

Lessons Learned: Training Within Industry (TWI) in the United States¹
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The systematic training of people on the job while at work was developed and expanded during the war years in the 1940's with great success, and the potential for further developing this approach to training today is arousing global interest since the TWI Institute resurrected this training in the United States in 2002. A detailed description of the TWI Program, how the training can be introduced and administered can be found at www.twi-institute.org.

The foundation for TWI is the concept of training as “a way used by the plant management to solve a specific production problem which involves people....Education has to do with knowledge and understanding, whereas training as discussed here is directed action in the use of knowledge. Industry has the opportunity now to build a bridge from knowledge to action, to put knowledge to use in the shortest possible time”.² Companies today are learning to do what was already done in the past by building a bridge from knowledge to action by using TWI as a management tool to enable people to acquire a definite skill in overcoming causes of problems that currently exist, or problems that are anticipated by management when developing a lean strategy.”

To be effective, TWI training must be accepted and promoted by management as an integral part of the production system, and front line supervision must become responsible for training the people they supervise. As in the past, many problems today are uncovered by reviewing data on performance, cost, turnover, rejects, and accidents; however production problems are not discovered by someone that sits at a desk. The line organization must be made responsible to identify its own problems, help to find the root cause of these problems, and then help to bring about an improvement by specifying the knowledge and/or skill needed to fix them, actively participate in the training of the solutions, and then evaluate the results of their actions. However, in any plant, the size of the plant will determine whether this is a part-time job or a job for one or more persons. Either way there should be a TWI trainer responsible for analyzing production problems and providing technical help in methods of instruction so that the problems solved do not resurface.

Most manufacturers today have applied lean tools to redesign and streamline their production processes changing the nature of work that is required and manufacturers continue to expect more and more from their employees. Supervisors' roles in Lean continue to move away from “supervising” to “leading” people by providing workers with the tools they need to get the job done in the most effective way possible and to improve jobs and working conditions. In this way, they ensure people are effectively developed and well-deployed to become engaged in their work. To make this happen the person responsible for training has to be out in the plant working with supervisors to identify problems that can be solved through training. Most importantly, they need strong skills and ability in training and leading which can be acquired through TWI.

The primary challenge company's face today has to do with eliminating variation in ongoing processes when a formal standardization process is not in place to ensure that once problems are solved they do not recur. “When the underlying causes of a problem have been discovered, the contributing factors towards failure can be ascertained, and appropriate training given where

¹ Source for TWI historical material is this article: *Training Within Industry in the United States*, C. R. Dooley, Director, Training Within Industry Foundation, New Jersey, *Vocational Training*, International Labour Organisation, Mexico City, April 1946.

² *Ibid* pages 160, 162

it is necessary. A realistic plan of training can thus be drawn up.”³ This kind of analysis was applied to Gemalto plants around the world in 2011 to solve a business problem by making more productive use of total capacity in fully loaded plants. They were able to increase capacity and accept additional orders without investing capital or increasing cost.

As Denis Becker wrote in his article:⁴

“Building an **improvement structure** is an investment decision: to become truly fact-paced we cannot rely on staff experts to implement the change. We need the eyes, brains and hands of front-line teams. They must be given time and coaching to develop the essential improvement skills of catching problems, solving problems and stabilizing the process (to avoid slipping back). The method needs to be quick to learn and effective in tackling diverse problems.

Growing capacity is all about routines that activate the structure. Skills are developed through repetition, so problem solving needs to be done on a regular basis. The Training Within Industry (TWI) programs, for example, were developed for this purpose: with minimal training investment (10 hours) teams learn job instruction (stabilization) and job methods (problem solving). Together with a simple method to visualize problems at the time and place they occur (line side), these programs make it much easier to build the team improvement skills we need.

If done correctly, these routines not only make subsequent strategic changes easier to sell, but also much faster to implement because they enhance the organisations improvement capacity.”

The results at Gemalto speak for themselves:

- **Capacity increase** on constraint operations by standardized ‘best way known’ of performing change-over’s (**capital expenditure avoidance**)
- New operator **training time** – from 4 weeks to 1 week
- **Rework** caused by complex manual setup – 42% to 15%
- Operators now do tricky engineering **setups** – faster than engineers
- Long-standing **manual errors** on complex operations eliminated
- **Customer complaints** turned into customer praise for fast and effective elimination of long-standing quality issue
- US\$500k+ p.a. **cost-saving** from eliminating over-production

NOTE:

Gemalto will be one of the companies that will share their experiences with TWI at the TWI Summit in Prague on 4th & 5th of November, 2013. For additional information about Gemalto and the other presenters representing LEGO, Robert Bosch, SAICA Pack, Ronal Group, Olympus Surgical Technologies Europe, Dalehead Foods, and Novo Nordisk DMS, please visit www.twisummit.com/prague for more information.

³ *Ibid* page 162

⁴ *Hard, fast results*, Denis Becker, Global Master Blackbelt Support Manager at Gemalto, www.lean.com, December 2012/January 2013.

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Bob and Patrick Graupp, TWI Institute Senior Master Trainer resurrected the TWI Program from the archives in 2002 as outlined in their book *TWI Workbook: Essential Skills for Supervisors* that was Shingo Research and Professional Publication Prize recipient in 2007. As TWI expanded into becoming the global program it now is, Bob and Patrick collaborated once again to write *Implementing TWI: Creating and Managing a Skill-Based Culture* that was published by Productivity Press in 2010.