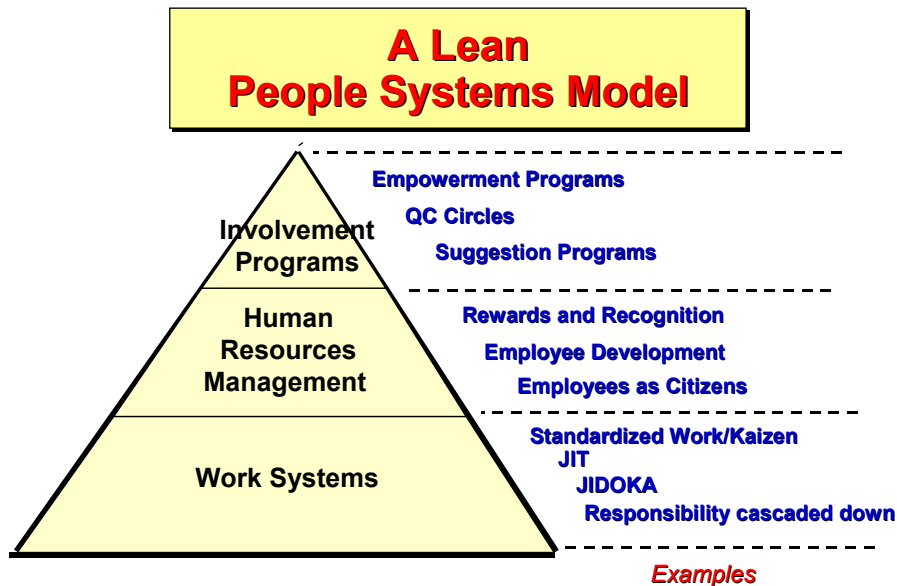


People Selection Process for Implementing Lean Manufacturing

LEADERSHIP FOR LEAN

During the 2000 Lean Manufacturing Conference in Dearborn, MI John Shook told us about “Leadership for Lean Systems” based on his experience at Toyota. John shared with us his observations on differences between, Toyota style Leadership and American style Leadership. One of the most powerful slides in his presentation that stands up in my mind, is the one describing a “Lean People System Model”:



Very little has been said about what kind of people it takes to implement Lean, how do I select people to hire, what skills are needed, what type of a training is required, what progression of learning is required and how do we reinforce the learning so it not forgotten. What organizational structure I need to sustain Lean.

PEOPLE SELECTION

All Toyota’s North American manufacturing facilities started as a Greenfield operation, where the company had an opportunity to select and hire brand new employees.

The first Toyota manufacturing facility was NUMMI – a joint venture with General Motors Corporation in Fremont, California. In March 1984 applications for employment were sent to

approximately 5,000 former GM-Freemont employees. The applications also noted that past mistakes such as, high absenteeism and poor quality would not be tolerated by the new company. Approximately 3,000 applications were completed and returned. Once applications were returned over 80% of the original newly hired employees were from former GM plant.

In 1987 Toyota started two new manufacturing facilities in Georgetown, Kentucky and Cambridge, Ontario. I joined TMMC (Toyota Motor Manufacturing Canada) in June 1987 as a Training Manager. Our initial responsibilities were the development of company policies, recruiting and training.

SELECTION PROCESS – TOYOTA STYLE

Most of Toyota facilities in North America used a selection process for production team members that consisted of four stages:

- Personal interviews
- Aptitude tests
- Job simulation
- Reference checks

These stages varied in duration from one hour to eight hours. Only candidates with the highest success rate at one stage are selected to proceed to the next. The total time for each candidate exceeded twenty hours. It took several weeks, sometimes months for each candidate to complete a selection process. Initially hiring ration was about 10% - for every 100 applicants, only ten received a job offer. The acceptance rate for Skilled Members was about 7%.

Personal Interviews

There were at least two personal interviews with each applicant. Each interview was conducted by at least two certified interviewers. Professional Recruiters conducted first interview and the assessment. A Recruiter and a manufacturing Group Leader conducted the second interview.

Each Interviewer used an "Interview Guide" in conducting an interview. The Interview Guide was a set of instructions, questions and observations that standardized the interviewing process. This was done not only to make sure that each applicant was asked the same set of questions, but also to make sure that we were able to learn about strengths and weaknesses of our potential future employee.

Dimensions that Toyota was looking for in each team member were defined. What skills, abilities and talents should an ideal production team member should have? What skills and abilities are needed to operate in TPS manufacturing environment? Some of these dimensions were:

- Problem identification
- Problem solution
- Initiative

- Meeting leadership
- Meeting membership
- Oral communication
- Adaptability
- Work tempo
- Reasoning and practical learning
- Job fit and motivation

Team Leader and Group Leader candidates were tested for additional dimensions, which included:

- Individual Leadership
- Coaching
- Communication
- Tolerance for stress
- Scheduling
- Controlling
- Delegation
- Ability to accomplish objectives

During the interview process the candidate was rated on each one of these dimensions as pass or fail. Over all score was calculated and a decision was made to either advance the applicant or not.

Aptitude Test

Most of Toyota locations in North America used existing, readily available and professionally developed tests. There are many tests available on the market. Meyers-Briggs type indicator test is the one that I always recommend to companies I work with. Another one is a Comprehensive Personality Profile by Wonderlic.

These are written tests, very thorough tools that will help organizations to identify individual behavior patterns, individual preferences, leadership styles, preferred work environment, potential pitfalls and suggestions for development.

Applicants are tested for:

- Verbal reasoning
- Numerical ability
- Abstract reasoning
- Critical speed and accuracy
- Mechanical reasoning
- Space relations
- Spelling

- Language use

Minimum acceptable standards were defined and each candidate was given a final score – a pass or fail mark.

Job Simulation

Work on the car assembly line is very difficult, repetitive, demanding and challenging. Similar can be said about an electronic components assembly line. This is not a type of work that anybody can handle.

Job simulation consisted of several rounds of activities, which simulated real jobs on the assembly line. An example of would be manually mounting tires onto a car for several minutes.

The purpose of these activities was not only to test skills required to perform a job - lift heavy objects, work with tools, ability to perform different functions (grasp, lift, bend, twist, reach, walk backwards). It also tested ability to listen and follow instructions.

For the first round of activities candidates were given a set of really impractical instructions and they were told to follow them. During the job simulation exercise each candidate was scored of following or not following these instructions.

In the second round candidates were asked to re-design layout of the workstation and the work sequence. This was done as a group exercise and again observations of all candidates were made evaluating participation levels, involvement, contributions efforts and acceptance of others.

During the next round all recommended changes were implemented and again the candidates were observed and scored on abilities to perform the work, following instructions and contributing to the problem solving process.

Since the Standardized Work is considered the foundation of Toyota Production System ability to follow instructions and being able to perform work in identified sequence is very critical. Many people have problems following work sequence and/or even following instructions. Lack of discipline and unnecessary process variations are one the major contributors when it comes to implementing Lean.

Reference Checks

This is a very simple and yet very effective tool that many companies fail to use during their recruiting process. Several of Toyota candidates successfully complete assessment and interview processes, but they are not offer a job because of issues and problems that surface during reference checks.

Each candidate is usually asked to provide at least three references from their previous employer. Reference check is done over the phone. It is a very systematic process and it consists of several questions regarding the candidate. This is a last chance to identify any potential problems that might create future problems.

The first step is to confirm that the Candidate has actually worked in these places, performed duties and functions described during the interview process. Start and finish dates are verified, duration of employment is confirmed. Then there questions regarding attendance, punctuality, any corrective action and the reasons for leaving the previous employer.

NON TOYOTA RECRUITING

In the last ten years I have worked with several companies assisting them in the recruiting, selection process and promotion processes. One of the most successful experiences was with a small automotive metal stamping operation in Kentucky, which was a Supplier to Toyota, Honda, GM and Ford.

This was a well-established company from Michigan, which build a new facility near Georgetown, KY to supply Toyota. I was invited to help them implement all aspects of TPS. At that time there were about 130 employees.

Both, the Plant manager and the Human Resources manager were very interested in creating self-directed work teams and employee participation programs. One of their first drastic moves was to remove any punch clocks and time cards from the Plant, initiate communication meetings, start cross training and job rotations. The next step was to select Team Leaders and put in a team structure.

We have looked at a Toyota recruiting and selection model and created a low budget, simple and effective process to select and promote people. We have trained all employees who volunteered to become interviewers. We have developed an interview guide suitable to our environment. We used Wonderlic Personality Profile test and we have constructed a mock-up assembly line in the plant. This took about three months to implement and to identify eight new Team Leaders.

Marek Piatkowski

July 2004