

TWI as an Integral Part of Lean

BRIEF

Lean will only be successful long term if it is being built on from a solid base. In most cases around the world, this hasn't occurred, hence the limited long term success of many lean programs. Robust supervision is a key part of the solid base and is provided via the 3 TWI skills of effective supervision.

INTRODUCTION

This topic is best introduced by 2 extracts from work done by Art Smalley, currently a consultant and author with Lean Enterprise Institute (LEI), and an ex Toyota Motor Corp Japan employee.

Basic stability starts with a well trained workforce. Fortunately employees tend to know their jobs very well or we would all be in serious trouble. However, Toyota in the 1950's learned some basic techniques about supervision in production and how to further improve the skills and capabilities of work teams. Specifically, they adopted an industrial training program that the U.S. used during WWII called Training Within Industry (TWI). It had three specific job training components for production supervisors - job instruction, job methods, and job relations. Each component was a ten-hour course that taught practical supervision skills.

Art Smalley – Basic Stability is Basic to Lean Manufacturing Success

The 3 TWI “J” courses, Job Relations, Job Instruction and Job Methods provide a very important basis for a work team in a lean program that will be sustained. At the heart of every work system are people and their collective beliefs and behaviours, their work culture. The TWI “behaviours” played a powerful shaping force very early in Toyota’s improvement journey. Long before there was value stream maps, kaizen events, pull systems etc. there were the TWI foundation elements on the Toyota work floor. These foundation elements gave stability and predictability in the work being done.

Art Smalley – Basic stability summary document

Not only through the work of Art Smalley, but also people like John Shook, Jeffrey Liker and David Meier, it is very clear that long before the “tools of lean” that we know of today, there was TWI. These basic skills for the supervisor did not go away as Toyota progressed to where they are now today. In fact, it is these basic skills that allow the higher level tools of lean to be applied, sustained and thus make a difference. Just as in football, all the team needs to learn the basics of defending and tackling if you are going to win the game.

We will now look at the 3 core concepts of lean that the TWI J programs provide, and which J program supports which core concept. The 3 core concepts of lean are:

- Respect for people.
- Standard work.
- Continuous improvement.

RESPECT FOR PEOPLE AND JOB RELATIONS

Respect for people has a fundamental presence in any truly successful work area where performance is high and improvement is continuous. How can a Supervisor (a Supervisor is any work area Leader) expect to be able to effectively teach a person how to do a job if they don't respect him, and if he doesn't respect them? The worker will not believe he is being shown the best way to do a job. He will end up doing it his own way, a different way. We will then have variation in performance due to variation in methods.

The same question above applies to continuous improvement. Without respect for people in the work area, changes (improvements) will not be sustained long term as workers will not believe they are being introduced to the “best new way”.

You cannot go out and tell someone to “respect people”. Respect is an outcome of doing something. Job Relations provides that vehicle of doing. Job Relations teaches the Supervisor 4 foundations of good relations – 4 things that should do every day that will promote good relations. Job Relations also teaches the Supervisor a 4-Step method for resolving people problems when they do arise. If the Supervisor is committed to applying the 4 foundations, and to using the 4-Step method when problems do arise, respect in his work area will be there, it will take care of itself.

STANDARD WORK AND JOB INSTRUCTION

Standard Work is a description of how a process or activity should be done (in order to get the “desired results”). Standard Work will define the most efficient method currently known to produce the required output using available equipment, people, and material.

Standard Work is not a “set of rules that must be followed forever”. It is “the best way we know how today”. It is a tool to measure how we are doing something, to refer to when we want to make a change, and is a basis for training. Standard Work is not to be the tool used directly when coaching someone. As said just now, it is a basis for training.

Art Smalley further defines the building blocks of manufacturing as the “4Ms” – Manpower, Machines, Materials, Methods. For Manpower he quotes “basic stability starts with a well trained workforce” (already noted earlier in this article). A well trained workforce is a workforce that follows standard work.

Given this requirement of Manpower, the question becomes “how do we best train our workforce?” Job Instruction (JI) provides the Supervisor with a long proven method for doing just this – training their workforce to follow standard work. Job Instruction teaches the Supervisor 2 things:

- How to get ready to instruct someone in the task.
- How to actually instruct (and verify performance).

CONTINUOUS IMPROVEMENT AND JOB METHODS

Genuine continuous improvement is just that, *continuous*. It is not sporadic events to introduce “lean tools”. Genuine continuous improvement requires a vehicle, a method, a way of thinking for the Supervisor of the work area. TWI Job Methods (JM) is that vehicle, that method. The method allows the selection of the right (lean) tool at the right time in the right place based on robust examination and questioning of the job as it is done currently.

Again, as for JR and JI, there is evidence that JM came to Toyota and Japanese industry long before “Lean” did. Masaaki Imai in his book Kaizen states “Less well known is the fact that the suggestion system was brought to Japan by TWI and the US Air Force (about the same time as Deming and Juran – mid ‘50’s).” Later in Imai’s book Gemba Kaizen he credits TWI Job Methods in the development of Kaizen. The book identifies the Supervisors role on the work floor and the influence of TWI on that role.

JM is a practical method to help the Supervisor produce greater quantities of quality products in less time by making the best use of the Manpower, Machines and Materials *now available*.

SUMMARY

There are 3 core concepts of lean that the TWI J programs provide a robust foundation for. The 3 core concepts and the associated “J” programs are:

- Respect for people – Job Relations.
- Standard work – Job Instruction.
- Continuous improvement – Job Methods.

The Supervisors of truly successful lean workplaces will have made JR, JI and JM foundation elements of their daily work as leaders.