

# **Taiichi Ohno's Chalk Circle in the Office**

Christoph Roser

Karlsruhe University of Applied Science

## **1 Abstract**

Taiichi Ohno's chalk circle is well known in industry as an exercise to increase understanding on the shop floor. At a suitable location on the shop floor, a circle is drawn on the ground. The observer is then placed in the circle with the simple instructions to observe. Over multiple hours, the observer's understanding of the situation on the shop floor deepens. This thorough understanding is the basis for any improvement project.

In administration, however, this approach meets some difficulties. Usually, the tasks are much more varied and much less standardized. Whereas in an assembly line each part is identical to the next, administrative processes have usually not (yet) reached this level of standardization. Hence, there is a much higher variety in the work content. At the same time, much of the administrative work is done using computers, and therefore is much less intuitive than a manufacturing or assembly process.

It is easier to understand a manufacturing process while watching someone assemble a product than it is to understand an administrative process by watching someone fill out forms and check boxes, as much of the value-add happens in the head of the clerk. Finally, in manufacturing there is usually only one process working on a part at any given time, and the processes are in sequence. In administration, however, multiple clerks can process the same document simultaneously, the sequence can change, and loops and repeats are common. All of this makes understanding the situation in administration much more difficult than in manufacturing.

The proposed solution is to observe for a longer period but to no longer be a passive observer as in the classical chalk circle. Rather, the clerk is asked questions while he works. This contextual interview greatly increases the understanding for the observer. On a negative side, these questions will disrupt the clerk and hence prevent reliable time measurements. A second option is to have the worker train the observer in the use of the process. This will yield even deeper understanding, albeit at the cost of even more time. In any case, for lean improvements in administrative settings, it is still crucial to understand the process before changing and improving the situation, and hence these detailed observations are necessary.

## **2 Introduction**

When observing a process, we have a few issues. First, the capacity of the human mind to take in information is limited. If we visit a shop floor, most of us will remember only a disconnected bunch of machines, parts, and people. Only a few details can be recalled.

Second, not everything happens at the same time. Even with perfect attention, you will only see what is happening right now. Unfortunately, a lot of significant events on the shop floor happen only infrequently. The regular processes repeat every cycle time. Failures and breakdowns, however, will be much less common.

Overall, you need to focus on a small part of the shop floor for a longer time to really understand what's going on. Hence, it is quite tricky to really understand the actual situation. Usually, the understanding of an observer goes through different levels as shown below and in Figure 1.

- The first level would be simply walking through the shop floor. The person knows there is a shop floor and may remember some disconnected details. However, the flood of information will make it difficult to get a good understanding of the shop floor – which is maybe why it is so popular to give visitors a guided tour of the entire plant rather than observing a single process for a longer duration.
- The next level would be observing a few cycles, usually for no more than fifteen to thirty minutes. This is about the duration of the attention span of an average adult. This is also when the average engineer or manager gets bored. The manager thinks he understands the process, but he understands only a small part of it, and then only about the regular process. He still has no idea of the many different other problems that can occur.
- One step up would be observing an entire shift, or from four to eight hours' time. Now the observer gets a deeper understanding of the process, including the problems. This is a good starting point for an improvement process. This duration is common for the chalk circle exercise. Most people feel it is too long – until they have done it and learned so much more than from a thirty-minute observation.
- The last step is observing multiple days. Usually, this is doable only for the people who work at that process, although for tricky problems it may also be necessary for managers and engineers to do multiple observations.

<1 min	Walk through shop floor	You remember lots of green machines ...
15-30 min	Observe a few cycles	You think you understand the process, but you merely remember the sequence of steps. You do not yet have any understanding of the variations and difficulties. Solutions based on this observation may make things worse.
4-8 hours	Observe a shift	You start to understand the variations and start to see some of the problems that can happen. It is the beginning of a big picture.
2-5+ days	Observe multiple days	You begin to understand patterns and how minute changes in the process affect the outcome. Usually only possible for operators.

Figure 1: Different stages of observation duration

Overall, you need a lot of detail to improve a process. The chalk circle exercise is used to get these details. There is even a Japanese word for this ability to notice: *Kizuki* (気付き, awareness, realization).

### 3 Taiichi Ohno's Chalk Circle

Taiichi Ohno is one of the main drivers behind the Toyota Production System, and hence by proxy, lean production. One of his famous methods was the chalk circle. On the shop floor in an area of interest (but not in the way of the workers), he drew a circle using chalk. A disciple who had a problem to solve in this area was put in the circle. The instruction given to the engineer was simple: "Watch!"

And watch he did. After a while Ohno came back and asked him what he had seen. If the answer was unsatisfactory, the disciple had to watch more. Often, a disciple stood in the circle for hours before Ohno was satisfied. This exercise is also known as "circle exercise" or "standing in the circle," and it goes hand in hand with the lean philosophy to observe directly at the site where it is happening, also known as *Genchi Genbutsu* (現地: actual place; 現物: actual article or object).

### 4 Complications in Administrative Settings

While most ideas and tools in lean can also be used for administrative processes, there are some challenges that make the usage of lean tools somewhat more difficult in administration than in manufacturing. Let me elaborate.

#### 4.1 It is difficult to observe actual work

For me, an important part of improving a situation is to observe the process and its shortcomings, and to find improvement potentials. This often includes an estimate of the cycle times. For administration, however, this is also more difficult. Modern administration is usually done on a computer. Observing an administrative process is seeing a person doing something on a computer – and unless you pay close attention, you have no idea if this is actual work or Facebook. Hence, in administration it is rather difficult to actually observe the work.

#### 4.2 The work content is much less standardized

In manufacturing, particularly in flow production, you can expect every part coming down the line to be all but identical to the previous part. Even with different part variants, they have much in common.

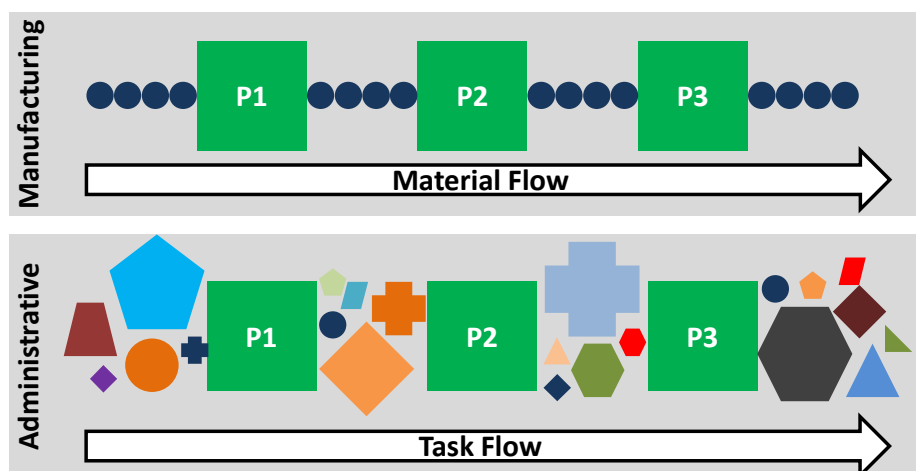


Figure 2: Illustration of work variety in manufacturing and administration

This is often not so in administration. For example, if your administrative process prepares offers to customers, one offer may be quick and easy, but the next one may be more difficult than ten easy ones. Or take a call center. One customer is happy after thirty seconds of conversation, whereas another customer takes ten minutes and then still wants to talk to the manager. Overall, in administration you never know how much work the next task will be until you actually look at it. In short, you cannot judge the amount of work by the height of the stack of folders.

### 4.3 The work flow is much less standardized

In manufacturing, if you have a flow shop, all parts follow the same sequence. Even for a job shop, the sequence of the parts is usually well defined even though it may be different for each part. Loops are rare. Once a part goes through a certain process, it is unlikely that this part will be sent back to be processed again.

In administration, however, this sequence is usually much less defined. Depending on the task, the sequence of steps may not even be known beforehand. For example, take again the process of making an offer to the customer. Depending on the details of the offer, different people may be involved. More than one person could work simultaneously on the same offer. Also, if there are problems, loops are common. The offer may be handed back to the previous process steps for clarification or correction. Hence, overall there are many iterations, parallel processes, and other non-standard paths for the task before the task is completed.

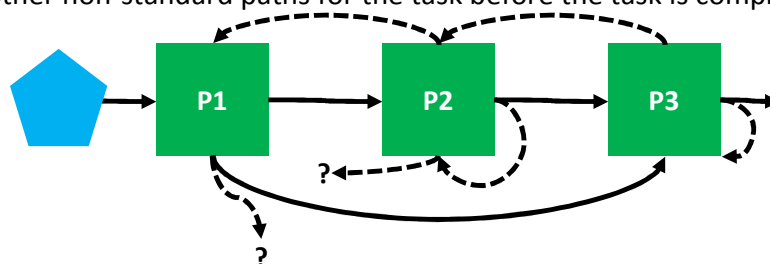


Figure 3: Illustration of work flow in manufacturing and administration

Overall, observing administrative processes is usually more difficult than manufacturing processes. However, it is still possible to understand the administrative processes though the use of a few tricks.

## 5 Proposed Approaches

### 5.1 Contextual Inquiry / Interview

One way of understanding an otherwise hard-to-observe administrative process is to pick the brain of a person who has already observed the process for a longer time – the worker! He has spent literally months with the process and knows a lot of the problems. You should simply ask him while observing. This way you will get a lot more information than you could ever see in a day. It even has a fancy name: contextual inquiry. A few things are important for this contextual inquiry to work:

- It works only when workers have the time to answer your questions (e.g., if they are working at their own pace or have slack time between processes). Fortunately, administrative workers usually have much less time pressure than manufacturing workers. In any case, you must not interrupt their work. If necessary, ask the questions afterward.
- You still need to observe the process. Ask questions only whenever something is unclear. The main part of the observation is still observing the worker, not interviewing him.
- Everybody sees the world through their own eyes. Hence, what may be significant to the worker may not be to you, and vice versa. Often, the worker may want to nudge you toward his pet project and away from another issue. Take everything with a grain of salt.
- It still takes time. We are talking maybe four hours for the contextual inquiry instead of eight for the classical chalk circle. This is not only useful for the observation but also helps to establish a relation of trust with the worker.

## 5.2 Do It Yourself

Yet another good way to become deeply familiar with an administrative process – or any process for that matter – is to do it yourself. Let yourself be trained in how the process works, and then try to do it a few times on your own. Please don't do this with the most complex and mission-critical process available, or you risk major problems afterward. If possible, you should rather go for a simple process where a short delay due to your learning the ropes is manageable and small mistakes can be fixed afterward.

While this is the most time-consuming approach, it is also the approach that gives the most in-depth understanding of the process. Additionally, it is unlikely that you overlook a step in the process, since a missed step will create problems afterward. Yet, due to the time commitment needed, it is often less preferred than the contextual inquiry.

## 6 Summary

Overall, administrative processes are more difficult to observe due to lack of repeatability. To still understand the processes, there are two good options: Contextual Inquiry, where you ask questions of the worker while observing, and the Do it Yourself approach, where your workers train you in the operation of the process. In any case, significant time is needed to understand the process – but usually this time is necessary for good improvements. After all, lean is usually not as quick or as easy as you would like it to be!

## 7 Sources

This article is based on two blog posts of mine:

- Christoph Roser, *Taiichi Ohno's Chalk Circle*, January 19, 2016, AllAboutLean.com <http://www.allaboutlean.com/chalk-circle/>
- Christoph Roser, *The Challenges of Lean Administration*, Christoph Roser, January 5, 2016, AllAboutLean.com <http://www.allaboutlean.com/lean-administration/>