



Inside Information... only from Oxebridge.com



Get ISO 9001 in only 40 days!

Only Oxebridge can implement ISO 9001 in as little as 40 days, using our proven **Rapid ISO 9001 Implementation Program.**

Whether your company's goal is ISO 9001 certification or just self-declaration, Oxebridge can implement a custom, one-of-a-kind system based on the unique needs of your company and customers.

[CLICK HERE TO LEARN MORE.](#)

[Click here for full Archive](#)

Process Mapping for ISO 9001:2000

by Christopher Paris

ISO 9001:2000 clauses 4.1 a & b require that a company identify its processes and show their interaction. This is the first step required of any company adopting a "process management" approach, and a first step in implementing the new process-oriented requirements of ISO 9001:2000.

This is a departure from ISO 9001:1994 in that "processes" were never specifically cited, and the standard took a more linear approach to operations management. The diagram below illustrates the previous approach, where one process led to a subsequent process, with a typical example beneath it.



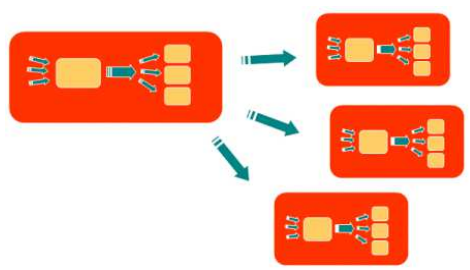
Receipt of material --> Receiving Inspection --> Assembly --> Final Inspection --> Shipment

But this model wasn't realistic. Processes are not ordinarily "lined up" in a neat row. Oftentimes one process will feed *multiple* other processes. Process management techniques start with the understanding that a process has inputs and outputs. This diagram shows the basic construction of a process:



Various inputs are fed into a process, which results in one or more outputs, which themselves may feed other processes. This is more multidimensional than the linear model.

Processes may also be "nested," as in the example below. Here each process (red) may be made of numerous sub-processes (tan). The permutations are based on the complexity of your operations.



Now this may seem complicated, especially in a complex manufacturing operation, but there is no reason to panic. You must determine ways to simplify your own understanding of the processes in your company to meet the requirements of ISO 9001:2000 without undue complexity and confusion.

Because ISO 9001 asks you to "identify the processes and show their interaction," the most common method of abiding by this requirement is to create process maps. There are other ways to meet this requirement (text descriptions, for example) but it's safe to say that process maps will become the standard method auditors will be used to seeing.

The main requirement for processes is indicated in Clause 7.1, which requires "processes needed for product realization." Likewise, ISO 9K2K makes a general requirement in Clause 8.1 for "processes needed to demonstrate conformity of the product." In English, this means your daily processes for manufacturing and inspection (for production operations) or service provision and quality verification (for service companies.)

The easiest way to meet these requirements is to simply make a list of your company's processes. These are the activities your company conducts to produce its products or supply its services (or both.) A sample process list for a manufacturing company might be:

- Purchasing
- Inspection
- Assembly
- Final Inspection
- Training
- Packaging
- Quoting

Make a rough list, and they needn't be in any kind of order. Also, beware of getting too fine a resolution, or going too deep into processes. For example, "completing purchase order" and "data entry" may be two steps in the "purchasing" process, but you needn't define it any more than by simply saying "purchasing."

Here is a typical sample list for a service provider, in this case a hotel:

- Customer greeting
- Requirements review
- Computer Entry
- Key card programming
- Room Cleaning
- Security
- Check out

Once you've determined your basic processes, you'll need to be sure you've included the other processes that ISO 9001:2000 **requires**. Review what you have against the following list, and add whatever processes are missing:

- Internal communication (5.5.3) & customer communication (7.2.3)
- Determination of requirements (7.2.1)
- Review of requirements (7.2.2)
- Purchasing (7.4)
- Processes need to ensure measuring and monitoring can be performed, and within requirements (7.6)
- Measurement, analysis and improvement processes (8.1) which requires:
 - Customer Satisfaction (8.2.1)
 - Internal Auditing (8.2.2)
 - Measuring and Monitoring of Processes (8.2.3)
 - Measuring and Monitoring of Products (8.2.4)
 - Control of Nonconforming Product (8.3)
 - Data Analysis (8.4)
 - Corrective & Preventive Action (8.5.1 & 8.5.2.)

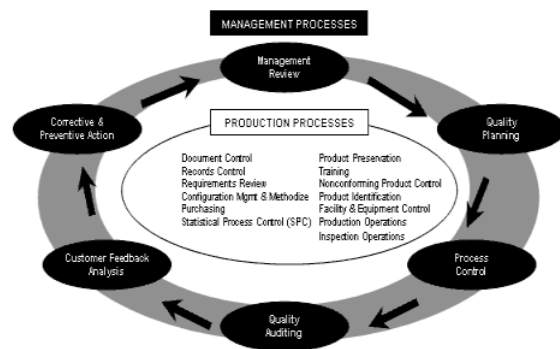
Notice that I have not included Document Control, Records Control, or Resources in this list. These should be presented not as processes, but as mechanisms for *process control*. You can define these as processes, too, if you like, but it's not required given a literal interpretation of ISO 9K2K.

You've now satisfied the first part of ISO's process approach requirement: identification. Now it's time to show their *interaction*.

There is an important statement within ISO 9001 clause 4.2.2.c "Quality Manual." Whereas the 1994 standard required simply that the Quality Manual "include OR make reference to" subordinate procedures, in this case the new standard states plainly that *"the organization shall establish and maintain a quality manual that includes a description of the interaction between the processes of the quality management system."* You are not given the option of making reference to this description: **it must be in the Manual.**

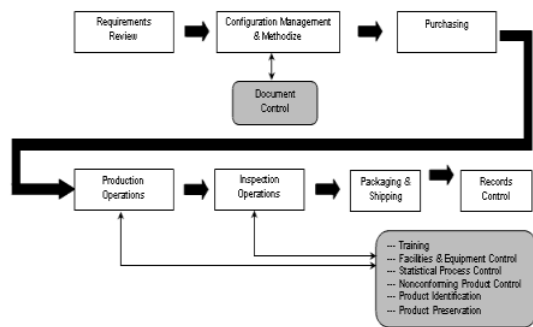
In many companies, putting all the required process maps in the Manual is a difficult task, and bulks up the Manual unnecessarily. There is an easy way to address this requirement, while still leaving the detailed process maps to subordinate documents.

Generally, your processes will be tiered; that is, the management processes that I listed will "oversee" the other work-related processes. I like to present an overall process map of these management processes in the Quality Manual, and lump the remaining work processes into a box called "product or service realization processes." These latter processes may be defined in process maps in subordinate documentation, if this is preferable. For example:



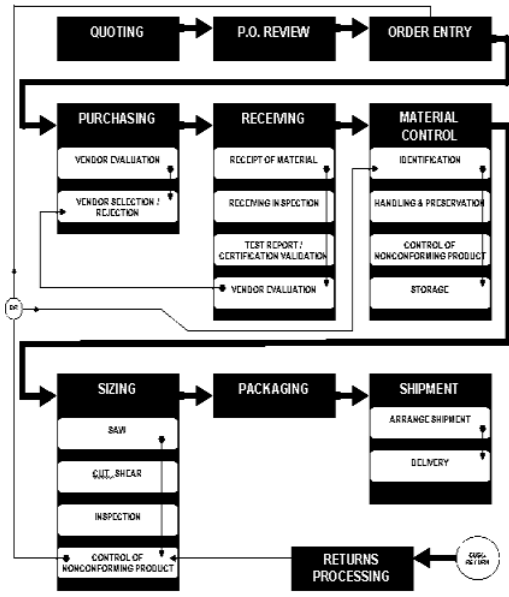
In this overall process map, the "management processes" are outlined along the outside ring, showing their interaction (which, by the way, follows the Plan-Do-Check-Act scheme) with the "production processes" simply listed in the center. This shows that those production processes are governed by the higher order management processes. (Note: this particular company chose to include "document control," "records control," etc. as processes.) Of special importance is to show how the basic ISO 9000 management tools (including auditing, corrective action and management review) fit into the scheme of your operations.

For this particular company, a second chart was used to give the overall flow of production processes, and how they fit into the scheme:

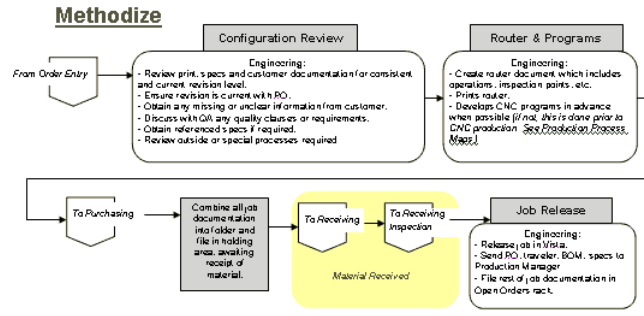


Notice that specific operations are simply indicated as "production operations" and "inspection operations." This is sufficient for ISO 9001 compliance, and allows lower level documents to add greater detail to the process definitions *if desired*.

Here is another example of a process map for a different company, a distribution warehouse where the processes were simple enough to fit all into one map.



More complex companies may require an entire manual of process maps. However, this can be used as an advantage: good process maps can do double-duty as work instructions, as we see in this sample:



Notice how this map refers to other processes (such as "Receiving Inspection".) Again, processes are not always linear, as the 1994 standard seemed to suggest.

So, again: **tier your maps**. A "grand scale" map that includes the basic management processes and makes reference to subordinate, work-related processes is fine for the Quality Manual. If you can comfortably fit the subordinate maps in the Manual, fine; if not, place them in subordinate documentation such as a "Process Map Manual."

This article only covered two of the six requirements related to processes as defined in ISO 9001:2000 clause 4.1. A future article will discuss how you can meet the remaining requirements of determining control criteria and methods, process of resources, monitoring and measuring the processes, and improvement of the processes.

(c) 2002 Oxebridge Quality Resources. All rights reserved. For reprint permission, contact OQR at <http://www.oxebridge.com/>.

