have written extensively on Scrum rules and methods. Today, I am honoured to contribute the foreword to this book, which is the first of its kind for the construction industry.

The methodology I developed in 1993 and formalized in 1995 with Ken Schwaber has been adopted by the vast majority of software development companies around the world. And Ken and I soon realized that the benefits of Scrum are not limited to software and product development. Scrum proved especially effective in iterative and incremental knowledge transfer.

Many industries which involve complex work processes, such as education, manufacturing, research, science, finance, design and construction have since embraced and implemented Scrum in their organizations. It is widely used for products, services, and management tasks.

To help teams implement Scrum, we have developed the Scrum patterns. Scrum patterns are powerful tools to transform any organization and the output that team members will generate. There are over 200 patterns to choose from. They are the rules of the game outlined in the Scrum guide. Many teams in construction want to reap the benefits of Scrum but don't know how to play the game. Wanting it and embracing to implement it

are two very different stories. People need to be willing to give up and let go of what they used to do. They need to embrace change. This game requires a set of skills and values including courage, trust, respect, transparency, and emotional intelligence.

Scrum patterns have been successful in a variety of organizations across different industries, which typically process significant amounts of data. We wanted to provide people with a blueprint that they can pick up to solve a specific problem over and over again.

Today, we mainly focus on the patterns that increase team performance. Two very powerful patterns to create impactful goals and to increase capacity are Pattern 71 (The Sprint Goal) and Pattern 80 (Good Housekeeping), which are both described in detail in Part II of this book. Regardless if you are new to Scrum or have been using the framework for years, these patterns are useful to review on a regular basis.

With Felipe's partnership in Scrum Inc, a new Scrum team focusing on Scrum in construction was formed to serve the millions of men and women working to build our world. His generous contributions to this team and the growing community of Scrum practitioners continue to have an outstanding impact on transforming people's work and lives.

This book aims at helping people across the construction industry to start using Scrum without asking permission. The stories bring to life how team leaders and frontline workers can begin to become more productive at work and achieve better project outcomes for themselves and others.

It's a book that encourages construction teams to take action and make project delivery easier and better for the industry today and in the future. The book focuses on empirical process control theory, which means that we learn by doing things hands-on with all our senses involved. Our actions and work are visible. The team is self-organized, self-motivated, and self-disciplined. In other words, Scrum is an iterative experimentation framework cycle which focuses on learning by doing. As a by-product, people reclaim their power, their freedom, and the joy of accomplishing great things. They simply have more fun doing what they do while getting done twice as much in half the time. And who wouldn't want this?

With this book, Felipe is showing the way for construction in the future. His vision to bust the myths and assumptions around Scrum and to simplify the life of construction project managers, superintendents, field engineers, and craft professionals, is unfolding.

If you work in the construction industry and are ready to embrace change and the opportunities that come with it, I encourage you to read this book.

Jeff Sutherland

Founder and Chairman at Scrum Inc.

Inventor and Co-creator of Scrum

Co-authored the bestselling book

Scrum: The Art of Doing Twice the Work in Half the Time

Chapter 1

This is the way we have always done it.



I'm startled by the alarm clock going off at 4 am.

"What day is it?"

I grab my phone, squint in the dark at the bright screen, and see it's already Monday. The weekend passed in a flash, as usual when I was working at the job site. Saturday, I watched the middle school's steel frame come together on the main gymnasium, and Sunday I caught up on emails and subcontractor change order paperwork. There is no time to snooze today or the Los Angeles traffic will own me. My boss's voice is still ringing in my ears,

"Don't be late Jordan, you are leading the safety meeting Monday and you have to open the site, Mike is on vacation until Wednesday."

I jump into my clothes, skip breakfast, grab a Rockstar energy drink for the road, and leave the apartment in the same darkness I saw when I went to bed.

Traffic is light at 4:30 am. Surprisingly, I'm not the only early bird on the road. It's only 40ish miles from my place to the site on the interstate but then I'm on side streets for the last 20 minutes to the front gate. The project is a ten-acre site right in the middle of eastern Los Angeles county. It's just a bit smaller than ten adjacent football fields in a two-wide by five-long pattern extending about two city blocks.

Samantha's truck isn't in the lot yet but maybe she's bringing us donuts today since it is going to be a long day of meetings. She's a solid project manager and a third or fourth generation builder. Her dad was in the army. He was a carpentry and masonry specialist which means Samantha didn't fall far from the tree with her all-around builder know-how. She spent her high school and college years helping him with his residential

framing construction company working outside all around southeastern California from Lake Havasu to Palm Springs. She could have been a superintendent but instead got her construction management degree and worked her way up the project management ladder at Solid Builders Inc over the last ten years.

The construction world is small, seems like everyone knows everyone or is at worst, second cousins. Samantha's dad is the reason I got this job. His company built an addition on my uncle's house when I was about to graduate as a construction manager from California State University Fresno and was striking out at career fairs. Jacob put me in touch with his daughter and we immediately connected over being only children and first-time college graduates coincidentally from the same school. Mike, our superintendent, is about a decade older than Smanatha's dad and came up through the carpenter's union working mostly in Los Angeles for a large multi-state commercial interior framing subcontractor. I don't think Mike knows Samantha's dad did carpentry in the army, he is shockingly introverted for being a superintendent, but he gets along with the field foremen well. He is well known in the area for being a part of some high-profile jobs such as the LA Rams Stadium. Our \$50 million dollar school project is like the size of a small change order for Mike. After COVID-19, Mike decided to postpone retirement and end his career building smaller projects where he could mentor the next generation of builders.

Eventually, I get the gate opened.

"Good morning and buenos dias!" I greet the incoming crews

At 6:45 am, I start the safety talk with about 100 tradespeople. I share the dangers of working in confined spaces following the scheduled company safety bulletins.

Samantha doesn't disappoint and has donuts waiting for us in the conference room to munch on during our staff meeting. Caroline, our administrative assistant, gives us an unsolicited lecture about how all the sugar we eat is going to make our blood acidic and lead to premature aging. Eddie, our project coordinator, looks up from his laptop and slides another donut between his keyboard and cold brew coffee.

"Where is Victor?" I ask Samantha.

"He's watching the cement trucks like a hawk to make sure they clean off onsite before flying back on the road. We got a citation from the city for mud on the streets from the last pour."

I wonder why we are still placing concrete when the schedule said it should have been 100% done a month ago. Victor is second in command to Mike, as the assistant superintendent, he is focused on pushing schedule and keeping safety a daily priority.

We go through two hours of staff meeting minutes filled with discussing the open issues log, outstanding submittals, requests for information, and change orders. Victor makes it in time for the closing schedule review.

"We are almost on schedule since the steel crew started working overtime two weeks ago."

Samantha asks Eddie to email our scheduler, to get an updated eight-week look ahead schedule and forecast to project completion.

"We will need to submit a recovery schedule next month or it could delay our progress billing," Jessica, the project owner's representative, warns us.

While the others go to review the steel subcontract and prepare a

draft letter to notify them of a potential delay, Samantha asks me to stay back.

“Brett stopped by on Saturday and told me how this job was bought with razor-thin margins taken only to keep his key guys working until some bigger jobs let loose in the city,” I tell her what I had learned from Brett.

“Brett’s a big boy and knows that our subcontract includes liquidated damages if this school doesn’t open on time next fall. It’s not personal Jordan, it’s construction. Make sure Eddie gets the schedule update before the owner’s meeting this afternoon. I don’t need Jessica to remind me how lucky we are that the school pays on time each month despite being late on the last steel milestone. Mike picked the perfect time to be on vacation, we have been working twelve plus hours a day for months, most crews are working ten-hour shifts, and we haven’t made up a single day.”

Eddie strikes out with getting the schedule update in time and Jessica comes to the meeting with a detailed analysis of our last month’s schedule update.

“I spoke to Brett last week and Solid Oak squeezed him during buyout so he can’t staff this job with enough welders to keep up with the delivery schedule. We need more manpower. Our progress payment will be on hold until manpower and work progress meets the approved schedule dates,” Jessica conveys the bad news.”

When I ask Samantha about Jessica’s response to our schedule after the meeting, she replies:

“When projects get behind, we have to push and add more people, ‘this is the way we have always done it.’”

"Why did Mike allow the framing subcontractor to deliver the exterior studs early which caused the site logistics plan to change?"

I know that Brett got pretty heated about that with Mike because it forced him to use a bigger crane since he lost access to a third of two adjacent buildings he had planned to erect with smaller equipment.

"We have to support each other. I pushed Mike to accept the material to avoid escalation costs, and Brett owns 'means and methods' to install his work."

I remind Samantha that the contract schedule and initial site logistics plan didn't include losing so much area for stored materials.

"It's better to have long lead items onsite than be waiting for them to show up when you need them most," Samantha replies.

Her phone rings, it's our project scheduler, and her face says the day just got worse.

Back in my office, I check my calendar and see it is five minutes until my quarterly project engineer training starts. We used to have to drive in for a whole day and do these in person a few times a year before COVID. Now we have more sessions but only for an hour or two per quarter. Most of the time I practice my multitasking skills and listen in while catching up on email. I click the invite and I'm in. Pedro and Mia, project engineer training champions, are leading this session and the opening slide looks like a photo of a bunch of handwritten sticky notes on a whiteboard. They have my attention and I snap a screenshot of it for proof to Eddie how we can use PowerPoint to document our project progress.

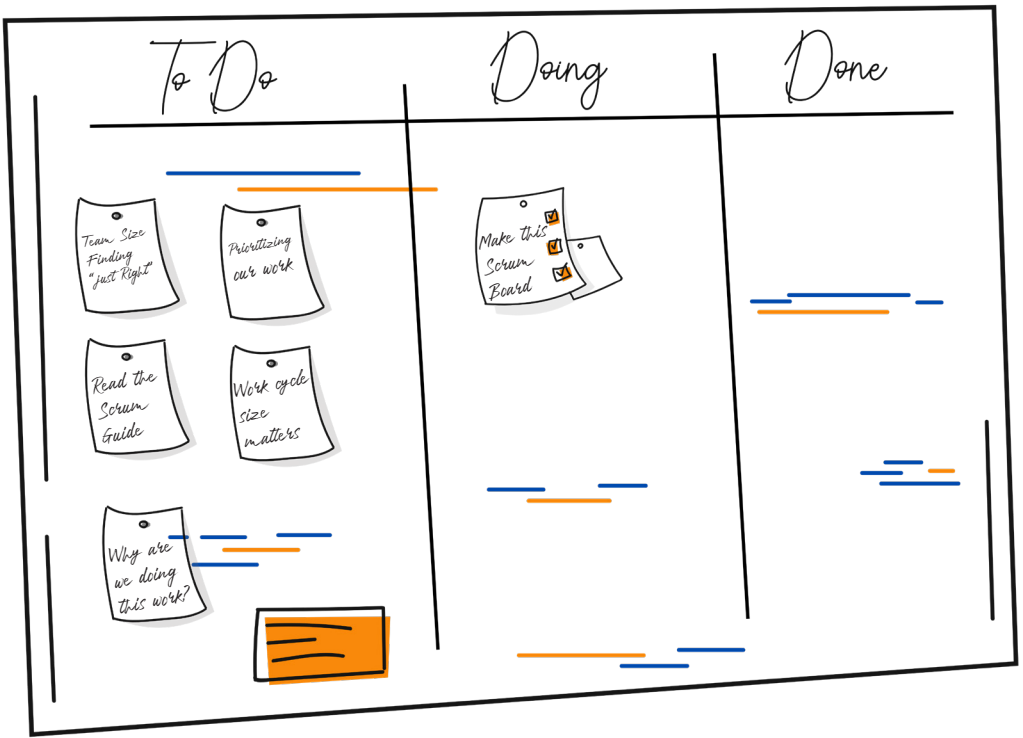


Figure 1.1

Two hours fly by before Samantha is at my door with the last donut. I'm excited to get it and share what I learned. Samantha always encourages the team to keep learning about how to be better builders, and this training was all about building teams that build faster every week they work with less effort.

"Everything that Mia and Pedro shared is free and there are many more free online resources available," I told her with excitement. "Pedro mentioned that they learned about this at last year's Lean Construction Institute virtual conference where they met dozens of architects, engineers, managers, and Lean practitioners getting Scrum certifications. I also heard that Solid Oak is looking into getting some people certified."

Eddie hears me getting excited about PowerPoint and comes over to join the conversation. I explain that they split the 25 of us into random teams of five, gave us a few instructions, a link to an online video and PDF to read and we had to make the opening slide using digital sticky notes on our digital collaboration whiteboards.

I am about to show them my notes when I remember Samantha's face when she walked over.

"How was your call about our schedule?"

"Well, the information Mike put in the schedule update shows we are about six weeks behind and we'll need to increase crew sizes for the mechanical, electrical, plumbing, and finish trades next quarter during the final summer building rush when the union halls are the most empty. Solid Oak's executives got the schedule naughty list and we are at the top. I think that we are getting a visit this week from Solid Oak's leadership team."

"Guys, listen, this training I watched today included case studies of construction projects finishing ahead of schedule without adding extra people using this system they call Scrum," I explain.

"How is rugby going to help?" Eddie is bright and direct as usual.

"Let's grab lunch in the conference room and hear Jordan out," Sam suggests.

We eat and I start talking about what I have learned.

"Mia and Pedro said that they even used Scrum to prepare for the training and lead the session. They both started using it personally on their medical office building project for months, and people kept asking

them about their sticky notes so much they decided to share it at the next training session. Their project manager hadn't adopted it but also wasn't discouraging them."

Samantha shoots me a look. Caroline joins us as I finish sketching this



<i>To Do</i>	<i>Doing</i>	<i>Done</i>

Scrum board on the conference room whiteboard.

"Scrum, that's a software management thing. My kids use that at the video-sharing social network company up in San Francisco. I see their Scrum boards in their home offices when we video chat on the weekends with lots of colored sticky notes."

Caroline doesn't ever disappoint with her pop culture trivia knowledge

base.

"Pedro and Mia showed us a few pictures of Scrum boards from the conference training and the common theme was that they all had at least three columns labeled like the one I just drew," I keep talking.

"My kids explained that the sticky notes represent items of work and that people actually move them around as they change state, one by one." Caroline adds her two cents to the conversation.

"Mia said it is super easy to get started. People really work on tasks one thing at a time and that she learned multitasking actually makes you slower," I explain "Can you make stickies in digital formats, or does it have to be paper and marker?" Eddie wants to know.

"That got asked in the training, and Pedro said the better practice is to start simple before digitizing so you learn the process first and then adapt in software tools if you aren't co-located."

Victor returns with today's lunch truck special, tacos, and an energy drink in his hands "Don't stop because I'm here." Victor isn't shy about being curious, and I keep going.

"They used Scrum to teach us about prioritization, work cycles, goals, and team size. Pedro and Mia showed us how they took their project's issues list and wrote it out as sticky notes on their Scrum board."

"Well, that's not lean, that is wasted effort. Even I know you can move cells around on spreadsheets," Victor replies.

"Pedro explained that the spreadsheet is always shared onscreen or printed out so it seemed like only the owner of the sheet could move stuff. In minutes of putting the same things on a Scrum board, their

superintendent and project manager debated and then agreed on what needed to be done first, second, third, and last. They showed us before and after pictures, some items even got taken off the list. The superintendent decided the fieldwork priorities, and their manager decided the office ones but then they had to negotiate on interconnected tasks. This is the “Backlog” list, and the person who has the ultimate responsibility for what the team delivers to the client is the owner of the list and has the final say on the order. In Scrum, they call this person the Product Owner.”

“That’s you, Samantha, you own the responsibility for this project contrary to what Mike tells us out there. I know who signs off on his performance evaluation,” Victor interrupts me.

“Correction, we together own this project’s success, Victor, but I know what you mean. My neck is on the line for every profit projection. Jerry and Larry are crystal clear on that.” Samantha replies.

She also bought the job out and negotiated all the contracts. She let me help her coordinate the scopes before we mobilized onsite last year.

“The next thing we learned is that size matters,” I keep sharing my newly acquired wisdom.

Eddie nearly spits out his Cuban sandwich, and I actually blush while I say, “Work cycles, work cycle size matters. Mia showed us how. She and Pedro plan their submittals, coordination, and engineering work in weekly cycles. They said this allows for consistent feedback and they can gauge how much is planned and done in a week’s time frame. They also said this is called a Sprint but you don’t have to run ragged to be fast. They actually shared how they tracked their progress and started getting so much done that they could spend more time in the field learning from the foremen how the building actually comes together while still getting

their trade management work completed each day.”

“That’s great for engineers but how does watching others work help their project?”

Victor is paying attention as usual and reminds me of the next point.

“Pedro said that our projects are all about what we build for the eventual customers or building users, medical patients for this job, and students for ours. The goal of a completed building can be broken down into smaller goals that when achieved make progress towards the larger end goal.”

“Sounds a little like schedule milestones,” Victor throws in.

“That’s pretty close but Mia said schedule milestones separate the end of one project phase from the start of another. Goals in Scrum give the team the answer to “why” this phase of work is important and informs the “what” we need to do to achieve it. Each week they come up with a Sprint Goal that helps them decide what must be done and helps them focus on delivering value that makes building progress.”

Samantha looks at Victor: “A goal Mike left us before leaving on vacation was to get from 98% done with concrete operations to 100% before he comes back.”

Victor points out the conference room window to the piles and piles of exterior metal studs: “If that was true, we shouldn’t have accepted all the exterior metal studs onsite four months early. It choked the steel installation and made the concrete crews have to run pump trucks and lines halfway across the site instead of by adjacent placement with chutes.”

"My kids put their Scrum goal right on the whiteboard so they all see it," Caroline adds.

I share the picture of Pedro and Mia's Scrum board for the class with the goal to 'Understand what Scrum is and how to use it.'

Eddie turns to Samantha: "Wasn't the early stud delivery done to head off the rising metal costs that the framer excluded from his contract?"

"Exactly," Samanta replies, "We didn't include escalation or we risked not winning the bid, and since the site was wide open, it seemed like the right call at the time. We talked about it at the staff meeting for weeks."

Victor shoots back at Samantha: "Mike and I were jumping all over the site splitting time between steel and concrete, we didn't get a vote on the studs."

That reminds me of the second to last part of the training: teams.

"Mia said one of the keys to good Scrum is that work is done in small teams, groups of three to nine, typically. The team has to have all the necessary skills to do the work needed to achieve the Sprint Goal. Titles don't matter as much as skills and cross-functional teams decide how much work they can do in a given work cycle."

"Scrum is definitely not the way we have always done it in construction," Samantha is smiling, and so is Victor.

"I agreed to start using Scrum at the end of the training. Here is my first Scrum board." I show them my tablet screen.

"Don't laugh, Eddie, yes it is a spreadsheet. Everyone made a Scrum


To Do	Doing	Done
<p>Set a goal for the week.</p> <p>Plan tomorrow's work.</p>	 <p>Read the Scrum Guide.</p>	<p>Attend the PE training webinar.</p> <p>Lead Monday safety huddle.</p>

Table 1.1

board during the breakout exercises. Some used whiteboards and sticky notes while others used software.”

“I’ll be the first to admit it won’t be in any case studies but I did get two things done today.” Eddie laughs. “Do meetings count? Because if they do, I got two more things done than you.”

I explain how each task has to deliver value for the customer or the next person receiving your work. Learning is part of becoming more cross-functional and Pedro said he and Mia counted training as value-

added. I share a bit more about the case studies before we have to clear the room for the foremen meeting.

"That sounds like some training Jordan, when does the field get their turn?" Victor wants to know.

"Sounds like we all just got it, we've been in here for two hours," Eddie laughs.

After the foremen meeting, Samantha and I regroup to call Brett about manpower in her office. Samantha shares with him what our goal is for this week and asks him what he thinks is possible. We talked for an hour and didn't even mention sending him a delay letter. After a pause, so long I thought the phone disconnected, Brett offers to pull some people from the boltup crew to the raising crews so that we'll get ahead of the beam deliveries and show Jessica progress outside her office window. Samantha sends me out to the field to let Victor know about our new agreement with Brett.

When I open the trailer door to come back in, I find Samantha talking with Caroline about Scrum and they both turn and smile at me.

"Are there donut crumbs on my face again?"

"No, but you got us stirred up about Scrum." Caroline admits, "And you have a stain on your collar but I wasn't going to say anything."

Samantha interrupts: "I called Pedro and Mia's manager. Since they started using Scrum, those two haven't missed a critical submittal or had a request for information get old enough on the weekly report to warrant discussion with the architect during the owner's meeting. Andrew doesn't give all the credit to Scrum, they are talented project engineers, but he says they are on top of their work and have respect from the field leader,

too. I was so shocked by the last phone call with Brett that I had to meet him in person to make sure it was real."

We talk about the schedule and agree that if we keep going without changing, Jessica is going to rightfully hold our progress payment.



The next morning, my alarm clock starts going off with musical chimes at 4 am as usual.

What is Mike going to do when he finds out that Brett's crews are no longer working overtime?

I grab my phone and see a text from Samantha, she must have been thinking the same thing. I rub my eyes to adjust to the bright screen of my mobile and read that she's bringing in Mike's favorite croissants this morning at 7 am.

It's already Wednesday, yesterday flew by as many days before. It was after 7 pm until we finally closed the trailer. Samantha, Eddie, and I went over the spreadsheet issues list and meeting calendar to convert the important stuff to sticky notes and delete the rest. We used the updated schedule report from Tony to craft three goals, one for each of the next three weeks based on the most critical fieldwork that gets steel and concrete done-done. I never understood why things can't just be 'done' but Samantha said to give it a few more years and I would know what 'done-done' means. We all talked and Eddie made us laugh as usual too. Samantha gave us context for what was stove-hot versus

backburner-cold. We prioritized and moved tags around on a corner of the conference room whiteboard into four columns. Stove-hot tags were at the top of the list and important, backburner-hot tags were at the bottom. We agreed to make the column of notes closest to the 'Doing' column fire-hot priority and columns towards the left less hot. Eddie was going to make the goals more fancy looking in PowerPoint and print

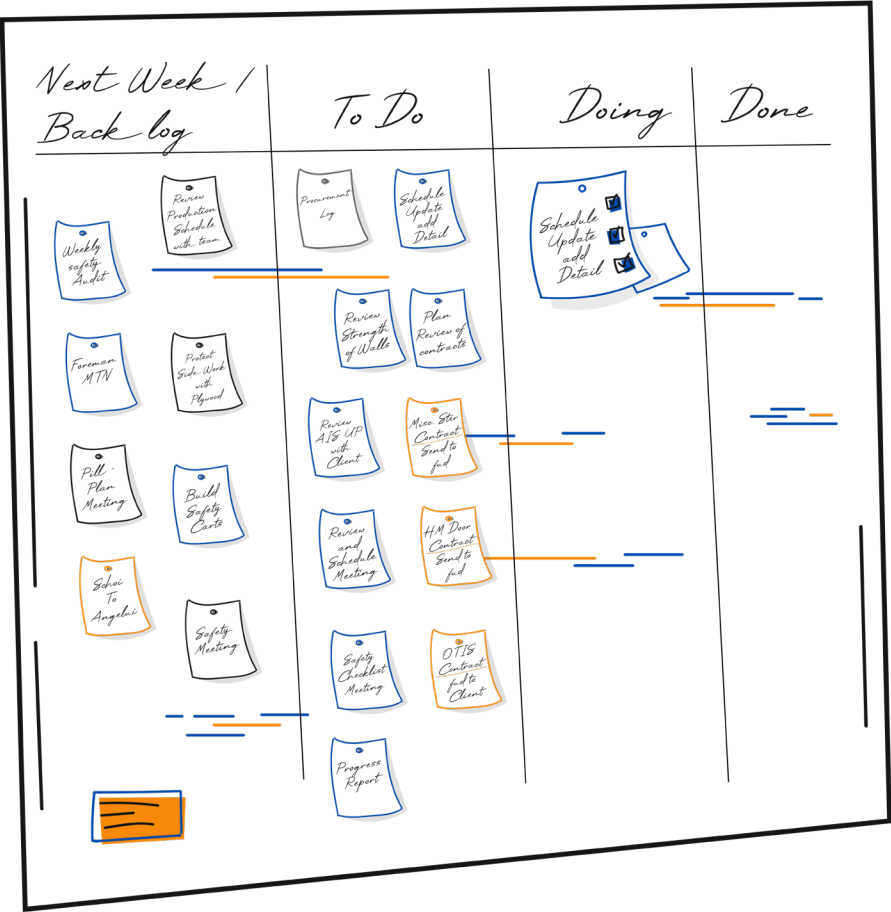


Figure 1.2

them out in the morning after the daily safety orientation meeting.

It wasn't perfect but the three of us now knew exactly why and what was going to happen and by whom. That was worth staying late, and Samantha did feed us pizza.

As I drive into the site this Wednesday morning, the middle school's steel frame is still invisible but the adjacent street lights are bright enough for me to see all the columns are up pointing into the sky. Everyone can tell this is going to be a gymnasium soon. I see Mike's office light shining onto the parking lot. He usually beats us all in being the first on-site, and today, his first day back from vacation is no exception. I quickly inhale the last of my energy drink and walk in.

"Jordan, I see there has been some sticky note wallpapering since I've been gone. How did Brett's crew do on Saturday?"

"Good morning to you, too, Mike," I reply. "They got the last two corners in before the first break and got all the roof trusses set before leaving at 3:30 pm."

"That does warrant a good morning, kid. I told you Brett just needed the right amount of pressure to motivate his crews."

I share with Mike all about the owner's meeting, schedule update delay, and Samantha's call with Brett. Before I can mention Scrum, his phone starts going off, and out of the trailer, he goes.

Eddie enters a few minutes later and asks if anyone has shown up for the safety orientation.

"You have three big customers today," he smiles and disappears around the corner to the conference room.

Samantha arrives just after Caroline gets settled in at the front desk. She is carrying a few pink boxes of buttery goodness that instantly raise my hopes and stir up some hunger pangs.

"Please give me a hand, Jordan, I've got a few more boxes in my truck."

Samantha explains her plan to share with Mike some of the changes we made while she delivers some extra boxes to Jessica and her staff for goodwill before we meet later this afternoon to discuss change orders and probably schedule. She tells me that 'hangry' people have 'no' saying superpowers and that this is a trick she learned from her dad.

The next few days are peacefully quiet compared to the nearly endless phone calls last week about schedule and manpower. Mike isn't convinced that sticky notes are going to produce the needed manpower and overtime to get the job done but he likes the ability to see his request for us making progress on the conference room whiteboard.

"Hey Samantha, I am not worried about the leadership's opinion about our project. As long as we are being proactive we have nothing to worry about. I had a meeting with our scheduler on Friday to go over a few recovery schedule scenarios so we can have something in Jessica's hands by Monday. Once the interiors start, we'll be able to go split shifts and easily make up the time later this year. I have done it a thousand times."

"The labor market isn't what it was in the past, and union business agents have been saying there's no one sitting at home on the bench waiting to be called into work even before COVID started," Victor reminds us "We'll see Victor, I have some favors to call in before I start believing that people aren't available for good work. At the stadium, people came out of retirement to work the night shift."

"This is a middle school, Mike. How many times have we been interviewed by the press about it?"



A couple of months later, I take Eddie on a field trip to see Pedro and Mia's job. They are hosting us to share more about what they've recently been learning about Scrum and mostly to give us a chance to ask questions and see examples.

We start with a tour of their medical office building project, which is stunningly clean.

Every time we see tradespeople, they wave to our hosts and smile.

"Wow, this is amazing! When I see the trades on our site, I get eye rolls and 'hey intern' comments," Eddie remarks.

Mia turns around: "Yeah, I remember those days. We've been with some of these crews for over a year and since we're out here so much, we pretty much know everyone by first name."

"We realized before using Scrum, it was a question of us versus them and now we acknowledge that we're all on the same team," Pedro explains.

Back in the trailer we see pull planning boards and Scrum boards in most offices. The conference room even has a Scrum board for constraint tracking.

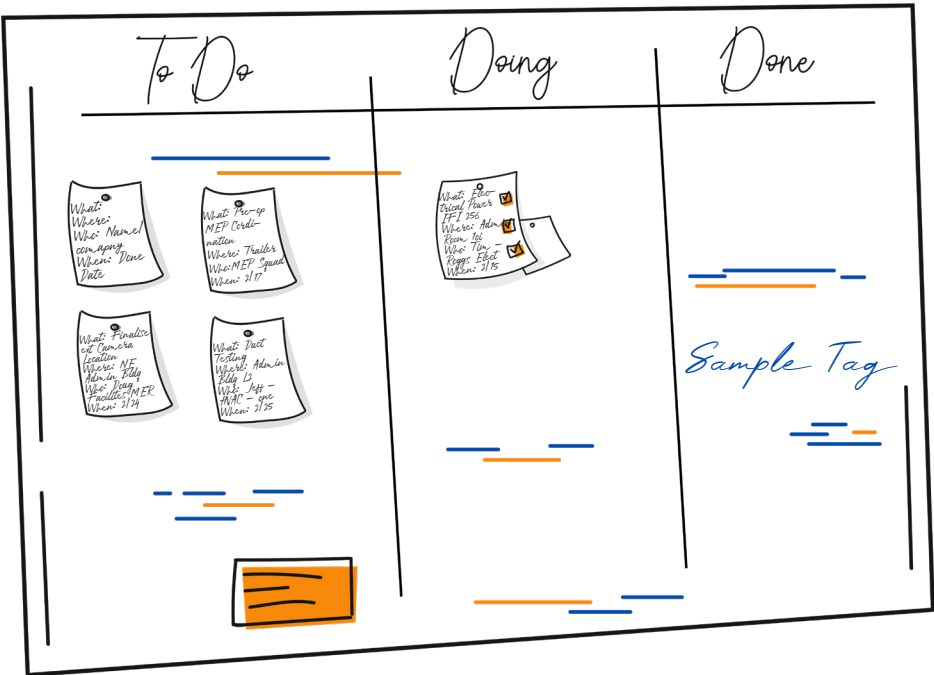


Figure 1.3

“Wow!” I blurt out loud, “You got the subs to use Scrum.”

Pedro laughs and explains that they call them trade partners, not subs. He tells us that he and Mia learned about the difference between the two words when listening to episodes of The EBFC Show podcast.

“That’s got to be a construction podcast because we love acronyms in construction.”

“That’s right Eddie,” Mia explains, “it features people working around the world making construction easier, better, and faster. We have lots of wheel time driving in LA to work, so Pedro and I listen to audiobooks and podcasts in the car and try what we learn on-site.”

“Do they have shows on Scrum?” I want to know.

"Yep, Jordan, they have a Scrum playlist on YouTube."

Pedro goes on to tell us about some of the case studies shared on the show that inspired them to try marrying pull planning and Scrum. He gives us a link to this show to check out after we take a bunch of pictures and get our fill of questions.



[Scrum Elevating Construction with Jason Schroeder](#)

"What about Danny, your superintendent, does he do Scrum? He doesn't seem to have a board in his office."

I want to fist bump Eddie for asking this before we leave. Thinking of Mike on our job, I realize that after two months, his initial support level hasn't gone up. He still definitely adds to our planning sessions and adds tags for us on the Scrum board, but he isn't doing it himself.

Pedro and Mia both laugh.

"Danny doesn't need to make tags, he runs the project." Mia replies.

And Pedro keeps going: "Danny used to say that when we first started. He usually has the whole conference room full of sticky notes and boards made by the foremen. He says that the pull planning boards are his

Scrum board and that we are his best constraint removal Scrum team.”

“What’s the difference between pull planning and Scrum?” I want to know.

“Check out the podcast, it isn’t either one or the other,” Mia suggests.

I admit that I’ve never seen pull planning and we’ve only been doing Scrum long enough to have seven Sprints under our ‘Done’ column. They see us off and we have plans to be back next week. We leave after 3 pm and traffic back to our job is bad enough for Eddie and me to listen to one podcast episode and a live stream recording of Scrum and Last Planner System.



[Dr. Jeff Sutherland and Scrum Inc. Principal, Dee Rhoda](#)
[Scrum in Construction](#)



[Lucien Zoll and Felipe Engineer-Manriquez](#)
[Scrum in Design and Construction AMA Live Stream](#)

Chapter 5

The Benefits of Scrum Patterns



Let's play. Start with knowing the rules of the game. I want you to have fun and win daily. Just like scaffolding is used as a framework in design and construction to give us access to progress with a building, so does the Scrum framework enable valuable work to flow. The Scrum framework does not have all possible problem solutions. However, Scrum patterns help elicit a likely solution when problems arise (I guarantee they will). . You will find over 200 Scrum patterns in the Scrum Book *The Spirit of the Game*.

Let's start with the why first.

I've come to think of work as a game, especially project work, and I share this idea with many others. In 1993, a group of Scrum Pattern Language professionals (originally known as The Hillside Group) gathered in Colorado. They were inspired by the 1960s and 1970s work of a building architect, Christopher Alexander, on the theory of design and construction. Their work resulted in the publication of several books and a website that supports their experienced contributions to Scrum patterns, the Scrum PLoP Conference, and an open-source wiki. In 2011, they published a mission statement that resonates with my view of work as a game.

The Scrum PLoP Mission

Alistair Cockburn describes software development as a cooperative game. Scrum provides one set of rules for one such way of playing the game. The Scrum Guide is the official rulebook. However, the Scrum Guide doesn't tell you the rationale behind Scrum as a whole, or behind many of its successful practices. Those rationales come out of experience, community, and the insights of its founders and inventors. The Scrum PLoP mission is to build a body of pattern literature around those communities,

describing those insights, so we can easily share them with the Scrum and Agile communities.



[History of the Patterns](#)

Let's honor our work and play with the "*Spirit of The Game*" in our minds and hearts. We are introducing something new, therefore, it's important to establish a supportive culture focusing on:

- Leading by example
- Adopting the five Scrum Values
- Following the spirit of the Agile Manifesto

Here are some examples from the design and construction industry.

- A project manager, superintendent, or lead designer approaches a team member with the demand to stop working on the current task to shift to another without any further explanation.
- An executive demands a milestone delivery date for a given increment of work.
- A project manager is uncomfortable with the team's self-organization and actively micro-manages them.

- A manager says something to the effect of “in the spirit of continuous improvement” before pressuring the Scrum team to a specific Scrum tracking tool (software, metrics, etc).

These examples don't technically contradict the Scrum Guide nor the spirit of the Agile Manifesto. As a current or future Scrum practitioner reading this book, you will, however, understand how these examples violate Scrum, negatively impact productivity, and make work much less fun.

Let's embody a culture that builds people up, builds projects that dazzle owners, and keeps everyone engaged in the process. To lead by example you need capacity and a good reason why which can be framed as a goal. Two great patterns to increase capacity and formulate a goal are:

- Good Housekeeping, Pattern 80
- The Sprint Goal, Pattern 71

Regardless if you are new to Scrum or have been using it since the 90s, these patterns will help you and your teams right now. I use them both most often with new and mixed experience teams to set a fertile environment of growing support and mutual trust.



Good Housekeeping: Pattern 80

In Lean Construction circles, it is more and more accepted that a clean site tends to be safer, on time, and more likely to be aligned with financial goals. Clean projects are also happier places to build, we all know of many examples of dirty projects that are far from happy. Some formal housekeeping programs have become popular in multiple industries including construction since Henry Ford instituted CANDO in his Model T assembly factories. It was later learned by Japanese automobile manufacturers and instituted in Japan as 5S and again made popular in the United States. Both acronyms have the same intention and are defined as follows:

CANDO	5S - English	5S - Japanese	Action Questions
Cleanup	Sort	Seiri	Are these things necessary, and, if so, how much is needed right here, right now?
Arrange	Set in Order	Seitori	Where is a better place to locate these things, and how much of them should be here to be useful?
Neatness	Shine	Seiso	What cleaning methods are needed where, by whom, when, and how to keep the work neat?
Discipline	Standardize	Shitsuke	What standard do we need to maintain the needed conditions in response to the answers above and who will daily help us to avoid setbacks?
Ongoing improvement	Sustain	Seiketsu	What resources do we need to seek perfection, such as recognition for good housekeeping and resources, to support the implementation by leaders and team members, while keeping the creativity of all workers engaged, heard, and ideas implemented?

Table 5.1

Your team needs to make progress towards delivering value in the most frictionless way to allow for a smooth workflow. The current Sprint goal requires a clean starting point. If you or your team are spending energy on deciding what and where to start with, you have an opportunity to implement good housekeeping. Start where you find the biggest mess. People will immediately appreciate it and see the cleaned environment as a win. Remember that we all live in glass houses, so don't go rushing to point out another team member's mess before you clean your own working space first.

Bad housekeeping is visible and leads to poor team morale. If your office entrance has overflowing trash bins or furniture blocking the path to the seating areas, desks, or restrooms, you have multiple opportunities to improve the first impression for your staff and visitors. Messy or dirty conference rooms and restrooms simply aren't ready for meetings, coordination, problem-solving, or collaboration. If your team has to clean up these areas before they can start working, people are wasting valuable time.

The same applies to construction sites. If someone leaves a mess installing their work, the subsequent value creator can't begin until this mess is cleared. Messy work also masks the real state of design completion or installed work quality. If the team is unaware of the true work state or progress, there is a high likelihood of duplication of efforts and repeating work, which again is a waste of time and energy. If we aren't clean with our work, team members will have to invest energy to determine what has already been done before they can focus on the next task. Think back upon last week, how much time did you spend sifting through mountains of emails, meeting minutes, requests for information, plan change sketches, or even on outdated information radiators. It remains a challenge to

separate the right information (signal) from the unneeded information (noise). Value as defined by your customer or supply chain partner is the beneficial transformation of information, materials, or a combination of both. If we prioritize and value our time, let's do the same for those we work with.

The time taken to clean adds no value for our customers. However, not allowing yourself or the team to clean up the workspace at all, will waste even more time and slow down the workflow. As you and the team make progress on a particular part of the design and construction work, much of the value-adding efforts may be near the end of the Sprint. Bad housekeeping will sharply decrease the ability to make progress. For Scrum teams using velocity, the team's number of points per Sprint will decrease. Velocity is a Scrum measure of the amount of work a Scrum Team can accomplish during a single Sprint. Velocity is calculated at the end of the Sprint by totaling the Points for all fully completed Sprint Backlog Items. Bad housekeeping may also lower the quality of work being handed off to subsequent supply chain partners receiving the team's work. The work environment that is messy hinders the team's progress and prevents team members and stakeholders from seeing the actual situation. Equally, workplaces and general working areas obscure or hide the actual state of progress, current situation, and visibility for handoffs. Undisciplined teams continuously spend time working in nonideal environments that hinder their work and rob them of their sense of accomplishment and pride.

It is critical to maintaining a completely clean environment for the workers and the work. Cleaning as you go requires far less effort than big batch cleanup efforts. Cleaning up at the end of the day, shift, period, or installation scope will allow for higher transparency for all team members on what work is ready, needed and by when. A clean environment allows

for tasks to flow more smoothly. Disciplined teams continuously focus on maintaining clean work states. When anyone on the team can safely start working on the right thing at the right time you are in a continuously useful environment with flowing work and flowing information. Continuously keeping the ongoing work areas in shape raises confidence about the quality to all who see the work, especially your customers. Since people can see the true progress of the work, it is easier for the team to pull in work tasks for the current increment which makes even more progress towards the Sprint goal. The work must be in the 'Done' state as often as possible, ideally every day. Done means that the team has progressed the work sufficiently to their definition and the next phase of design or construction can begin.

The team is creating regular work increments in design or construction and the transient state is visibly making progress towards attaining the Sprint goal. Standards are not words, catchy phrases, policies, or input for posters but set by the team for good housekeeping.

*Instituting a clean desk policy could mean that it's time to declutter and let go of old notes, sketches, or files. Use common sense and respect the team's culture to maintain a continuous focus on the balance between too little and too excessive Good Housekeeping. Freely borrowing from the ideas and successful implementation by others across other industries. Some learned about 5S being used within the Toyota Production System as noted in *The Toyota Way Fieldbook: A practical guide for implementing Toyota's 4P's (sort, set in order, shine, standardize, and sustain) for good housekeeping. Alternatively, some prefer using Henry Ford's CANDO acronym that stands for clean up, arrange, neatness, discipline, and ongoing improvement. This pattern is about developing disciplined work habits which, among other things, results in a clean work area.**

Good Housekeeping may often involve you and your team to clean up messes made by others. Robert Stevenson Smith Baden-Powell, the father of the Boy Scouts often said, "Try and leave this world a little better than you found it." That idea lives on with the Scouts that now have made it one of their slogans to say, "Leave the campground cleaner than when you found it."



[Lord Baden-Powell Biography](#)

The same slogan can be adapted to your team such as:

- Leave the project trailer cleaner than when we entered it.
- Leave the office cleaner than when we arrived.
- Leave the job site cleaner than when we walked in.
- Leave the studio cleaner than when we started drawing in it.

Good housekeeping requires intention and action. Good Housekeeping side effects will include increased commitment and stronger discipline from the entire team to maintain the clean workspace. The 5S methodology has been widely spread and there are

numerous implementation examples about it worldwide. Although it is conceptually simple and does not require complex training or experts with sophisticated knowledge, it is essential to implement it through a rigorous and disciplined fashion **with** your team, not to your team.

Be aware that your team may be resistant at first and the time for cleaning will diminish the available time for critical work. This is an okay and normal response that may just be a sign that some processes and working tools need revision. Reasons for “why not” can now be addressed by the team as impediments. If they can’t leave the work product in a clean state every day, this may indicate the problem is with the work itself. Let the team be a part of identifying the impediments to good housekeeping and iteratively work to remove the obstacles daily. The rules that the team collaboratively makes for maintaining good housekeeping should become part of the norms of conduct or team culture. Be mindful when new team members join and include sharing the team’s good housekeeping expectations and standards as part of their onboarding.

Good housekeeping contributes to the minimization of eight forms of waste (overproduction, inventory, transportation, motion, waiting, defects, over-processing, and non-utilized creativity). In Chapter Five: Special Scrum Considerations, I elaborate on how to recognize and remove each type of waste. Collaborative implementation of the Good Housekeeping Pattern increases people’s involvement, teamwork, morale, health, and safety. As a result, your project team will benefit from also having reduced costs, variability, and uncertainty.

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