ASQ Section 0511 Quality Matters Opinion
on
Plans and Process Descriptions

Round Table Discussion Report

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ASQ Section 0511
Discussion Topic: Plans and Process Descriptions
Date: July 14, 2021, 7:25-8:35 pm
Moderator: Michael Coleman

Contents

Part 1: The Preliminaries

Summary

This Report contains the Digest of the Experience and Opinions of ASQ Section 0511 on the Topic of Plans and Process Descriptions as reflected by the Participants of its Section Meeting through Discussion of a list of specific Questions on that Topic.

This Report is created and published by the Section volunteers for the benefit of the Quality Professional community.

No amount of gratitude will suffice to thank all who made the ASQ Section 0511 Quality Matters Round Table Discussions and this Report possible as well as those who generously shared their Experience and Opinions at the Round Table with others!

The Discussion

The participants of the Section Meeting where the subject Round Table Discussion took place consisted mostly of the Section Members, while the meeting was also open to Members of other Sections as well as to General Public.

The Discussion was conducted as follows:

- Topic: Plans and Process Descriptions
- Moderator: Michael Coleman
- Date and Time: Wednesday, July 14, 2021, 7:25-8:35 pm
- Location: Virtual (via WebEx)

The following Meeting Participants shared their Experience and Opinions during the subject discussion:

- Arnold Pachtman
- Barbara McCullough
- Carolyn Miller
- Ken Rapuano
- Leslie Braun
- Lolita Harris
- Michael Coleman
- Paul Sullivan

- Rachel Strother
- Sami Ghiasy
- Sara McAlpine
- Vladimir Nesterovich

All the Meeting Participants who shared their Experience and Opinions during the subject Discussion did so voluntarily and were not called upon unless they expressed their desire to speak up.

ASQ Section 0511 is deeply grateful to all Participants who shared their Experience and Opinions on this Quality Matters Topic for the benefit of the Quality Professional Community.

The Report

This Report was compiled by the following Section 0511 Members:

- Vladimir Nesterovich, who also served as Recorder during the discussion and the Lead Author of this Report.
- Michael Coleman, who also served as the Meeting Moderator and Co-Author of this Report.

In compiling this Report, they used the following materials:

- Notes taken by the Recorder during the subject Meeting
- The list of questions for Discussion of the Round Table Topic
- The Section Meeting Announcement
- Video recording of the Meeting

This Report credits all contributors to the Discussion as listed above. However, this Report attributes none of their Experience or Opinions to any specific individuals. This Report is the Section's Opinion on the subject Quality Matter in the sense that all participants had a fair chance to join the Discussion and convey further information on any particular Question.

The Questions

The following questions on the topic of Plans and Process Descriptions were up for discussion at the July 2021 Section 0511 Round Table:

1. Existence. Does your project or organization have plans, process descriptions, procedures, or work instructions? Or do you rely on oral tradition and people's unwritten skills?
2. Definitions. Are plans, process descriptions, procedures, and work instructions the same thing? If different, do they differ by title (plan, process, procedure, instruction, guide, manual) or format?
3. Motivation. Why do you write plans and process descriptions on your project or in your organization? Is it because the teams need them? Or because the Client or Organization requires them? Or because of CMMI, ISO, or audit compliance?

4. Structure, Number, and Size. How do you structure the hierarchy of your plan and process documentation? by teams? by functions? by technologies? (For example, do you have separate Project Management Plan, Configuration Management Plan, Reliability Plan, and other?) How many such documents do you end up having, and what is their size?
5. Source and Content. What do you use as the basis for your plans and process descriptions? Do you write them from scratch? Or tailor from an organizational template? From ISO 9001, CMMI, or PMP processes? What do you include in them? Goals and Objectives? Step-by-step instructions? Illustrations and charts? Checklists?
6. Authors. Who should write plans and process descriptions? And who actually ends up writing them on your project or in your organization? Do your teams have skills to write them? Do you have a Technical Writer?
7. Reviews and Approvals. Do you perform reviews and approvals for your plans and process descriptions? Do you distinguish reviews from approvals? Who reviews and who approves? Is it a peer review or a quality group review?
8. Use in Training. Are your plans and procedures included as materials in your Training Program? Are they the required reading in your Training Program? How often do team members have to re-read them?
9. Use in Work. Do your teams use the plans and process descriptions in their day-to-day work? And for what?
10. Audits and Appraisals. Do you use your plans and process descriptions in Audits and Appraisals?
11. Change Control. How do you document and control changes to your plans and process descriptions? Do you have different levels of changes defined? Do you have a change review board?
12. Updates. Do you require periodic updates, reviews, and approvals for your plans and process descriptions? How often?

The List of Discussion Questions was compiled by the Discussion's Moderator.

Leading up to the July 14, 2021 Round Table Discussion, the ASQ Section 0511 Chair for Voice of the Customer Connie Broadie ran the poll that, among other, requested for refinements to those questions. The list as used during the Round Table reflected any such proposals.

The Rules

ASQ Section 0511 announced the detailed rules of the Discussion in the Section's Meeting Announcement ahead of the meeting.

As there were 12 questions, the time frame would allow for approximately 5-7 minutes per question. The Moderator asked the participants to do the following:

- Indicate one's desire to speak by typing the Question Number in the chat window and wait to be called on by the Moderator without having to interrupt other speakers.
- Focus on the discussion question when called on by the Moderator.
- Share the floor given the time constraints to allow those who wish to speak to a question to also have their turn.

The Polls

Section 0511 Chair for Voice of the Customer runs polls before and after the Quality Matters Round Table discussions.

- Quality Matters polls are directed at all Quality Professionals. They help prioritize Quality Matters topics for discussion as well as identify volunteers for the role of Moderator and Author.
- The poll before a Round Table meeting is also directed at all Quality Professionals. It helps gauge the level of interest in the upcoming topic and improve the list of questions up for discussion.
- The poll after a Round Table meeting is directed at the Discussion participants only. It helps receive feedback so that we could improve.

The People

The following people have been instrumental in the Quality Matters Round Table Initiative in general and also specifically in the July 14, 2021 Round Table Discussion and in this Report:

- Arnold Pachtman reviewed and advised on creating the concept of the Quality Matters Round Table Series, its topics, and its discussion format. He is ASQ Certified Six Sigma Black Belt (CSSBB) and Arizona State University (ASU) Certified Six Sigma Master Black Belt.
- Barbara McCullough leads the selection of volunteers for opportunities associated with the Quality Matters Round Table. She is ASQ Certified Manager of Quality and Organizational Excellence (CMQ/OE) and Quality Auditor (CQA). She also served as the Section Nominating Chair and the Section Past Chair at the time of the subject Discussion and Report.
- Connie Broadie runs the Section polls associated with the Quality Matters Round Table Series. She is ASQ Certified Manager of Quality and Organizational Excellence (CMQ/OE) and Quality Auditor (CQA). She also served as the Chair for Voice of the Customer at the time of the subject Discussion and Report.
- Ken Rapuano leads the volunteers for the Opinion Reports of the Quality Matters Round Table Series. He is ASQ Certified Quality Auditor (CQA). He also served as the Section Secretary at the time of the subject Discussion and Report.
- Michael Coleman, the Moderator and the Co-Author of this Report, is ASQ Certified Reliability Engineer (CRE) and Six Sigma Green Belt (CSSGB). He also served as the Section Membership Chair at the time of the subject Discussion and Report.
- Vladimir Nesterovich, the Author and the Recorder of this Report, is ASQ Certified Six Sigma Green Belt and Black Belt (CSSGB, CSSBB) and Software Quality Engineer (CSQE). He created the concept and topics of the Quality Matters Round Table Series and presented them as "Quality Matters: Questions on Questions" at the May 9, 2021 ASQ Section 0511 meeting. He also served as the Section Chair at the time of the subject Discussion and Report.

The Opportunities

ASQ Section 0511 offers volunteer opportunities associated with the Quality Matters Round Table:

- Moderator. Responsibilities include compiling the list of questions for discussion and its materials; leading a 70-minute discussion during the Section meeting, with sharing of one's own experience on the subject as necessary; and, as the Co-Author, collaborating with the Report Author to produce the Report. The Moderator is advised by Vladimir Nesterovich, who leads this Discussion Series.
- Author. Responsibilities include taking notes during the discussion; producing the text of The Digest of this Report from notes and recording; applying one's own experience and judgment to assure the text's completeness and cohesion. The Author is advised by Ken Rapuano, who leads this Report Series.
- Co-Author. Responsibilities include updating The Preliminaries, editing and finalizing The Digest, resolving issues, and otherwise collaborating with the Author. Normally, the Moderator is expected to co-author; however, you may also volunteer for a Co-Author role separately.

If you are interested in volunteering for the Quality Matters Series, please make this known as follows:

- Notify Barbara McCullough at nominations21@asq0511.org, the Section Nominating Chair, who matches volunteers to volunteer opportunities.
- Indicate your interest via one of the polls conducted by Connie Broadie, the Section Chair for Voice of the Customer, also available at voc21@asq0511.org.

Note: In emails, replace "21" with current year, if applicable.

The Series

The ASQ Section 0511 Quality Matters Opinion Report Series includes the following Reports issued to date (listed newest to oldest):

- Vladimir Nesterovich, Michael Coleman. Report on Plans and Process Descriptions, per Round Table held July 14, 2021 and moderated by Michael Coleman.
- Ken Rapuano, Vladimir Nesterovich. Report on ASQ Certifications, per Round Table held June 9, 2021 and moderated by Vladimir Nesterovich.

Part 2: The Digest

In the Opening of the Discussion, the Moderator gave a brief reminder of the Rules of the Discussion, expressed his own interest in the Topic, and invited others to express their experience and opinions on the topic's questions. As the Discussion progressed, the Moderator also shared his own Experience and Opinions along with everyone else.

The Moderator said that plans and process descriptions were documents used to collect the thoughts of people who understand the process and understand the goals in order to share them with other people. These are ways for practitioners with more knowledge and experience to guide people with less knowledge and experience through a roadmap to meet their goals.

Question 1: Existence. Does your project or organization have plans, process descriptions, procedures, or work instructions? Or do you rely on oral tradition and people's unwritten skills?

The Section 0511 members described the degrees to which their organization have written plans and process descriptions or rely on unwritten skills:

- A Quality Professional (QP) in the Systems Engineering arena attested for their Reliability Engineer role that their organization tended to use plans. Their plans are usually comprehensive and used for multiple years. For their other quality role, this QP noted they tend to use procedures that are required by a lot of quality documents. In neither area does their organization ever rely on an oral tradition.
- A QP said their company in the financial business used work instructions and policies but skipped over the Standard Operating Procedures (SOPs), though the QP believed they should have also utilized SOPs. The work instruction and policy documents are retained in an electronic document control system.
- A QP who worked with a specialty pharmacy was shocked to find those pharmacists did not like to write things down. So, this QP had to write the policy and procedure manual for them.
- A QP working for the US Army said they had many procedures and process descriptions in the form of regulations, instructions, and orders at various levels: Department of Defense, the

Army, the Deputy Chief of Staff, Generals of the Army (GAs), etc. Collectively, they call this "guidance".

  - However, these instructions are only like an iceberg; the bulk of the know-how and expertise resides inside the heads of the people who have done these processes for 10, 15, 20, or more years. So, when they leave, it is a disaster to find people who can still support the process.
  - When asked, the personnel say that their processes are documented. However, when asked whether backup personnel would be able to finish the work on schedule if the main personnel are not available, then the answer is often "No". They still rely very much on miracle workers.
  - Another QP commented that one of the important purposes of documenting the processes and procedures is to assure knowledge transfer, for example, when current personnel leave or retire.

- A QP was involved in documenting as-is enterprise architecture. They found that the organization had absolutely nothing in writing for software development. It was all in everybody's head, and a number of those people were retiring. This QP helped them create documentation.

  - This QP was surprised to find such a lack of documentation in a government organization. For example, they had requirements to have certain code updated once a year to address a specific change in requirements, with no documentation to support this.
  - However, it was also surprising of how rarely one would hear of software crashes given they did not have anything in writing. It was surprising how well they did without any such documents and procedures to do software development.

- A QP noted that technical personnel who need to perform multiple complex steps have no choice but to commit those steps to writing. For example, on their software project, this could be how to stage, how to deploy, which commands to execute. While those personnel may not be great at creating nice-looking documents with cover pages, they still must commit those steps to writing, else they will be failing repeatedly.

  - Automated tools extremely valuable because they allow committing procedures to scripts that just run. But at the end of the day, it is the person who is oftentimes responsible, and a documented procedure becomes indispensable.

Organization usually have written plans and procedures. Some of them are rather strict in having all process steps documented. However, other organizations either implicitly rely on unwritten skills or do not believe documenting all steps is feasible.

Question 2: Definitions. Are plans, process descriptions, procedures, and work instructions the same thing? If different, do they differ by title (plan, process, procedure, instruction, guide, manual) or format?

The Section 0511 members shared their opinions on the meaning of the nomenclature that denotes process documentation and their observations how that nomenclature is used:

- A QP said that in their experience, most of those items were different and not interchangeable, except for work instructions and processes that they considered mostly to be synonyms. However, they noted that in some places the document could be called a process description by a quality person but a work instruction by a production engineer.
- Similarly, another QP noticed that in most of the projects they worked those items were different. Specifically, such documents have a different purpose and a varying level of detail. In their observation:
  - The plans are more high-level guidelines.
  - Process descriptions are the next level down.
  - Procedures are in the form of Standard Operating Procedure that gets into more detail on how to perform tasks.
  - Work instructions typically are even more detailed, focused on one specific task; they go down in detail that a person can use to perform a specific task.
- A QP saw that the titles of such documentation were mostly the same, especially for the plans, processes, and procedures. However, when one gets down to instructions, guides, and manuals, the titles seemed to vary.
- A QP said their company called their documents work instructions but the QP believed that the proper name for those documents would have been standard operating procedures (SOPs). This QP believes there is a difference.
- A QP noted they encouraged their teams to organize their procedures into process documents mostly leaving them freedom to title those documents however they wanted.

Overall, the QPs believed that distinctions in the nomenclature of process documentation are real and valuable. However, they also observed that in practice many such distinctions are either not followed or not worth enforcing.

Question 3: Motivation. Why do you write plans and process descriptions on your project or in your organization? Is it because the teams need them? Or because the Client or Organization requires them? Or because of CMMI, ISO, or audit compliance?

The Section 0511 members listed main reasons they and their organizations develop plans and process procedures:

- A QP said that in their work the plans and process descriptions are usually developed because the Customer requires them.
- A QP who has the background with the Corps of Engineers works with the company that has indefinite delivery / indefinite quantity (IDIQ) projects. It is their contractual requirement to write plans and documented procedures.
- A QP said that the patient assistance program informed this QP that they had a policy but had decided that they did not need written procedures. The QP warned them that they would need those procedures when being audited and offered assistance. Later, the client audited the program and noted that the program had a policy but inquired for their procedures. The program came back to the QP for help. With the client's audit occurring in the near future, the program realized it needed procedures that the QP then wrote.
- A QP's contract has a CMMI requirement. So, they have to write plans for the organization to be compliant. Based on that, they tailor those plans to the projects.
- A QP said their government clients, mostly Department of Defense (DoD) and Environmental Protection Agency (EPA) require a series of plans. Therefore, those plans are the first stage of the organization's deliverable. They are also step 1 of their getting paid.
- A QP said that in the last couple of organizations they had worked for, they started with ISO and audit compliance. Working with more seasoned staff, they realized that the process was complex. Current staff and, especially, new staff really need SOPs. It would have been best if the seasoned staff trained the new staff, but that does not always work. Thus, SOPs are needed for new staff as well as for audit compliance.
- A QP's organization writes plans and process description to satisfy various requirements and to prevent rework. Chaos and reinventing the wheel can be avoided when they can use an available template. This also helps with continuity for new team members, turnover, and other situations.

The reasons that plans and process descriptions are created include contractual requirements, plans as deliverables leading to payment, organization of process knowledge to prevent chaos and rework, model-based requirements such as CMMI and ISO, and audit expectations.

Question 4: Structure, Number, and Size. How do you structure the hierarchy of your plan and process documentation? By teams? By functions? By technologies? (For example, do you have separate Project Management Plan, Configuration Management Plan, Reliability Plan, and other?) How many such documents do you end up having, and what is their size?

The Section 0511 members noted various ways their organizations structure their plans and process descriptions:

- A QP experienced that the plans vary widely with the actual program. When they are working on a particular product, lots of times the documents are restricted to that one product. In their organization with 50-60 processes, their documents tend to go by products and technologies. The extent of the documentation also determines whether they are done by the team or someone else in the organization.
- A QP on a software development project that both develops and services the software promotes the following two principles:
  - Each team has to have at least one process document which collects their procedures. Some of their teams elected to collect all of their procedures into one document, some into two, and some into multiple documents.
  - Each major function also must have a procedural document. For example, their Training Program has the Training Manager and the Training Coordinator who mostly perform other responsibilities and are not a team on the organization chart. But they do have a Training Plan. Another example their Estimation Process that spans multiple teams. It is written in the Estimation Process document.
- A QP noted that when a plan covers different technologies, they are covered in different plans or their different sections. For example, guidance on developing software in different languages is separated into different sections.
- A QP said that the size of their plans and process descriptions varies dramatically depending on the team. For example, their large team that prefers having one process document has ended up having a guide that approaches 300 pages. Their other teams maintain several smaller procedural documents. If the team keeps everything in its one or several plans or process descriptions, the size or even the name of the document is not an issue.
- A QP noted that in their organization, most of the internal processes are governed by SOPs divided up by function. Thus, they have separate SOPs for how they collect environmental samples, for management, for data processing, for Quality Control (QC) outputs, as well as for corporate functions. Since the plans that they write are deliverables, this assures uniformity from project to project on the big-umbrella series of documents they need. Subsequently, they are tailored to specific needs of a site based on contamination history of that site, project objectives, and regulatory requirements specific to that site.

The structure and number of documents frequently depends on the size of the organization, the number of its teams, the number of its processes, and the number of different technologies used. Project Management Plan, Configuration Management Plan, and similar are often created. However, the structure of other process documents highly depends on their processes and functions. Their size is usually dictated by the area covered.

Question 5: Source and Content. What do you use as the basis for your plans and process descriptions? Do you write them from scratch? Or tailor from an organizational template? From ISO 9001, CMMI, or PMP processes? What do you include in them? Goals and Objectives? Step-by-step instructions? Illustrations and charts? Checklists?

The Section 0511 members described their experience of what they use as the starting point for their plans and process descriptions and what they include in them:

- A QP noted that in their background, all approaches are using for different documents: tailoring, using an industry standard, and writing from scratch. However, they mostly have an existing document or format that they can reuse, only rarely developing documents from scratch.
- The Environmental Protection Agency (EPA) client requires the Quality Management Plan and the Quality Project Plan to assure that the staff follow requirements in matters such as location of deliverables, quality control, management structure, process improvement, response action. Additionally, they have a series of SOPs that are part of Quality Assurance Project Plans.
- A QP described that the plans they write at the outset of their deliverable process are on how they are going to collect and use the environmental data and prepare and submit various reports to DoD and EPA clients for the environmental investigations they deliver.
- A QP has noticed recently that it seems that the requiring organizations have not been so strict on details. Rather, they provide a general requirement and give you more latitude than you had in the past.
  - Another QP agreed saying that such latitude is much more present in System and Software Development with Agile or Scrum processes. The focus is on developing the code as opposed to on documenting anything.
  - This QP has seen a major change since the early 1980s. Back then, everything had to be documented whereas today the documentation is a little bit lighter.
- A QP remarked that for a CMMI-compliant project with the organization at CMMI level 3 and higher, you are expected to receive your process descriptions from the organization. It is really great if the organization can actually produce them. However, as a CMMI-compliant project with complicated technologies, they observed over the years again and again this has not proven to consistently be the case.

  - They receive some plan templates from the organization, for example, for managing the project and configuration management, which was relevant back when the project started.
  - But when it comes to developing the software; providing instructions on particular technologies such as Java programming; or working with specific tools, for example, for configuration management, integration, integration testing, automated testing, and DevOps, then they do not get anything from the organization, and they do not think it is even realistic to expect this.
  - Instead, they rely on the manuals that come with the tools. Also, they have experienced personnel who through trial and error understood what the process is and what the process should be. They ask those personnel to describe the process so that it could be communicated to others.

- A QP said that the process map is cardinal format of communicating plans, processes, and procedures in the Army. Their processes typically involve 3-4 or more offices, each with its own role. Their processes are so complex that all they can do is just to get people to describe what they do; then they try to capture this on the process map on a Visio page.

  - The QP noted that text descriptions are great when they can write them. But they find the process maps to be the only tool equal to the job of capturing all of the complexity and helping everyone understand their role and how they fit in what everyone else is doing.

- A QP said they develop illustrations, charts, or checklists depending on the document. Sometimes, it is much easier to describe a process using an illustration or a photograph. Also, checklists help their organization immensely in its daily work.

- A QP's experience was that developing illustrations and charts was a little bit challenging. While their project develops UML diagrams and other graphics, overall artistry that goes with developing nice pictures is oftentimes a challenge.

- A QP usually recommends that people keep checklists in a separate file, which is easy to use; not as part of a bigger document, where printing or using it would be more difficult.

Using a template or an existing document appears to be the preferred way to start a document. This also allows assuring the continuity of style and format more easily. Templates should be available from the organization, but often this is not practical, so, Subject Matter Experts (SMEs) are the primary source of content.

Question 6: Authors. Who should write plans and process descriptions? And who actually ends up writing them on your project or in your organization? Do your teams have skills to write them? Do you have a Technical Writer?

The Section 0511 members described who usually authors plans and process descriptions in their organizations:

- A QP said their organization has SMEs for each area. Usually, the SME is the person who comes up with the meat of the document. Although SMEs usually can write, they are also usually backed up by a Technical Writer. The Technical Writer tends to deal with the format and not so much with the content and assures that the plan looks like similar plans and follows the format requirements for that area.

- A QP working for the US Army noted that if there is anything one would expect the Army to do well, it would be to follow instructions. Yet it continually amazes how little of their processes is understood by the contributors who own and live with these processes every day leaving the bulk of the process not properly documented.

- A QP had an opportunity for three years developing an entire set of processes for a major government organization. This included developing plan templates, process descriptions, and similar. As a result, that particular organization had a good library of process descriptions to use.

- A QP expressed belief that in most organizations the person who is the SME and the Process Owner should be the one who writes the process description or an SOP. It really helps to have a Technical Writer who can proof-read the plan, make it look properly, and assure its format is understandable to others. But if it is not the Process Owner who writes the procedure, then it is often not what is happening.

- Another QP said that they always had Technical Writers on their projects. But there are several realities that they deal with when describing processes for complicated technologies:

  - The first reality is that, indeed, the Process Owner and the SME should be the source of the information.
  - However, the second reality is that people who perform the process may lack one or both of the following: (a) First, they lack the time or, at least, they say that they do not have the time. (b) And second, they lack language skills to write the text.
  - For example, this QP, though not the Technical Writer on their project, interviewed the people who understand the process to find what is being done and what needs to be done and, as a result, documented the process.
  - But then it becomes difficult to make the interviewee feel that it is really their process, something that they have developed and defined, as opposed to something that the QP wrote as their process, even though the interviewee participated actively in developing it.

- A QP said that in their organization, they work on plans together with Process Owners and SMEs frequently. Developing such plans requires a number of skills. Therefore, they have to work together, including having multiple SMEs per plan. In fact, they must have a team to develop these documents.

SMEs are the best source of process information, although QPs and Technical Writers step in as facilitators. However, reliance on SMEs may easily lead to gaps in process documentation. Lack of time or language skills on the part of SMEs may also be an obstacle.

Question 7: Reviews and Approvals. Do you perform reviews and approvals for your plans and process descriptions? Do you distinguish reviews from approvals? Who reviews and who approves? Is it a peer review or a quality group review?

The Section 0511 members noted their observations how their review and approval process is structured:

- A QP who works in the Systems Engineering realm said their documents are usually reviewed by a group of engineers. Although their engineers review the documents, they do not generally approve them. The Project Manager both approves the documents and escalates them for further approval. Once the document is approved in-house, they send it to the customer for approval.
- A QP said their quality group develops processes for all of their products. One of the Quality Assurance (QA) specialists writes the process description while the rest of them provide a sanity check. Then the group passes the document up the ladder to managers and other lead QA people for review. After the technical reviews, the document goes to their boss for the final approval.
- A QP said all of their plans and procedures get reviewed. Some of the plans have signature lines and require approvals while other plans do not have signature lines.
  - A lot of their plans for CMMI have approval lines as they go through approval policies of the plans that client wants.
  - For example, their Quality Management Plans have signature approvals and approval lines. In fact, they also have an approval line for the client's review as well.
- A QP with the Corps of Engineers said that per US Army instructions, they need to have a Quality Control (QC) plan for each project. Additionally, the Client's Scope of Work (SOW) also expects inspections. In order to accommodate both, they try to cover all SOW requirements. As a result, they end up being required to do all inspections that come from both sources of requirements. For a small two-month job, it becomes impossible to have 7-8 inspections.
- A QP noted their organization distinguished reviews and approvals. However, they do not have a separate quality group that would conduct such reviews.
  - Their formal review tool is a peer review. They have a system for capturing peer reviews. Their peer reviews are announced in advance. People are identified who are considered peers for a given peer review. Those people receive the invitation and the document in advance. The reviewers provide their comments and then they meet and debate the provided comments. Those comments and decisions are entered into the database. Finally, the author fixes the product in accordance with the received comments.
  - However, not all products require formal peer reviews, especially if the product is in its early stages. Thus, the authors review their documents more informally, interactively, and iteratively.

  - Routine changes to plans and process descriptions are reviewed informally, while major changes and accumulated multiple changes in those documents may lead to a peer review.

- A QP said some of their plans and process descriptions require approvals described in the document itself. However, no electronic signature is placed into those documents. The approvers are usually the manager, the executive, or some combination. Once the document has been peer-reviewed, a request to review and approve is transmitted by email informing the Approvers that this is the new version and confirming that it has been peer-reviewed and all problems have been addressed. Each Approver either approves the document as is or approves on the condition that additional changes are made. The Approvers' replies become the formal approvals saved as documentation and can be later made available to an audit, an appraisal, etc.

All organizations usually distinguish reviews from approvals. Both reviews and approvals can be one-step or multi-step activities. Reviews may have differing degrees of formality, from a sanity check to a formal peer review. Approvals may be documented by a signature line or just an email. When poorly balanced, requirements for reviews may end up being excessive.

Question 8: Use in Training. Are your plans and procedures included as materials in your Training Program? Are they the required reading in your Training Program? How often do team members have to re-read them?

The Section 0511 members shared their observations on the use of plans and process descriptions in training:

- A QP observed that inclusion of plans and procedures in the Training Program depends on the type of the document.
  - For example, their Configuration Management Plan is used to train new configuration people.
  - In their quality group, the process documents are often used in training. For example, a new quality technician who must inspect a particular product would have to learn to understand the process first.
  - Their company requires annual updates of their Quality Plan. Therefore, the company also requires every quality person to read that plan annually.

- A QP said that when the documents are used for training, they also conduct a training session. In this way, the personnel learn the processes in a class. For example, a quality technician learns how to use the equipment, or a maintenance person learns how to maintain the equipment.
  - However, sometimes personnel do not want to go through the learning and occasionally fail as a result. Usually, the employees who tend to not read the book are the ones who take the class over again.

- A QP said they had a formal Training Program though no dedicated trainers. The QP always advocated using the plans, process descriptions, and instructions as training materials.
  - First, this allows people not to have to create additional training materials about the work as the process was already described in the plan.
  - Also, this allows moving the training from a class setting to an offline setting. When the training is announced, the trainees receive, read, and, hopefully, learn from the document. Of course, such an approach lacks interaction. But it also is easier to organize.
- A QP said the required frequency of reading plans and process descriptions for training purposes varies widely in their organization.
  - Sometimes the frequency is formally stipulated. For example, the reading of how to behave in the building is required annually.
  - However, when it comes to procedures of how to do one's work, the expectation could be the opposite. For example, they have very experienced developers who wrote the process and know the process. They use the written process in training new developers quite a lot. But they themselves are not required to re-read it annually, as this is considered unnecessary.

Using the plans and process descriptions directly as training materials appears to be preferred over creating derived training materials. Reading the manuals as a training activity puts the personnel into direct contact with procedures to be followed. Frequency of such reading varies due to requirements and the nature of the process.

Question 9: Use in Work. Do your teams use the plans and process descriptions in their day-to-day work? And for what?

The Section 0511 members described different scenarios of reliance on plans and process descriptions in personnel's day-to-day work:

- A QP said their organization has some very complex products and, correspondingly, some very complex quality checks. In their area, if you did not use the process description every day, you would never be able to get the job done: there are too many details. Details about exactly what color, exactly how much reflectance, exactly the limits on the tolerance for an electrical reading. There are so many things in their work that you have to go by the documentation, so you have to use it.
- Another QP attested that, despite being in a very different field, their experience was similar. Even though their plans are deliverables outside the organization, they still have to follow those plans inside of the organization in order to produce their ultimate deliverable, which is the report on the data that they gather and then interpret for client.
  - When something goes wrong either in the field or in the laboratory, the QP gets questions to determine the impact. While this QP can almost always answer questions just from general knowledge, they always go back to check the plan whether this particular project is a special case or has something where they said they would do something different than what they usually do.

  - The plans are often used for evaluating impact on the back end when things do not conform as well as for enforcing conformance.
  - When the laboratory asks whether they do X instead of Y, the QP goes back to the plan to confirm: Yes, that follows the spirit of this work, or No, we will need to get client permission to do that.

- Another QP also comes from a complex software project, but their observations on the use of plans and process descriptions differ, saying that complexity goes into the art. In developing a complex software product, their project documents a lot: the high-level and technical design, the interfaces, etc. But those products are not the process, i.e., not an instruction how to do work.

  - For example, their guidance on developing code is quite detailed. However, people develop such software for years on their project. As a result, they know those conventions thoroughly and hardly need to refer to them.
  - For them, the plans and process descriptions are a vehicle to agree on the process and how it should be executed. But once they have agreed, they know what it is. Thus, nobody needs to keep those process descriptions on their desks.
  - They still use their product specifications, for example, test descriptions. But plans and processes are not needed at that point.

- A QP whose organization writes plans due to CMMI compliance requirements noted that they tailor those plans to the projects. However, the staff do not look much at those plans.

The key scenarios that arise in using plans and process descriptions in daily work are as follows:

1. Personnel have to rely on the process description in day-to-day work.
2. Personnel remember most of the process points but may double-check for exceptions.
3. Personnel use the plan as a vehicle to agree on the process but do not need to refer to it daily.
4. An organization develops the plan or process description, and the personnel ignore it.

Question 10: Audits and Appraisals. Do you use your plans and process descriptions in Audits and Appraisals?

The Section 0511 members described the use of plans and process descriptions they see in audits and appraisals:

- A QP said their processes are always subject to audit. They have their processes reviewed by internal auditors and, on occasion, by external auditors. It is a requirement that they must live with.

- Another QP said that they are an Auditor who conducts 11 audits every year, with CMMI as the main source of the audit criteria. Additionally, their project goes through CMMI appraisals. As an Auditor, they use plans and process descriptions in audits. And they would also fail an appraisal if they did not have plans and process descriptions.

  - This QP as an Auditor and the CMMI Appraisers look at those plans and procedures as the vehicle for understanding what the process is.
  - However, neither the QP in their Auditor role nor the Appraisers verify whether the plans are sitting on the personnel's desks.

- A QP said they had been involved with a number of CMMI and ISO type audits. They confirmed that plans and process descriptions are a critical part of such audits.

  - This QP worked with the teams to help them develop their plans and processes and then work to develop the necessary training for that.
  - As those processes got developed, it became obvious that the whole operation was a lot more efficient than before they had documented plans and procedures.
  - Now they breeze through audits because they have a full understanding of the plans and processes, and they actually execute them.

- A QP remarked that the old CMM model, before the advent of CMMI, used a phrase repeated over and over, which said: "according to a documented procedure". That phrase was removed from later versions of CMMI, especially when CMM became CMMI.

  - Thus, strictly speaking, one does not need to have a written process or procedure every time in order to pass an appraisal or an audit. The CMMI model says that the process needs to be defined, not necessarily written.
  - However, the problem becomes for you to demonstrate that the process is defined. It is difficult to demonstrate this without putting it into writing.
  - As an Auditor, this QP is open-minded as to how the process description looks. For example, in early stages, this could be a slide deck or a draft without a cover page. As an Auditor, they may write a minor finding to create a cover page but not a failure for lack of the defined process. They look that the people have thought about the process and have documented the process in some way, which is evidence of their thinking to define the process.

Plans and process descriptions are an essential part of audits and appraisals, both as required evidence and as a source of process information.

Question 11: Change Control. How do you document and control changes to your plans and process descriptions? Do you have different levels of changes defined? Do you have a change review board?

The Section 0511 members described how change control is performed in their organizations:

- A QP said that in their background, plans are usually controlled for changes, and they may document the changes that are made. This allows finding out what got changed when a problem arises. Their process descriptions are also controlled for changes.

  - Another QP confirmed that all of their plans and process descriptions also have Revision History to identify the changes made in the plan.

- A QP said they have different levels of change: critical, major, and minor. Some products that their organization works with, if not made properly, can lead to loss of life and are called critical. They have very little tolerance in such products, so there can be nothing wrong with that particular portion of the item before it can be shipped out.

- A QP remarked they do not have a Change Control Review Board for plans and process descriptions, though they have one for their drawings. For their changes, they create engineering change records that we process and for which they obtain signatures per their change process.

- Another QP said that their current job requires a lot of change management. They have a Technical Control Change Board that works every Tuesday and Thursday, and they also have a Change Management Board on Fridays.

  - The changes that they manage are one or the other kind of a network. Should an incident occur, it may affect 100 or even up to 10,000 people.
  - Consequently, every change has to go through these boards, and everybody has to agree to it before you can make any change. They are very strict on what happens to all the networks.
  - This is in contrast to this QP's previous jobs where they did documentation change management that required having a Change Management Board once a month.

- A QP in software development noted that their products are under more rigorous change control than their plans and instructions.

  - All items are stored in their configuration management system, with check-in and check-out process and associated controls.
  - Also, their peer reviews identify defects in peer-reviewed items.
  - The severity of a defect in a plan or in an instruction is usually notably less consequential than in their final products. An error in their plan or product would not lead to a loss of life as in the case of another QP, and multiple verification steps that include a series of peer reviews and then a series of tests are likely to remove defects from the product deployed to the customer.
  - As a result, there is little reason for unduly strict control over changes in plans and process descriptions.

- Another QP agreed and expanded the previous QP's description of change control when nobody will die if something is a little bit changed or different. They are also seeing, as likely all are seeing, that in their company their service and software development branches are now using a tool that works as a wiki. Personnel add knowledge articles, post answers to questions, and add snips of materials as an illustration. This further shows loosening of change control now.

  - The QP did have an option to do so in the past, and the thought that just about anybody can type something into the wiki, even if it is not quite right, and that somebody else can reply and adjust it, ties into the current approach to change control, the thinking about overall quality, and how our procedures and SOPs are useful or not.

A range of change control rigor is applied for plans and process descriptions depending on requirements. In most instances, the changes are at least tracked, usually through the Revision History. Document versions are posted in a CM system and frequently but not always steered by a Change Control Board. On one extreme, the change control is very thorough engaging multiple stakeholders. On the other extreme, a tendency is recently seen to allow wikis and other tools of loosely supervised changes.

Question 12: Updates. Do you require periodic updates, reviews, and approvals for your plans and process descriptions? How often?

The Section 0511 members noted how periodic updates are handled in their organizations:

- A QP said their plans reflect the movement of their engineering systems process from advanced development to Research and Development (RD), to prototyped, to pre-Production and Production. Usually, all these documents have to change at each of these milestones because at each point at the transition here the product has been improved and more of the details have been determined. This leads to the need to update those plans, which they do every couple of years.
  - When an issue arises in Production or inspection, they also revise their plans as needed. Thus, even though they do not require updates at predefined periods, they update them based on need.
- Another QP said that in the past, they used to have a phrase "annual updates", but they steered their project away from such phrasing.
  - They do some updates annually; for example, they update and deliver their Project Management Plan annually as required by the contract.
  - However, most of their plans and process descriptions are updated based on needs such as changing technology. For example, adopting new versions of tools and languages or adopting new tools may necessitate an update of plans and process descriptions. In those instances, they may also need peer reviews and approvals for them to see that it all works.

Conducting periodic updates, reviews, and approvals may be required for some plans and process descriptions. However, most changes are driven by need.

The Moderator concluded the discussion of plans and process descriptions with the hope that the participants enjoyed it, learned from it, and gained new insights. The Moderator also expressed hope that through this discussion, the participants learned about the other members of this Section.