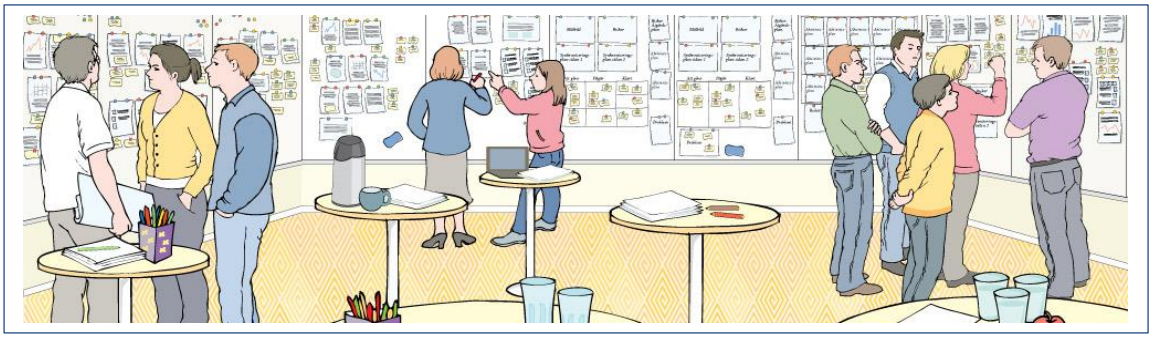
Three Lean things that I observed at TOYOTA Motor Manufacturing, San Antonio (TMMTX)

Introduction: We know that all of the lean tools that we are learning have something to do with Toyota, so I am mainly going to focus on what unique lean things I observed at TMMTX.

1) The most unique and significant thing that I noticed was the Movement of workers and the movement of automobile parts/tools throughout the production facility.
    - Personnel who were working on different sections (say assembly section or inspection section) had a very efficient and ergonomic movement within their work area, following Just in Time and pull system with a Takt time of 60 seconds. But the employees walking by the side walk had something interesting to notice. What they did was, they use to stop at every junction, wait and check their left and right by pointing towards those directions and then move ahead which shows the extent of training and standardize work incorporated in their motion.
    - Jidoka – Autonomation : Path follower autonomous robotic vehicles were used to deliver tools and automobile parts from storage to shop or from one shop to another. It had sensors attached to it which senses hurdles coming on its way and puts the vehicle to a complete rest. The movement is resumed when hurdle is removed.

2) Work groups and training room at the beginning of the facility. Using Visual aids, work standards and visual management to train workers. Entrance and exit were the same, so every worker has to look at those charts and boards at least twice a day. The room had glass windows so as to help workers/visitors to see to it from outside.



3) Lean tools
    - 5S and Visual Factory were seen everywhere in the facility (color coding, music).
    - Use of Andon lights (Line stopping) to send signals if a worker needs more time to finish a job or if there is a quality or process issue in the assembly line.
    - Andon lights in every vehicle, signaling vehicle motion.
    - Use of convex safety mirrors at every junction, as they cannot have a traffic signal or traffic control system.
    - No need for bigger changeovers as they had both 'Tundra' and 'Tacoma' built in the same assembly line, but as from the Q and A session at the last, we got to know that the production run begins at 5 in the morning and goes till 3.15 in the afternoon and then resumes at 5 in the evening and goes till 3.15 in the morning. That gives us a downtime of 3 hours/day.
    - Standardize work: stable work with higher efficiency.
    - Kanban: Pull system with workload balancing and 60 seconds Takt time.
    - Cellular: Continuous flow U-shaped multiple operator/fully tended cell.
    - Leveling: Heijunka box/board here and there with in the factory.

Two main pillars:

- **Kaizen -** Continuous Improvement
- **Respect for People**

To conclude, the trip was very interesting and useful. We had a practical exposure to the theoretical topics. Life's good when it's lean.