7 Questions to ask on a Factory Tour

A factory exists for one reason: to produce high-quality products as efficiently as possible. Any activity that doesn't add value to a product is waste, which costs money and increases product lead times.

Private Equity investors know waste elimination is one of the most effective ways to increase profitability and reduce risk in any business. Yet identifying the source of waste can be tricky; it can come from many different places—including producing more than needed, not shipping on time, unnecessary movement of the product, inappropriate or additional processing, unnecessary inventory, and defects requiring rework or warranty costs. Not only do these issues waste precious resources, but also many of them can result in longer term business risks, including improper allocation of capital, excess working capital, quality issues, and excess labor, resulting poor financial performance.

Assessing a plant to pinpoint sources of waste and risks in a factory is more science than art.

When mulling over an investment decision, here are seven questions **private equity professionals** should ask when touring the factory floor:

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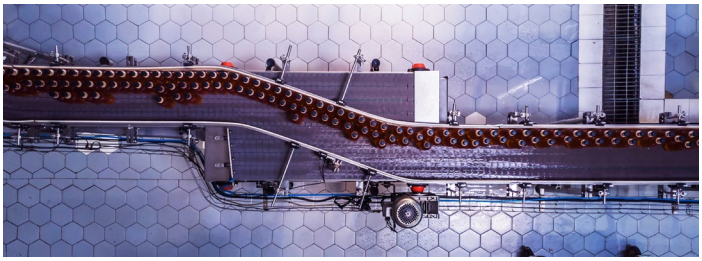
Visual Examination



1 Does this plant look organized?

Clear signage and powerful visual management systems can enhance productivity—helping employees and management understand the rhythm of the operation; ensuring workers know what to do; reducing the chance of injury; decreasing labor and inventory costs; improving asset utilization; reducing capital; and increasing EBIDTA and cashflow.

What to look for:

Organization tools. Kanban scheduling (a scheduling system for lean manufacturing that limits the buildup of excess inventory throughout production) and color-coded production lines, among other visual cues, should guide employees to locations for tasks.

Visual labeling system. Kiosks that display team member names, vacation schedules, processes and productivity metrics should be positioned across working areas and machines.

Work instructions and product inspections. Clear instructions should be visible at all workstations to help the operator safely and consistently produce quality products.

Operational Management System (OMS). An effective OMS provides real-time and historical operational performance for management, customers and investors to view across the following five areas: (+)Safety, (Q)uality, (D)elivery, (I)nventory, (P)roductivity.

Plant Layout & Flow

2 Does this factory's layout maximize efficiency?

A factory's layout will positively or negatively influence manufacturing operations. Lean factory layouts minimize time spent on non-value-added activities, reduce cycle time and labor costs, and provide flexible equipment arrangements, which lower fixed costs and help companies respond to changing market demands. The layout of a plant should not be overlooked.

What to look for:

Product flow. Products should move from process to process in small quantities—ideally, one piece at a time—with minimal time spent between steps. U-shaped process flows often allow for flexible crew sizing, quick quality feedback and task sharing to produce items at "takt time," or the rate of demand.

Material handling. Materials should flow along an efficient path, and equipment should be oriented so that high-volume finished goods move from one process to the next, without requiring batch quality handling. High-volume runners should travel along a path designed to minimize distance between incoming receipt and outbound shipping.

Flexible plant and infrastructure systems. Building infrastructure should support periodic re-layout activities via bright open floor layouts, with few interior walls, modular walls, or mobile interior walls, as well as adaptable utility distribution systems.

* Takt time is the average time between the start of production of one unit and the start of production of the next unit, when these production starts are set to match the rate of customer demand.

Equipment & Machinery

3 What is the condition of the equipment and machinery?

Equipment and workstations should be well-maintained. Details, such as prominently posted purchase dates and maintenance records, demonstrate that management cares for the equipment, the products, the employees, and the work they do. Well-maintained capital equipment can lead to a decreased chance of injury; reduce the need for redundant capital-intensive machinery; and minimize downtime and production delays, lowering risk and maximizing value.

What to look for:

Clean equipment and components. Machines should be in good condition, free of stains, with no visible leaks and clearly displayed nameplates and asset tags.

Cost and maintenance records. Preventative maintenance requirements and events should be tracked, with data available at the machine location. Predictive maintenance should be performed and tracked at specific intervals, driven by workload.

Andon Systems. Andon systems are communications platforms to help notify management and employees of any issues. Machines should visually indicate a failure mode with a signal on the machine or other centralized Andon boards.

Production Line Planning & Takt Time

4 How is management handling production planning?

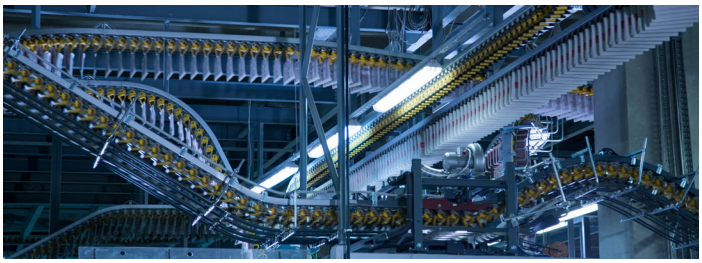
The best factories have production lines where a planned "pacing process" controls the speed of production for all upstream activities, preventing inventory buildups and improving quality. The pacing process should be set slightly faster than the rate at which goods need to be produced to satisfy customer demand. Effective labor and resource planning ensure finished goods are produced at or close to the rate of demand, helping to avoid costly over-investments or inventory buildups.

What to look for:

Documentation of production rates. Each production line should have a target rate of production that allows the factory to meet demand (often referred to as "takt time").

Production line leveling. Machines must be capable of processing parts faster than the line's takt time to keep up with demand.

Inventory Management



5 Are there controls in place to position and monitor inventory?

The best plants have controls in place to correctly position and monitor inventories. Investments in inventory controls can reduce working capital and production delays due to stock-outs; improve accuracy and record reliability; and reduce the amount of storage space required, decreasing fixed overhead and expanding capacity.

What to look for:

Strategically positioned inventory points. Raw material and "work-in-progress" inventory storage points should feed production lines in a way that allows the factory to deliver planned service levels to customers.

Inventory controls. To ensure inventory accuracy and conformance to plan, a cycle count process should be used, with accuracy of 99% or better. Inventory locations should have addresses, and all inventory should be tracked throughout the facility in real time via barcode scanners, or RFID. Inventory turns are calculated and tracked on a monthly basis, with plans in place to maintain or reduce current inventory levels.

Visual controls. Visual controls can help assure proper inventory levels are on-hand in the right places.

Environmental, Safety, Health & Quality

6 Is this factory a safe place to work?

A plant safety program engages all levels of the workforce to identify risks and eliminate root causes of potential accidents. Risk and cost avoidance are two critical benefits from a safe workplace—from lower insurance premiums to decreased risk of catastrophic events and adverse legal action. Enhanced employee morale and teamwork may also result from a better working environment, whereby workers feel respected and are therefore more easily retained and recruited. Particularly in a low unemployment environment, worker morale should not be overlooked.

What to look for:

A clean, bright and orderly workplace. Machines and work areas should be organized and free of clutter. Lighting should be consistent, air quality high and noise levels low.

Guarded machines and working areas. Pinch points on machines should have fixed guarding or light curtains to prevent accidental contact. Pedestrian and forklift paths should be separated with guardrails in areas where the two can interact, and machines and production lines should have emergency stop switches.

Safety program with strong management commitment. Plant safety metrics should be prominently displayed on the manufacturing floor, including mechanisms for identifying safety issues in the facility and documented action items and resolutions to problems. Before any plant tour, safety instructions should be provided, including the need for any personal safety equipment.

Strong company quality management system. The factory should have a well-defined system including control plans, Pareto analysis, root cause detection and corrective action. Quality performance should be tracked, trended and displayed monthly throughout the facility.

7 Are employees motivated to achieve shared goals?

In the best plants, people consistently focus on the plant's goals for productivity and quality, know their jobs well and are eager to share their knowledge with customers and visitors. Short- and long-term goals for the plant and team, daily operations reviews and visual displays showing progress can help engage employees at all levels in meaningful change with measurable results, driving morale and encouraging teamwork.

What to look for:

Indicators of teamwork and engagement in continuous improvement. Employee recognition boards should be displayed in high-profile locations to highlight teams and their contributions. Factory leaders should also leverage employee incentives to spur increases in productivity, performance and innovation.

Quality and productivity statements. Mission statements should be posted on the manufacturing floor.

Management by performance environment. Visual performance measurement boards should be posted at the department and work center level, showing goals and actual results.

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With these questions in hand, private equity professionals can make the most of their time on the factory floor and walk away with key insights on the health, quality and value of a business.

In the end, there is one final question PE executives should ask themselves as they consider an investment decision: "Would I buy the products this factory produces?"

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