Loading...

Folder Access and Help

- Sign In
- Folder
- Preferences
- Languages
  - English
  - Deutsch
  - Español
  - Ελληνικά
  - Français
  - Italiano
  - Magyar
  - Polski
  - Português
  - Русский
  - Türkçe
  - عربي
  - 简体中文
  - 繁體中文
  - 日本語
  - 한국어
  - ภาษาไทย
  - Hrvatski
  - Čeština
  - Bahasa Indonesia
  - עִבְרִית
  - Română
  - Slovenski
  - Slovenčina
  - Nederlands
  - Svenska
  - فارسی
  - Suomi
  - Dansk
  - Norsk
- Ask-A-Librarian
- Help Help
- Exit

Browse Resources toolbar

- New Search
- Subjects
  - Academic Search Complete -- Subject Terms
  - Business Thesaurus
  - MLA International Bibliography -- Thesaurus
  - OmniFile Full Text Select (H.W. Wilson) -- Thesaurus
- Publications

- Academic Search Complete -- Publications
- Business Source Complete -- Publications
- Fuente Académica -- Publications
- MedicLatina -- Publications
- MLA International Bibliography -- Publications
- OmniFile Full Text Select (H.W. Wilson) Publications
- Regional Business News -- Publications
- Research Starters - Business -- Publications
- Research Starters - Education -- Publications

- Company Information
- More
  - Images
    - Image Collection
    - Image Quick View Collection
  - Business Videos
  - Company Profiles
  - Names as Subjects
  - Author Profiles
  - Dictionaries
    - Oxford American College Dictionary
  - Indexes
    - Academic Search Complete
    - Business Source Complete
    - MLA Directory of Periodicals
    - MLA International Bibliography
    - OmniFile Full Text Select (H.W. Wilson)
    - Research Starters - Business
    - Research Starters - Education
    - Research Starters - Sociology
  - eBooks
    - eBook Academic Collection (EBSCOhost)
    - eBook Collection (EBSCOhost)

citation_instruction

Accessibility Information and Tips Revised Date: 07/2015

Advanced quality planning: a guide for any organization

CONRICYT

Logo - Link to Search

Search

Searching: Academic Search Complete, Show all Choose Databases

EBSCOhost Search

- "quality planning"
  AB Abstract
  - ○ Select a Field (optional)
  - ○ TX All Text
  - ○ AU Author
  - ○ TI Title
  - ○ SU Subject Terms
  - ○ SO Source
  - ◉ AB Abstract
  - ○ IS ISSN
  - ○ IB ISBN
- join operator AND
  - ◉ AND
  - ○ OR
  - ○ NOT

  Select a Field (optional)
  - ◉ Select a Field (optional)
  - ○ TX All Text
  - ○ AU Author
  - ○ TI Title
  - ○ SU Subject Terms
  - ○ SO Source
  - ○ AB Abstract
  - ○ IS ISSN
  - ○ IB ISBN
- join operator AND
  - ◉ AND
  - ○ OR
  - ○ NOT

  Select a Field (optional)
  - ◉ Select a Field (optional)
  - ○ TX All Text
  - ○ AU Author
  - ○ TI Title
  - ○ SU Subject Terms
  - ○ SO Source
  - ○ AB Abstract
  - ○ IS ISSN
  - ○ IB ISBN

Add Row Remove Row Search Clear

- Basic Search

- Advanced Search
- Search History

- Result List
- Refine Search
- Result **62** of **148**

Translate Full Text:
Choose Language | Translate | Back to English

Title:
Advanced quality planning: a guide for any organization. By: Thisse, Laurence C., Quality Progress, 0033524X, February 1998, Vol. 31

Database:
OmniFile Full Text Select (H.W. Wilson)

HTML Full Text

Advanced Quality Planning: A Guide for Any Organization

AUTHOR: Laurence C. Thisse

TITLE: Advanced Quality Planning: A Guide for Any Organization

MANY ORGANIZATIONS ARE STRUGGLING with the concept of advanced quality planning and how to incorporate this methodology into existing framework. Published jointly by Chrysler, Ford, and General Motors, advanced quality planning is required in the QS-9000 Quality Systems Requirements manual, but it can be appropriate for virtually any system.

The following key points may help move organizations in the right direction.

THE MANUAL

The Advanced Product Quality Planning and Control Plan (APQP/CP) commonized reference manual was released by Chrysler, Ford, and General Motors in July 1994. It received less attention from suppliers than other commonized initiatives, however, because of the release a month later of the QS-9000 Quality System Requirements manual.

The purpose of the APQP/CP manual is to communicate to internal and external suppliers, and to their subcontractors, the product quality planning and control plan guidelines developed jointly by the three automakers. The manual provides guidelines designed to produce a quality plan that will support the development of a product or service that will satisfy the customer.

The manual uses a cross-functional team approach to manage all facets of the quality planning process and outlines a structured method of defining and establishing the steps necessary to ensure that a product satisfies the customer. The goal of quality planning is to facilitate communication with everyone involved to ensure that all required steps are completed correctly and on time. The manual also notes that effective product quality planning depends on an individual company's top management commitment to the effort required in achieving customer satisfaction.

The manual introduces and focuses on the five phases of quality planning and illustrates

appropriate activities at each of these phases.

Phase 1: Planning and defining the program. This phase describes how to determine customer needs and expectations in order to plan and define a quality program. The idea is to determine that the customer's needs and expectations are fully understood before proceeding with the design and development of the product or service, or the manufacturing process associated with the product. Prevalent here are methods and techniques related to listening to the voice of the customer.

Phase 2: Product design and development. In this phase of the planning process, design features and characteristics are developed into near final form. This phase focuses on developing the design of the product or service, and on ensuring that it is feasible and will meet the customer's expectations. Prevalent are methods and techniques related to translating the voice of the customer into final designs that can also be effectively and efficiently manufactured.

Phase 3: Process design and development. This phase of the planning process concentrates on developing a manufacturing system and related control plans to achieve quality products. The focus is to create a process that will yield the design that was developed in the previous phase at the quoted quality level, quantity, and cost, while at the same time ensuring that any other customer requirements and expectations will be met. This is where the supplier must be sure the product or service represents a value to the customer.

Phase 4: Product and process validation. This phase centers on validating the manufacturing process through the evaluation of a production trial run and all the activities related to it. The focus is on methods and techniques for determining that the long-term production process is capable of meeting all the requirements that have been researched and documented through the previous phases. Other concerns or requirements may be discovered during this phase, and must be addressed before the initiation of long-term production.

Phase 5: Feedback, assessment, and corrective action. At this point, output is evaluated for all special- and common-cause variation. This is also the time to evaluate the effectiveness of the quality planning effort itself. In this phase, variation can be studied and reduced over time. Results of the organization's continuous improvement philosophy will be most visible.

The manual also introduces the commonized control plan form as well as a new requirement in QS-9000 for three distinct phases of the control plan:

* Prototype control plan. A description of the dimensional measurements, material, and functional tests that will occur during the prototype build.

* Pre-launch control plan. A description of the dimensional measurements, material, and functional tests that will occur after the prototype is built and before full production. This will normally be used until the production process can be shown to be statistically stable and capable.

* Production control plan. A description of the dimensional measurements, material, and functional tests that will be used to control parts and processes for ongoing full-scale production. It is a logical extension of the pre-launch control plan.

Included in the appendices are several valuable checklists for determining if all issues are being addressed for the various functions of the quality planning process, as well as a good description of various analytical techniques used throughout the five phases. Also included are forms used in the process, suitable for photocopying, such as the "Team Feasibility Commitment" and "Product Quality Planning Summary and Sign-Off" forms.(FN1)

WHAT DOES THE MANUAL REQUIRE?

The QS-9000 manual and the Production Part Approval Process (PPAP) manual are requirement manuals. This simply means that the supplier must meet all applicable requirements in these manuals as stated. The APQP/CP manual is referred to on its title page as a reference manual. There are other commonized manuals distributed by Chrysler, Ford, and General Motors that are also reference manuals:

* Statistical Process Control (SPC)
* Measurement Systems Analysis (MSA)
* Potential Failure Mode and Effects Analysis (FMEA)

Because these are reference manuals, suppliers must demonstrate that they are meeting the

intent of the methods or techniques described in the manuals, even if not using them as stated. Additionally, there is no need for suppliers to use all of the techniques described in the manuals (very seldom would all techniques be applicable to a supplier's operation). Only those techniques or methods that are applicable and appropriate should be used. Remember that the reference manuals do not set requirements. The supplier's quality system requirements are set by the QS-9000 manual and the PPAP manual. Because of the close link between these two manuals, however, the supplier will find that many of the activities in the APQP/CP manual are required by QS-9000. All the commonized manuals play a role in the advanced quality planning process.

In clause 4.2.3, QS-9000 states that suppliers must use the APQP/CP reference manual(FN2) for their quality planning. This does not mean that it becomes a requirement manual, but suppliers must use it for its intended purpose--as a reference or guideline manual. To achieve this, the following minimal requirements would have to be met:

* There must be an advanced quality planning process in place.

* There should be a phased approach to the quality planning process as described in the APQP/CP manual.

The process must be based on the plan-do-study-act philosophy.

* The manual must be under document control.

Since there is such a close link between QS-9000 and the APQP/CP manual, a good understanding of the advanced quality planning methodology is required for an auditor to adequately assess an organization to QS-9000. Suppliers should use cross-functional teams for their quality planning. (This is addressed by QS-9000 in clause 4.2.3 and, from the perspective of the entire organization, in clause 4.1.2 under the heading "Organizational Interfaces.") Although many other activities are recommended and may be appropriate, the following activities are required to be addressed in the quality planning activities:

* Process flow diagrams (required by the PPAP manual)
* Process FMEAs
* Design FMEAs (for design-responsible suppliers only)
* Special characteristics designation
* Establishing appropriate process controls for special characteristics
* Control plans
* Identification and acquisition of resources
* Compatibility of design, process, and documentation
* Updating techniques and instrumentation
* Identification of required measurement capabilities
* Identification of suitable verification at appropriate stages
* Clarification of standards of acceptability
* Identification and preparation of quality records
* Feasibility reviews

Control plans are a major output of the quality planning process and are the basis of the supplier's process control methodology. The control plan summarizes the supplier's strategy of how the process should be controlled. The auditor can tell many things using the control plan as a reference: most important, whether the strategy of the control system is prevention oriented or detection oriented. The control plan can also be used as a summary document to show all points at which special characteristics are affected by the process. The control plans must cover the three distinct phases mentioned earlier. Clause 4.2.3 of QS-9000 states that prototype control plans may not be required, which would only be the case if the supplier does not have prototype part or build responsibilities, or if the requirement has specifically been waived by the customer. (An auditor would require evidence of the waiver.) Also notice that in clause 4.2.3, this specific requirement is made: "Suppliers shall establish cross functional teams to develop Control Plans...." This is the only place where automotive interpretation specifically requires the use of cross-functional teams. As previously mentioned, all other activities require a multidisciplinary approach to decision making, as discussed in clause 4.1.2 under "Organizational Interfaces." Cross-functional teams, however, are always the preferred method of accomplishing this.(FN3)

WHAT ADVANCED QUALITY PLANNING IS NOT

It is not something new to an organization. Every organization is doing some advanced quality and/or planning activities. Many times they are not recognized as such. Yet virtually every program or activity has some planning associated with it; although, in some smaller, simpler, or less disciplined organizations, the planning may be done informally. For example, even small organizations ultimately make decisions based on an overall business plan. That plan may not be written down, but it may be a plan that the owner of the organization is informally working toward when he or she makes decisions.

It is not a complex, added activity. Advanced quality planning should not be a complex, in-depth department or activity that is added to an organization. Rather, it should involve an awareness that employees have developed their roles in the planning process and understand how those roles fit into the overall plan.

It is not "one more thing to do." Advanced quality planning, if implemented correctly, can be the driving force behind practices that are good for businesses. With proper implementation and the proper management philosophy, advanced quality planning should be such an integral part of the activities that it may not be recognized specifically as a standalone activity in the organization.

HOW CAN ADVANCED QUALITY PLANNING BE IMPLEMENTED?

To assist suppliers in formulating a plan with the least adverse impact to the functioning of the existing organization, the following five-step approach is recommended:

Step 1: Determine what training is necessary. An organization must have a good understanding of the philosophy, methodology, and techniques described in the APQP/CP manual in order to implement and use them effectively. The entire organization must also have a clear understanding of where their particular roles fit into the activity as a whole. There does not have to be expertise in all the methods and techniques discussed in the APQP/CP manual, but there must be enough understanding to know whether they would be beneficial to the organization. This also applies to other projects, such as the QS-9000 implementation itself. Many hundreds of hours have been wasted by organizations because people misunderstand the requirements.

Since QS-9000 element 4.18 requires that the training needs be identified and provided for all personnel in the organization, training in APQP and its related activities may be the best place to get started with the training plan for the whole organization. The training plan is usually developed and advanced by the individual or department responsible for human resource development, along with the assistance of supervisors or managers throughout the organization.

Step 2: Make the process visible and identify where the organization is already using multidisciplined approaches. In this step, a team should be organized of employees who know the company well, represent all or most of the disciplines in the organization, and are willing to spend some time analyzing both the organization and, specifically, the product fulfillment activities. Using a cross-functional team approach to brainstorming, determine what activities in the product fulfillment cycle are currently practicing multidisciplinary approaches. In virtually every organization, these approaches are used in some capacity. At the very least, the product planning activities normally use multidisciplined decision making. The team may be surprised at the number of activities that are performed this way.

If it hasn't already been done, it may be advisable to develop a macro flowchart of the product fulfillment cycle using the team. Once the process has been made visible, those knowledgeable of each activity may need to lead a discussion regarding the performance of the activity. Sometimes it is appropriate to use a micro flowchart for particularly complex activities within the process. Depending on the complexity of the organization and activities, the knowledge of the team, and the amount of time it can devote to the task, this step could take several weeks.

This step can lead to the identification of many redundant activities or movements. Moreover, it is common to find that there may be more than one product development flow path in the organization. Usually it is obvious that, depending on the complexity of a given program or product, there may be longer or shorter paths. This flowchart can be very helpful for both this step and the next in the process.

Step 3: Identify what currently performed activities are advanced quality planning activities. Using the information regarding the process flow and multidisciplinary involvement from Step 2, use a cross-functional team approach to brainstorm what activities currently are performed on a regular basis that are advanced quality planning activities. This is where the identification and provision of training discussed in Step 1 is most valuable because team knowledge of the content and intent of the APQP/CP manual as well as the activities of the organization itself is necessary.

Many companies, particularly smaller ones, seem to think they have few or no advanced quality planning activities in place. After comparing the activities referred to in the manual and the activities that they actually perform, they are surprised to find that many of the activities they take for granted as "just a part of doing business" are in fact the methods and techniques described in the manual. In many cases, when the team studies the flowchart from Step 2, it becomes apparent that there is already a phased approach to advanced quality planning within the organization.

This step is normally the shortest and easiest, usually conducted in one team meeting. If appropriate APQP training has not yet been provided, this is the time to orient the team on its principles. This is the point where the APQP knowledge and understanding really start fitting in with the knowledge of how the business should be run.

Step 4: Identify what advanced quality planning activities the organization should be doing. Using the APQP/CP manual, as well as customer input if appropriate, determine what activities the organization should be doing to add value to the products or services that are supplied. Unless the organization has done research or already understands its customers' needs extremely well, it may be appropriate for the organization to use tools such as customer surveys to determine what activities would make it a better value to the customer, or give it an edge over competitors. This exercise will also help in meeting the customer satisfaction requirements in clause 4.1.6 of QS-9000.

There are many activities that are not required, but if done will make the organization a better value to customers. These activities should be incorporated into the process or, if already performed, expanded in order to be effective. This can also be a short step if the data and knowledge already exist within the organization.

Step 5: Develop a plan. After determining the appropriate activities for the organization and where multidisciplinary involvement already exists, decide how best to add those activities to the multidisciplinary activities already in place. For example, many organizations use a two- or three-person group to guide the implementation of new products when a contract is received. It might be appropriate to have that group (or an expanded group) oversee the advanced quality planning activities by adding these activities to the agenda, checklist, or matrix that it uses as a guide. For example, one large, multi-tiered organization found it appropriate to have a corporate-level advanced quality planning team and a plant-level advanced quality planning team, with each responsible for appropriate activities under their control.

Many times, companies conclude this entire exercise by identifying one basic APQP process for new products that require minor changes from an existing product, and a considerably more complex process for products that are new to their organization. For the APQP process to be most effective, set up the system and write the procedures in a way that allows the greatest empowerment and flexibility possible to the team in the planning, oversight, and handling of the quality planning activities.

The trade-off to team empowerment is that the team must be willing to keep management well informed of the progress that is made and of process inhibitors. The team must remain totally open and honest at all points in the process. Normally, depending on the scope and complexity of the systems and products, between one and three Level II procedures will be developed to document the advanced quality planning process. Activities should be maximized that will benefit the organization the most.

THINK POSITIVE

Advanced product quality planning is far more than quality planning. Rather, it is a philosophy and mind-set that must permeate the entire organization. It is determining the customer's needs

and expectations, defining the steps necessary to ensure customer satisfaction, and managing the entire project so that the timing and cost are in line with the original commitments made to the customer. The steps discussed will allow an organization to develop a process that will work regardless of the size or complexity of an individual project. Moreover, committed implementation of the APQP process will not only enable an organization to meet many of the requirements in QS-9000, but will give it a process for adhering to the requirements in the long run. Keep in mind that the activities used in advanced quality planning, if selected and implemented correctly, will be a substantial business benefit to any organization. A project should be approached with the understanding that the organization already has a basic system in place that can be adapted and modified to meet the current requirements and improve business methods over the long term.

Added material

Laurence C. Thisse is a consultant with Management Resources International in Saline, MI. He has a bachelor's degree from Northwood University in Midland, MI. Thisse is a senior member of the American Society for Quality and a certified quality auditor, RAB-certified quality systems auditor, certified mechanical inspector, certified quality engineer, and certified quality technician.

FOOTNOTES

1. Chrysler, Ford, and General Motors, Advanced Product Quality Planning and Control Plan reference manual, February 1995.
2. Chrysler, Ford, and General Motors, QS-9000 Quality System Requirements, February 1995.
3. Ibid.

FIGURE 1. SUMMARY OF THE ADVANCED PRODUCT QUALITY PLANNING PHASES

PHASE 1 PLAN AND DEFINE THE PROGRAM Voice of the customer
Business plan/marketing strategy
Product/process benchmarking strategy
Product/process assumptions
Product reliability assumptions
Product reliability studies
Customer inputs
Design goals
Reliability and quality goals
Preliminary bill of materials
Preliminary process flow chart
Preliminary special characteristics listing
Product assurance plan
Management support

PHASE 2

PRODUCT DESIGN AND DEVELOPMENT Design failure mode and effects analysis
Design for manufacturing/assembly
Design verification
Design reviews
Prototype control plan
Engineering drawings
Engineering specifications
Material specifications
Drawing and specification changes
New equipment, tooling, and facilities requirements
Special characteristics
Gages/testing equipment requirements

Team feasibility commitment
Management support

PHASE 3

PROCESS DESIGN AND DEVELOPMENT Packaging standards
Product/process quality system review
Process flow chart
Floor plan layout
Characteristics matrix
Process failure mode and effects analysis
Pre-launch control plan
Process instructions
Measurement systems analysis plan
Preliminary process capability studies plan
Packaging specifications
Management support

PHASE 4

PRODUCT AND PROCESS VALIDATION Product trial run
Measurment systems analysis evaluation
Preliminary process capability study
Production part approval
Production validation testing
Packaging evaluation
Production control plan
Quality planning sign-off
Management support

PHASE 5

FEEDBACK, ASSESSMENT, AND CORRECTIVE ACTION Reduced variation
Customer satisfaction
Delivery and service
Reference: Advanced Product Quality Planning and Control Plan reference manual, February, 1995©Chrysler, Ford, and General Motors

WHAT DID YOU THINK ABOUT THIS ARTICLE?

Quality Progress needs your feedback. On the postage-paid reader service card inserted toward the back of this magazine, please circle the number that corresponds with your opinion of the preceding article.

Source: Quality Progress, February 1998, Vol. 31, p73, 5p
Item: 500559849

- Result List
- Refine Search
- Result **62** of **148**

View:

- Detailed Record
- HTML Full Text

Similar Results

Find Similar Results using SmartText Searching.

Tools

- Add to folder
- Print
- E-mail
- Save
- Cite
- Export
- Create Note
- Permalink
- Share

Top of Page

- Mobile Site
- iPhone and Android apps
- EBSCO Support Site
- Privacy Policy
- Terms of Use
- Copyright