How to tell if a factory is truly lean – in as little as 30 minutes

Read a Plant – FAST !!!!

Taken from Harvard Business Review
By R. Eugene Goodson
**RAPID PLANT ASSESSMENT**

1. Customer Satisfaction
2. Safety, Environment, Cleanliness, and Order
3. Visual Management System
4. Scheduling system
5. Use of Space, Movement of Materials, & Product Line Flow
6. Level of Inventory and Work in Process
7. Teamwork & Motivation
8. Condition & Maintenance of Equipment & Tools
9. Management of Complexity & Variability
10. Supply Chain Integration
11. Commitment to Quality
TEAM COMPOSITION & TRAINING

- Consist of 4-5 people + 1 leader

- Member:
  - Equipment knowledge
  - Production experienced
  - Possess a variety of types & levels of experience

Initial training class → lean
Tours of employees
RPA

- Additions to company’s records
- Provide benchmarks for performance improvement
- Case materials for future training

- Familiarize team with general background of the plant:
  - Annual reports
  - Analyst’s reports
  - Web-site of industry association

- Review industry-specific characteristic prior to the tour
1. CUSTOMER SATISFACTION

Workers in the best plants **clearly know who their customers are** – both internal and external – and make customer satisfaction their **primary goal**.

“Where does your product go next?”

a. John, over on line 6 😊

b. I put it in this bucket and I don’t know what happens to it after that 😐
All component part should be treated with equal care.

Many companies go to great lengths to keep expensive parts in order while giving short shrift to low-cost ones like labels or fastener.
3. VISUAL MANAGEMENT SYSTEM

Tools that provide visual cues and directions

- Signage clearly guiding employees to appropriate locations and tasks
- Kanban scheduling, color coded production lines
- Plainly posted work instructions, quality, productivity charts, and maintenance records
- Kiosk displaying information; team members, productivity measures, vacation schedules
- Control room / Status board to see the current state of overall production
4. SCHEDULING SYSTEM

The best plants rely on single “pacing process” for each product line and its suppliers.

This process, usually at the end of the line, controls speed and production for all the upstream activities.

Demand for product at each work center is triggered by demand at the next.

→ Keeps inventory from building up, improves quality, and reduces downtime because production lines aren’t keep waiting for parts.
The best plants use space efficiently. Ideally, materials are moved only once, over as short a distance as possible, in efficient containers 😊

5. USE OF SPACE, MOVEMENT OF MATERIALS, & PRODUCT LINE FLOW

- Productions materials should be stored at line side, not in separate inventory storage areas
- Tools and set-up equipment should be kept near the machines
- Plant should be laid out in continuous product line flows rather than in “shops” dedicated to particular types of machines
6. LEVELS OF INVENTORY AND WORK IN PROCESS

Internal operations seldom require high inventories, so the observable number of any component part is a good measure of a plant leanness.

In most cases, plants want no more than a few minutes’ worth inventory by a work center at one time; each part should go directly to the next process to be used fairly quickly.
7. TEAMWORK & MOTIVATION

*In the best plants, people consistently:

- focus on the plant’s goals for productivity and quality
- know their job well
- eager to share their knowledge with customers and visitors

*Signals:*

- Posted safety & environmental measures
- Pictures of plant’s softball team
- Posters boasting quality and productivity improvements
- Charts showing contributions to charitable org
- Posters/charts describe problem-solving and employee empowerment procedures
8. CONDITION & MAINTENANCE OF EQUIPMENT & TOOLS

- Equipment is clean and well maintained
- The purchase dates and costs are stenciled prominently on the side of machinery
- Maintenance records are posted.

**INDICATOR:**
1. Ask employee – how things are working
2. Employees (operators & product development) involved in purchasing tools & equipment
3. Look at the equipment – is it well maintained or not

- Ensures that workers know as much as possible about the machine & can plan for preventive maintenance
- Signals to employee that management cares about the product, they’ve invested in keeping plant running smoothly and care about the work people do → maintaining morale
Many companies collect much more data about their operations than they need
→ Many people manually recording data
→ a large number of keyboards for data entry

9. MANAGEMENT OF COMPLEXITY & VARIABILITY

Best plants are:
• Able to use the **same types** of parts in the manufacture of **different products**
• **Design system** that aid operators in picking the **right parts** out of a broad selections

→ Workers don’t need to keep track of a lot of parts, since in lean plant – the product flows through quickly and inventory is kept minimum 😊
The best operations keep costs low and quality high by working closely with a relative small number of dedicated and supportive suppliers.

A best practice for plants is to pay suppliers based on completed, shippable product:
- payment is made automatically when the product comes off the line
- cut down paperwork and reduces the number of people involved in settling accounts
11. COMMITMENT TO QUALITY

The best plants are always striving to improve quality and productivity and it shows

Find what the plant does with scrap?

• Call attention by shining a light on it or marking it with red tape to see where process that produce defective parts 😐

• Discarding it or discreetly putting it out of the way 😠

• If employees proud of their quality program, they usually give it a name and post banners displaying plant's vision, mission, biz objectives, & metrics showing achievement to date

- yis - 081309 -
## RPA QUESTIONNAIRE

The total number of yeses on this questionnaire is an indicator of a plant leanness: the more yeses, the leaner the plant. Each question should be answered yes only if the plant obviously adheres to the principles implied by the question. In case doubt, answer no.

<table>
<thead>
<tr>
<th></th>
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<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>1</td>
<td>Are visitors welcomed and given information about plant layout, workforce, customers, and products?</td>
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<tr>
<td>2</td>
<td>Are ratings for customer satisfaction and product quality displayed?</td>
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<td>3</td>
<td>Is the facility safe, clean, orderly, and well lit? Is the air quality good, and are noise level low?</td>
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<td>4</td>
<td>Does a visual labeling system identify and locate inventory, tools, processes, and flow?</td>
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<td>5</td>
<td>Does everything have its own place, and is everything stored in its place?</td>
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<td>6</td>
<td>Are up-to-date operational goals and performance measures for those goals prominently posted?</td>
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<tr>
<td>7</td>
<td>Are production materials brought to and stored at line side rather than in separate inventory storage areas?</td>
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<tr>
<td>8</td>
<td>Are work instructions and product quality specifications visible at all work areas?</td>
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<td>9</td>
<td>Are updated charts on productivity, quality, safety, and problem solving visible for all teams?</td>
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<td>10</td>
<td>Can the current state of the operation be viewed from a central control room, on a status board, or on a computer display?</td>
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<td>11</td>
<td>Are production lines scheduled off a single pacing process, with appropriate inventory levels at each stage?</td>
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<td>12</td>
<td>Is material moved only once and as short a distance as possible? Is material moved efficiently in appropriate containers?</td>
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<td>13</td>
<td>Is the plant laid out in continuous product line flows rather than in &quot;shops&quot;?</td>
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<td>14</td>
<td>Are work teams trained, empowered, and involved in problem solving and ongoing improvements?</td>
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<td>15</td>
<td>Do employees appear committed to continuous improvement?</td>
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<td>16</td>
<td>Is a timetable posted for equipment preventive maintenance and ongoing improvement of tools and processes?</td>
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<td>17</td>
<td>Is there an effective project-management process with cost and timing goals, for new product start-ups?</td>
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<td>18</td>
<td>Is a supplier certification process - with measures for quality, delivery, and cost-performance - displayed?</td>
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<td>19</td>
<td>Have key product characteristics been identified, and are fail-safe methods used to forestall propagation of defects?</td>
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<td>20</td>
<td>Would you buy the products in the operation produces?</td>
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**Total number of yes:** _______
Team members use the RPA rating sheet to assess a plant in 11 categories on a scale from “poor” (1) to “excellent” (9) to “best in class” (11). The total score for all categories will fall between 11 (poor in all categories) and 121 (the best in the world in all categories), with an average score of 55.

When plants are rated every year, the ratings for most tend to improve. Ratings are usually shared with plants, and motivated managers first improve their plants in the categories that receive the lowest ratings.
It’s important that team members not take notes during a tour, because note taking detracts from picking up visual cues and impedes communication with employees on the plant floor.

Instead, each member of the team is assigned primary responsibility for a few categories, and the team should meet immediately after the tour to share impressions and fill out the work sheet.

Answer the last question: “Would you buy the products this operation produces?”