# Performing an Operations Audit

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**Introduction**
The Industrial & Systems Engineer (due to training and job position) is frequently called upon to examine the "big picture" in a production/operations environment. This may be a formal request for a diagnostic review or a vague request by top management to see what is wrong with production/operations. The Operations Audit is a procedure that aids the Industrial & Systems Engineer in determining not only what is wrong, but just as importantly, what is right in an operations activity.

**What Is It?**
The Operations Audit is the first step in performing an overall, objective evaluation of a production or operations area. It is called by many other names such as Diagnostic Review, General Survey, Operations Examination, etc. It can be conducted as a stand alone project, but is frequently part of a larger project such as a Cost Reduction or Productivity Improvement. The technique is based on a logical assessment of the current factors that are controlling the operations environment.

The audit can be performed by one person or by a team, depending on the complexity of the operation under examination and the need for skills outside of the Industrial & Systems Engineer's training. The audit can vary from as short as two days to as long as several months, depending on the size and complexity of the operation being examined.

The audit should result in a written, concise statement of the strengths and weaknesses of the operation and support functions. It should also contain diagrams of the interactive functions that contribute to the product or service being provided and any comments regarding areas for improvement and any specific areas for further analysis. The audit will rely on data, numerous interviews, field tours, and the objectivity and past experience of the Industrial & Systems Engineer.

**When Do You Do One?**
An Operations Audit should be performed whenever major changes of a general nature are being considered. Some major changes might include: a plant wide cost reduction effort, installation of a productivity program, new product introductions, management information system changes, new plant acquisitions, prior to plant relocations, etc.

An audit is usually the first step performed by a Management Consultant who has been given a broad objective by top management to improve the profitability of an operation. A portion of the audit may be conducted by the Consultant prior to the formal proposal being submitted, to ensure that the correct problems are being addressed in their proposed work plan. Similarly, the Plant Industrial Engineer or Internal Consultant will frequently find that the audit is a necessary first step to ensure that they are addressing the controlling problems and not just some of the symptoms.

Most operations experience enough change that an Operations Audit could prove beneficial every three years and more frequently if a major change has occurred or is planned since the last audit.

**What Tools Do You Use?**
A variety of tools are used during the conduct of the Operations Audit and the emphasis will vary based on the complexity of the audit and the time available. One of the most important tools will be the Industrial & Systems Engineer's ability to conduct the audit as a project, with a written objective, defined tasks, expected deliverables, listing of work steps, and a schedule. If other team members are used, then their efforts will be directed and coordinated as well.

Other important tools are the ability of the Industrial & Systems Engineer to conduct meaningful interviews at all levels of the organization, and to document findings and draw clear, concise, conclusions. The handling and gathering of data necessary for the conduct of the audit is a particularly important task, since the time usually allotted to the audit will require not only care in analyzing data, but in making realistic data requests of key departments, such as Accounting and IT (Information Technology).

The operations tour and related field trips can be an important source of general information, and the tour can be augmented with product flow charts, equipment location drawings, and facility expansion plans. The observations and answers to key questions during tours and subsequent operations visits can become a useful part of the data gathering stage of the operation audit for confirmation and verification at a later date.

Organization charts, job descriptions, budget plans, financial statements, production records, and written operating procedures can be useful information to be obtained during the conduct of the audit.

Computers and computer departments may become essential tools in the audit if new data is being developed or extensive analysis is required, but the auditor should be careful not to "reinvent the wheel" when gathering new data and not to forget the objective and time frame of his project when spending time on computer programs.

**How is the Audit Performed?**
The Operations Audit can take a variety of directions and any number of steps can be involved, depending on the complexity of the audit and the size of the operation being examined.
A typical audit may include the following steps:
- Discuss Purpose and Objective of the Operations Audit with top management.
- Develop a Work Plan for the audit and create a Project Team, as required.
- Determine major data sources and list of key interviews.
- Review detailed Plan and data sources with top management.
- Conduct a detailed plant tour with the Operations Manager.

- Arrange for interviews starting at the top and going down the organization. Cover all necessary departments such as production/operations, engineering, sales, marketing, finance, Information Technology, inventory control, etc.
- Make any data requests early in the study to the appropriate department head.
- Conduct interviews and gather departmental information such as sample reports, job descriptions, organization charts, etc.
- Analyze data being gathered and develop various diagrams of product flows, information flows, and departmental interactions.
- Develop familiarity with products manufactured (or services provided) and major costs associated with the operation processes.
- Place all data gathered and interview notes in file folders, and keep organized by department. If other team members involved, conduct periodic review sessions and share data.
- Document preliminary findings as a series of un-ranked strengths and weaknesses. List strengths first, so as not to overlook anything when detailing weaknesses.
- Do not discuss preliminary findings with people being interviewed, since comments will not be finalized and final results may be confidential.
- List "unknowns" as well as "knowns" and begin to draft the Final Report, being careful to include data being developed that substantiates observations.
- Call in all data requests previously made and analyze data with help from the person who prepared the information.
- Develop a prioritized list of major strengths and weaknesses, and describe any specific areas for further analysis or for immediate action that are beyond the scope of the operation audit.
- Review Final Report with top management, complete with any appropriate Action Plans.
- Review copies of report with department heads, as appropriate.
- Begin to follow up on appropriate action items and develop additional Plans, as required.

**Conclusion**
The Operations Audit can be a beneficial first step in aiding the Industrial & Systems Engineer in assessing the appropriate focus for later problem solving efforts, and can be used in a variety of circumstances in most production & operations environments.