Process-based Auditing

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Summary

Process-based auditing is a new name for an old topic. It requires an in-depth understanding of the business and control processes of the organization before the audit starts. It requires performance data from the activities being audited. Audit results must be presented in a form that promotes continual improvement. These are not new concepts.

Before an audit starts, audit team members must first map and then understand the business, production, and control processes within the scope of the audit. They prepare individual (and unique) work papers to define audit criteria and objective evidence needs. Then they gather evidence through observations, interviews, and examinations. The data are assembled into findings, such that stakeholders have a desire to change deficiencies and continue good practices.

Keywords

Audit, process, improvement

Audits provide information for decisions

To audit is to compare gathered evidence to established requirements. The observations, both good and bad, are analyzed to form findings or positive practices. The sum of the information is further analyzed to form conclusions that stakeholders can use for making decisions. Thus, the purpose of any audit is to assist decision-makers in managing the enterprise.

Rather than examine the operations to artificial criteria, such as document control or instrument calibration, auditors may assist the operations by examining business processes and how they are controlled. This requires seven steps.

Step 1: What do they make?

Every organization produces a product. In order to evaluate the controls used to make the product, the auditor must first know about the product. This is not just for manufacturing operations. Product actually comes in four forms: (Reference 1)

1. Tangible manufactured goods, such as autos and appliances
2. Tangible processed items, such as pharmaceuticals, plastics, and puppy chow
3. Software instructions for computers to use
4. Service activities, such as loaning and laundering

The first step is to define the goods and services provided by the organization to be audited. This is usually fewer than a half-dozen things.

Step 2: How do they make it?

A product is the result of one or more processes. (Reference 1) The auditor must identify the various process steps used to make the product. A simple list of steps can suffice. Many auditors find the flowchart to be a useful tool. Try to diagram the process steps on a single sheet of paper, using eight to ten boxes. Keep it simple. Each box of the flowchart should start with a verb, to emphasize the transformation of inputs into outputs. String several processes together and you have a system.

Step 3: Understand the processes

There are three ways of examining processes for deeper understanding. The first is the simple four-box model: Inputs, outputs, controls, and resources make up the boxes. This is an elegant model and quite useful in getting the various process parameters defined. Unfortunately, it also depends upon the memory of the individual doing the analysis. Important aspects could be forgotten. The second model for analyzing processes leaves less to memory. This model examines the six universal process affecters, initially captured by Ishikawa (Reference 2) and used in the fishbone diagram approach to problem solving. These six affecters are:

1. Methods. These are the instructions we provide for the task. They are often called documents.
2. Material. There are the things used by the process.
3. Manpower (and womanpower!). These are the human competencies needed for the task.
4. Measurement. These are the data taken on the process and their use.
5. Machinery. This is the equipment used to perform the action.
6. Environment. These are the outside influences on the process.
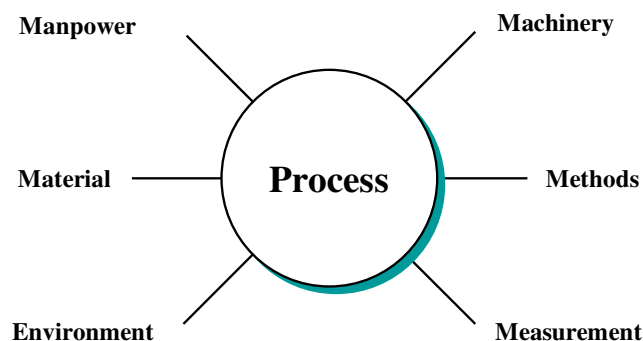

Figure 1: Universal Process Affecters

Using this second model, the six affecters, can be quite complex. The auditor could spend days in examining all the affecters in all the processes to be audited.

Fortunately, there is a third model, which combines the simplicity of the four-boxes and the thoroughness of the process affecters. This third model is often called the *turtle diagram* because it looks (somewhat) like a turtle. The turtle diagram has six boxes for each process:

1. Inputs (List the things coming into the process.)
2. Outputs (What has changed and is being passed on to another process?)
3. With What (What are the materials and equipment used by the process?)
4. With whom (What are the people requirements for this process?)
5. How (What are the supporting processes and methods used for the transformation?)
6. What results (What are the performance indicators for the process?)
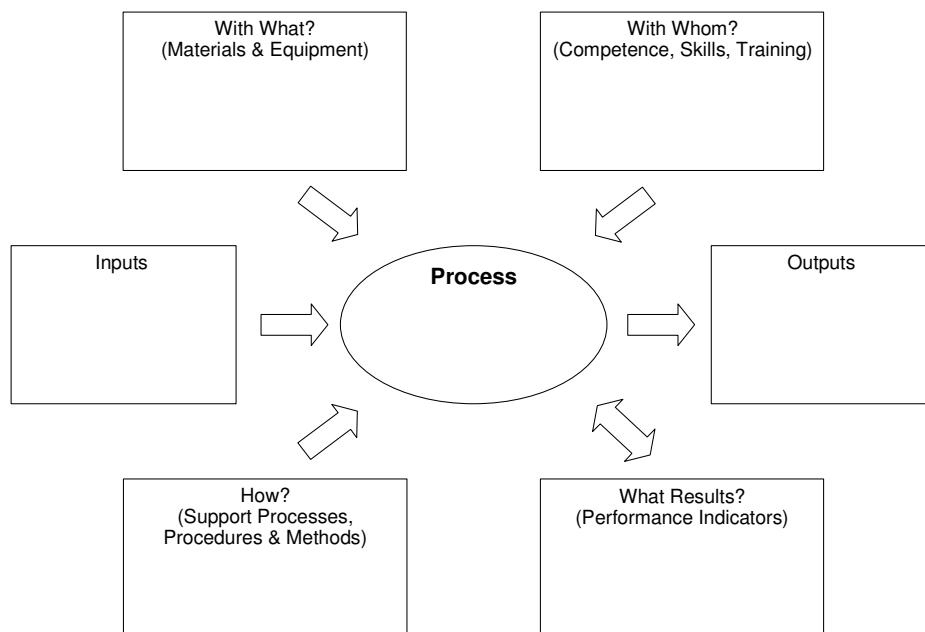
Source: AIAG 2003

Figure 2. The *Turtle Diagram*

Step 4: Define objective evidence needs

Every audit requires a set of work papers to assist in data gathering. These are the tools to guide the auditor in obtaining necessary facts while performing the audit. They should be objective and based on the requirements defined in step 3 (turtle diagram) above. A typical quality management system audit will use 30-40 pages of checklist questions. While it is fine to start from a common base, the final list should reflect the specific processes being examined. They should include questions drawn from external requirements, high-level internal requirements, process specific procedural requirements, and product specific specifications.

Step 5: Gather objective evidence

This is the performance phase of the audit. (References 3 and 4) After a brief opening meeting, the auditor collects five kinds of information:

- Physical evidence, such as size, shape, color, and temperature
- Sensory evidence, from sight, sound, smell, and sometimes even taste
- Paperwork, including both documents (before the activity) and records (after the activity)
- Interviews, obtained by talking to people in their work areas
- Patterns, including percentages, trends and ratios

The auditor will normally obtain this evidence through the use of tracing, a technique of following the actions (processes) from step to step. All this information is captured in the work papers, which act as auditor's field notes.

Step 6: Analyze data by sorting

Now, the auditor must review the field notes and identify observations. These are the facts gathered during the course of the audit. They may be good (requirement was met) or bad (requirement was not met). Make a master list of good facts and bad facts. Once the master list is made, sorting the data by problems and strengths. This is classic *data chunking*. Stack the bad facts on top of the related problem. Stack the good facts on top of the related strength. Amazing as it seems, there will always be one or two piles bigger than the rest. Ignore the small piles and focus on the big ones.

Turn the piles upside-down and you have a *finding* or a *positive practice*. These are statements about the system weaknesses or strengths, supported by examples. (Reference 5) Placed on a single sheet of paper, they are called finding sheets (or positive practice sheets).

Step 7: Present your conclusions

Examine all the findings and positive practices, along with sights and sounds of the entire audit experience, to develop an overall conclusion. This is a one or two paragraph summary of the audit experience. Are processes defined and in control? Are operations safe and within regulatory boundaries? Are external and internal customer needs being met? Findings, positive practices, and conclusions are presented at the closing meeting and formally captured in the audit report.

Conclusion

There are seven steps in the process approach to auditing:

1. Define the products
2. Define the processes used to make those products
3. Analyze and understand those processes
4. Develop objective evidence needs to explore the processes
5. Gather field data during the actual audit
6. Analyze the gathered data by sorting into piles
7. Present the information to the process owners

In order to use the process approach, the auditor must first understand how the business processes relate to the objectives of the enterprise. Then data are gathered to see how these processes are being controlled. Finally, conclusions must show how the identified strengths and weaknesses affect the operation of the business.

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