

Integrated Internal Auditing

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To date, societies have developed and used four stages of organization management:

1. Control
2. Assurance
3. Management
4. Integration

As production moved from agriculture to manufacturing to service, the old ways were not rejected. Rather, they were augmented with additional ways.

The first era, control, started at the beginning of the industrial age and peaked around World War II. It focused on the product – those goods or services provided to the customer. Because the operator was busy operating, a new group of specialists evolved to examine that work. Quality inspectors (QC) test product and material to defined characteristics, often called form, fit, and function. Safety inspectors monitor work for unsafe practices. Environmental inspectors measure pollution levels to see that permitted discharges are not exceeded.

The second era, assurance, started in the 1960's, as technologies advanced and the consequences of failure increased. These methods focused on the process – how the goods and services are produced. Quality assurance, safety assurance, and environmental assurance all assume that if people follow good procedures, compliance to requirements will be higher. Often captured in the phrase, "*Say what you do and do what you say*," the approach leads to stability. It is the foundation of most registration and certification schemes around the globe.

The third era, management, became necessary as communication (mainly through the Internet) and global trade both increased. These methods focus on the system – how all the processes work together to achieve the goals of the organization. Documents, human competencies, communications, and other resources are organized in a system of interdependent links. Systems are complex and often a sign of organizational maturity.

The fourth era, integration, is just starting. Quality, safety, security, environment, finance, and other management systems have many things in common. They either promote good or prevent evil.

- Quality management tries to achieve excellence, satisfaction, and delight.
- Financial management tries to promote financial security.
- Human resources management tries to maximize the potential of people.
- Environmental management tries to prevent harm to the planet.
- Safety management tries to prevent harm to people.

- Security management tries to keep bad guys away.

All use the same plan-do-check-act approach to resource management.

	Plan	Do	Check	Act
Quality Management	<ul style="list-style-type: none"> ▪ Identify item or service characteristics (form, fit, function). ▪ Define methods, materials, and machines to make or deliver that product. ▪ Define the systems in which the product is made or delivered. 	<ul style="list-style-type: none"> ▪ Provide people, environment, material and infrastructure to make or deliver the product. ▪ Follow the defined methods. 	<ul style="list-style-type: none"> ▪ Measure progress in achieving defined products, processes, and systems. 	<ul style="list-style-type: none"> ▪ Reduce differences between desired and actual states. ▪ Make things better.
Environmental Management	<ul style="list-style-type: none"> ▪ Identify pollutants and their sources. ▪ Define ways to reduce (or eliminate) pollution generation. ▪ Define ways to remove existing pollutants from the biosphere. 	<ul style="list-style-type: none"> ▪ Follow the defined methods to reduce and remove pollutants. 	<ul style="list-style-type: none"> ▪ Monitor operations for presence of pollutants. ▪ Monitor implementation of defined methods and systems. 	<ul style="list-style-type: none"> ▪ Reduce differences between desired and actual states. ▪ Generate fewer pollutants.
Safety Management	<ul style="list-style-type: none"> ▪ Identify hazardous energies and their sources. ▪ Define ways to reduce (or eliminate) hazardous energy sources. ▪ Define physical and administrative barriers to contain energy sources. 	<ul style="list-style-type: none"> ▪ Follow the defined methods to reduce and remove hazards. 	<ul style="list-style-type: none"> ▪ Monitor operations for presence of hazards. ▪ Monitor implementation of defined methods and systems. 	<ul style="list-style-type: none"> ▪ Reduce differences between desired and actual states. ▪ Make things safer.

Table 1. Management System Similarities

One can apply these basic resource management principles to conduct integrated audits within the enterprise, using eight steps.

Step 1: Define the Product

Just as Stephen Covey [Book 1] advises us to live life by first deciding where we want to go, the auditor must first understand the product being produced by the auditee. The ISO 9000(2000) standard [Book 2] states this product may be one of four generic categories: manufactured goods, processed goods, software programs, and provided services. Manufactured goods are easy to recognize and understand. We can generally see or even touch them. Process goods require a bit of “magic.” When we make soup or chemical compounds or treat steel, strange things can happen at the molecular level. We need to apply additional controls to see if the processes were

correctly done. Software today is extremely complex and often cannot be understood by a single individual. It deserves special handling. Services may not produce a tangible product. They can be temporal and even generate emotional responses. They also need different study and controls.

Step 2: Define the Processes

Product is made by the operation of a series of processes on an initial set of materials or conditions. A change of state occurs. What comes out is different from what went in. Processes make everything. Processes are verbs. We can have product realization, such as assembling, coating, moving, serving, teaching, and washing. These processes generally result in the goods and services the customer is paying for. We can also have business support processes, such as inspecting, fixing, planning, hiring, and computing. These processes allow the product realization things to operate efficiently and effectively. Finally, we can have external interface process, where information is passed between an external customer and supplier. Because this communication is never perfect, things get lost and misunderstood. We need to apply additional steps to assure the information sent and received is close to the same. Using multiple resources, the auditor must define and then flowchart all these auditee processes. Resources here include formal education and training, study of prints, drawings, and procedures, and conversations with experts. The end result is a flowchart.

Step 3: Understand the Processes

There are many useful tools for analyzing processes. The four-box model examines process inputs and outputs, along with controls and resources. This tool is the foundation of the SIPOC analysis (suppliers, inputs, processes, outputs, customers) of business. While useful, it is too general for the internal auditor.

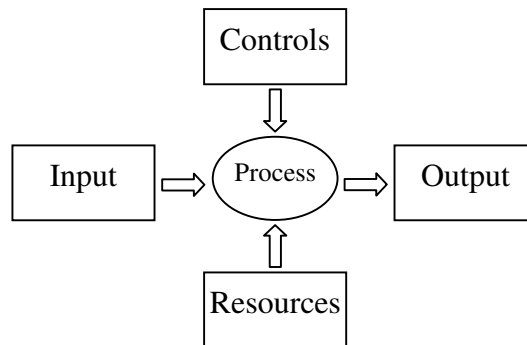


Figure 1: Four-Box Model

Beginning with a series of papers published by Ishikawa in the 1950s [Book 3], six universal process affecters have emerged.

1. Methods. These are the instructions we provide for the task. They are often called documents. (Documents tell us what to do; records tell us what was done.)

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.

We remember these through the mnemonic of MMMMME: methods, material, manpower, measurement, machinery, and environment. Unfortunately, this tool is too detailed for the internal auditor.

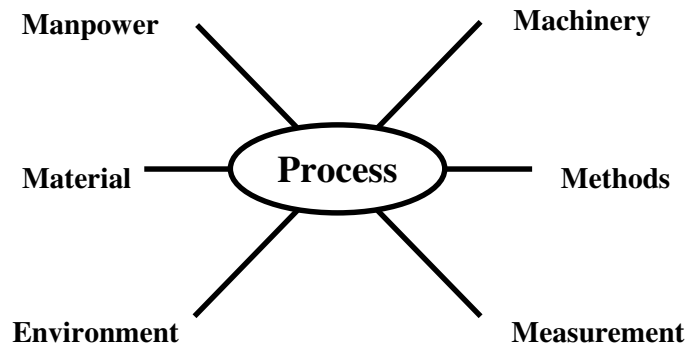


Figure 2. Six Universal Process Affecters

A third way to analyze a process is through the general risk model:

1. Define risk, which can be qualitative or quantitative. Probabilities are often used.
2. Judge risk, which requires a scientific analysis of the consequences of an event. Some risk is always present and accepted. Other forms of risk cannot be tolerated.
3. Provide countermeasures, which include barriers (physical and administrative), reduction through process redesign, and transfer to someone else.

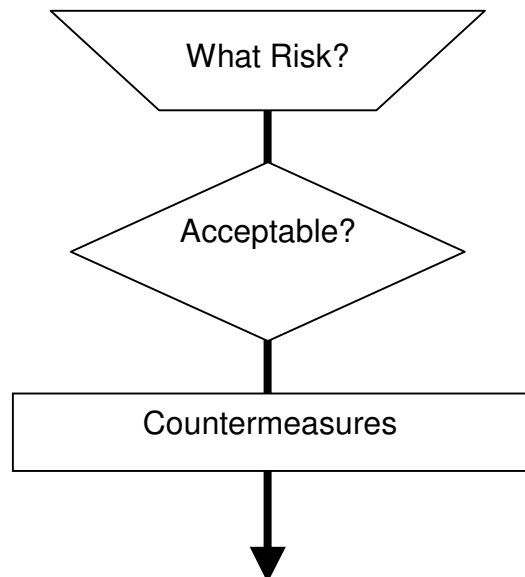


Figure 3. General Risk Model

The General Risk Model is indeed general. It is insufficient for the internal auditor.

If we take the best of all three models – four box, universal affecters, and general risk – we can develop a useful tool having the right amount of detail for the internal auditor who desires to audit quality, environment, and safety in an integrated manner. This is called the modified turtle diagram, because it adds environmental aspects and safety aspects to the human-friendly turtle diagram already in use by many organizations.

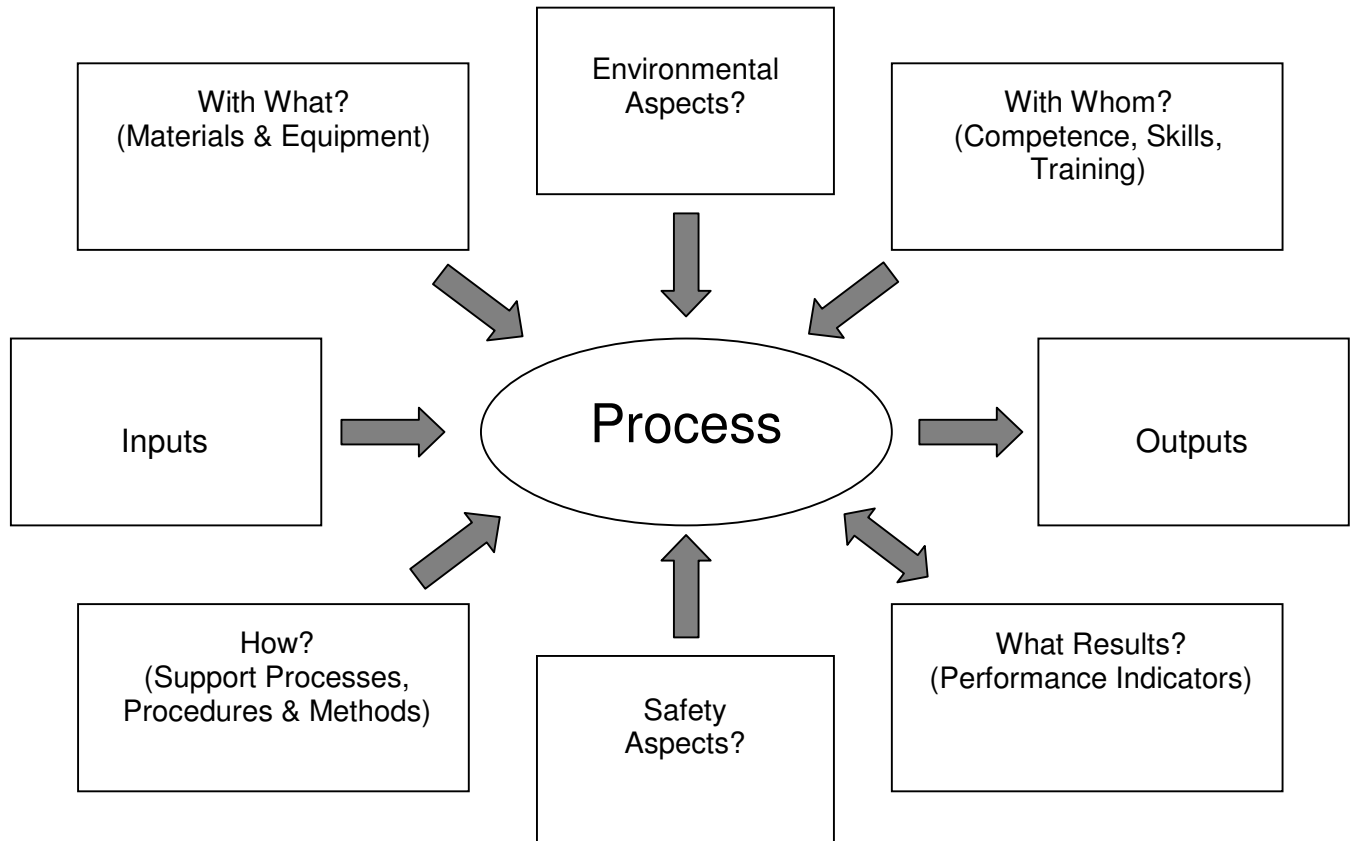


Figure 3: Modified Turtle Diagram

Step 4: Define Information Needs

After the modified turtle diagrams are developed (step 3) for each process on the flowchart (step 2), the internal auditor can examine the documents associated with the identified controls in each box of the turtles. External documents can come from national and international regulations for quality, safety and environment. They can also come from national and international consensus standards, as well as industry codes and standards. Package inserts, corporate policies, and customer requirements are also considered external requirements. Internal requirements come from quality, environmental, safety, purchasing, design, and other manuals. These are considered system documents, as they contain concepts, not details. Process procedures for the various functions address the mid-level. Finally, production-planning sheets, drawing notes, job safety sheets, surveillance plans, software settings, and lockout-tagout sheets add the task-specific (product) details.

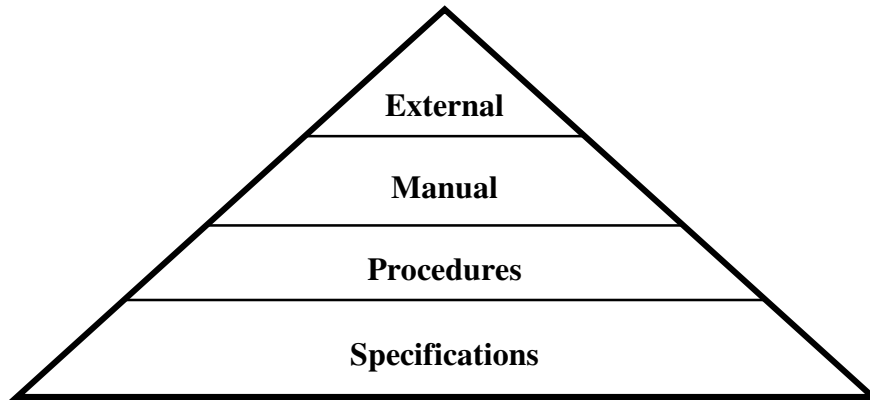


Figure 4: Document Levels

The auditor has a lot of material to find, read and comprehend. Extracting key requirements, the internal auditor develops several pages of detailed checklist questions. These are fact-based compliant conditions and very objective. They are not interview questions, which come later and are open-ended. Similar to a grocery shopping list, a checklist tells an internal auditor what conditions must exist for compliance to requirements. Internal audit checklists are typically 50-60 pages and unique to a particular audit.

Step 5: Gather Objective Evidence

This is the fieldwork portion of the internal audit, where factual evidence is obtained. Forms of evidence include: physical conditions (size, quantity, pressure, etc.), sensory input (see, hear, and smell), paperwork (both documents and records), interviews (at all levels in the organization), and patterns (percentages, trends, ratios). [Book 4] The internal auditor will trace the workflow, looking at running processes, examining records, and interviewing employees. Both compliant and noncompliant data are entered into the field notes.

Step 6: Data Dump and Chunk

As the internal audit progresses, the audit team meets periodically to gather and discuss facts and opinions. They develop a master list of good (conforming) facts and bad (nonconforming) facts. This is called a data dump, as there is no intent to analyze the information. We just need to get it all in a central location. Then these data are examined to detect patterns. This is called data chunking. Facts, both good and bad, will always cluster. Rarely is there only one instance of a conforming or nonconforming condition. Systems analysis will show that only one or two issues are common to the majority of the gathered facts. These are the things we focus on. The internal auditor will state the problem, followed by several factual examples of that problem, all on one sheet of paper. This is called a Finding Sheet. [Book 4]

Step 7: Present the Conclusions

After developing the Finding Sheets (usually fewer than six), the internal audit team must write an overall summary of the integrated management controls examined. Are these quality, safety,

and environmental controls sound? Do a majority of the employees understand and follow these controls? Does information flow up and down the organization? Is risk known, analyzed, and addressed. All are important questions for the success of the organization.

Step 8: Address Problems through Remedial and Corrective Action

After the internal audit report is published, something must be done to resolve any unsatisfactory conditions. Remedial action is taken on each of the identified nonconforming facts listed on a Finding Sheet. This is the classic rework, reject, repair, and release commonly associated with nonconformance disposition. Remedial action should be quick and easy, as we must save our energy for the more important corrective action.

For the problem identified at the top of the Finding Sheet, the auditee needs to do root cause analysis. Using classic problem-solving tools and six sigma analysis, causes and initiators are listed. Rarely can this be done in less than a day. It generally takes more than one person. After identifying causes and initiators, the auditee then develops an action plan to address those undesirable conditions. Requiring substantial resources, corrections can rarely be completed in less than a month. They generally take six to twelve months.

Conclusion

This approach to integrated auditing requires considerable study and preparation by the audit team. It requires strong management oversight and acceptance. It requires access to information generally unavailable to the external registration auditor. By showing how the gathered facts support business issues of cost, production, and risk, the internal auditor can add value to the organization.

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