



## ***Introduction***

Much as per the last newsletter, I've not put something out monthly. I actually skipped two months this time! I can claim that much of this is due to being busier. But it's slow now and writing another newsletter has been on my list for a while now. I have a lot I'd like to talk about, but I might focus on establishing a quality assurance program in the near term, so it's foremost on my mind. Unlike past newsletters, this is less about putting forth an opinion, but rather airing out a concept and unique way of thinking about quality programs and their implementation – specifically as they relate to small companies.

## ***Demetri's Corner***

The new year has come, and I'm comfortably in the groove with the new company. I'm in a break between contracts, but the prospects are still good. Most of the administrative overhead necessary to keep the company running is complete, so at this point I'm looking at ways of improving my company, either through process, material, or opportunity.

I still haven't ventured past my main line of revenue at this point, and probably won't until I start making profit (I'm still catching up from start-up expenses). But I now have more freedom to expand within my current work. I've taken some of that time to get some continuing education credits from training I get to select and I'm looking into getting a PMP certification.

As it's still a one-man company, I am rather limited in the ways I can expand. I've come to realize that a growing company needs a minimum number of people that can work off of each other to challenge each other and provide some needed back-up. I wasn't thinking this way a few months ago, but I'm likely looking at getting some employees within the year. I just have to figure out who... I'm sure selecting employees will be the subject of a future newsletter.

The other real issue with a one-man company is establishment of a quality program. I'm relegated to working under a prime contractor's quality program since it's technically impossible to stand up such a program with only one role and not independence. This is a pretty big issue for me, so that's why it's the subject of today's newsletter.

## ***Today's Subject – Establishing and Implementing a Quality Program, by Demetrius Siachames***

I never really thought about what it takes to establish and implement a Quality Program, other than it's expensive. This isn't surprising given the number of procedures, manuals, forms, etc. that are needed. As well as the training, personnel, and roles and responsibilities to be filled. Add to that an extra level of scrutiny if you're trying to establish a program that conforms to some recognized industry standard.

It's no surprise that only larger companies establish standards based quality programs and get certified, as they have the corporate structure and overhead capital to throw into a large quality program development project. That really puts smaller companies at a severe disadvantage in a



standards regulated industry, such as the nuclear industry, pharmaceutical industry, or other similarly regulated profession.

But I want to put that on its head for a moment. What if a small company wanted to endeavor to create a quality program without all of that overhead at their disposal? What is really needed? I'm going to break this up into two phases: establishment and implementation.

## **Establishing a Quality Program**

What is needed to establish a quality program? I think it might be hard to answer that question if you really think about it. My brainstorming has resulted in these (likely incomplete) steps.

1. Write a Quality Program Manual – This is a high level document that outlines the way in which quality is controlled, both from the top down and from the bottom up. If the quality program is written to conform to some standard, it will mostly be organized in the same manner and use much of the same language. This allows for future auditors to have a clear line between the standard requirements and the quality program implementation.
2. Write Procedures – Quality Program Procedures should provide the “how do you do this” sort of guidance for the words that are in the Quality Program Manual. Again, if it is organized in the same way as the Quality Program, it will minimize confusion. Where the Quality Program Manual tells you “what” will be done to provide quality, reference will be made within the Manual to procedures that tell you “how” it will be done.
3. Create Templates – The templates would be associated with the Manual, or Procedures to ease completion of quality work. They aren't actually required, but it makes the Program look more polished.
4. Game it out – Make up some fictitious projects, and simulate going through the whole process of the Program to find weaknesses. Create test projects that reflect the range of projects anticipated to be performed under the quality program.
5. Revise everything – Change the Manual, Procedures, and Templates based on the simulation. It might be necessary to go through this loop a few times.
6. Create the Necessary Tools – Some tools for tracking, maintaining, and storing documentation will be necessary. This could be anything and will be dependent on the program created. This includes contracting for offsite storage, getting tracking software, etc. Modify procedures as necessary to match the tools.

And you're done! Technically, there is a quality program established. The fact that no work is being performed under it, nobody has audited it, there is no-one available to staff it... These are all concerns in terms of implementation, but not necessary to be able to claim that you have a quality program established.

This all seems surmountable by a single person that has long experience with quality programs. I would estimate you could probably put this together in three man-months. So why aren't there more companies putting together these programs? Simply said, dedicating the sort of person that has this kind of experience for three months is usually a non-starter. Also, everyone wants



to get involved, which really slows down the whole process. And this is why generating these programs gets expensive. Before you know it, you have ten authors, disparate thoughts, and a large and complex program.

But I have nobody else to get in my way. And I can dedicate myself to this task if I so choose, and I would claim that I have the requisite experience. So, I'm probably in a good place to create the program manual and procedures. There are other small companies that could likely take a similar approach if they were willing to dedicate the right resource.

## **Program Implementation**

That's all well and good, but how are you ever going to be able to implement this program with one person? Well – you can't. At least not for any quality program worth anything. There would have to be some independence and definition of roles and responsibilities that would preclude a single person from wearing every hat. That does put a one-man show in a pickle, but not a company that has access to a minimum amount of resources (people) as employees or contractors which could provide the necessary roles.

Now that we have a Program and access to a minimum number of people, what are the next steps?

1. Identify who is going to do what. That's establishing roles and responsibilities.
2. Perform training to the program. Make sure everyone is aware of their roles and responsibilities as well as the program in its entirety.
3. Use the Program for projects. It may not even be that the projects call for use of a quality program but document the consistent use of the program anyway. That establishes some familiarity with the processes, and some baseline for future audits by potential clients.

This is where we have to talk about the real elephant in the room. Why would a client believe a four-person company that said it had an NQA-1 program? It's a trick question. They wouldn't. This is another hurdle a small company has to overcome – the concept that only large companies could possibly do work per a quality program. To combat that pre-conception, there has to be objective evidence that the program has been implemented. It's not ideal, and some leaps of faith will have to be taken by courageous clients at first, but as momentum builds, it will be easier to show compliance with the necessary requirements. Of course assuming that good discipline is used in executing the program.

## **Bringing it Back to SES**

Ultimately the purpose of this episode of rambling is to work through creating a quality program when you only have one employee. We touched on this briefly in certain areas. Firstly, that one person has to be the sole author of the Manual and Procedures (and templates if required). It would be ideal if that person could find another person to review that work, as everything is better when reviewed by someone with appropriate expertise. Secondly, that person has to be able to access personnel to staff projects and train them under the newly developed program. Thirdly, that person has to convince a client to take a chance on a fledgling quality program run



very differently than most of the industry. Fourthly, that one person has to maintain the program and training for the company so that the necessary resources with the correct training can be available as needed so the program can actually be utilized.

That's a lot of stuff to do, but at a minimum, the first step can be accomplished "in the margins" with little risk other than expenditure in personal time, minor expenses in supplies and standards, and learning way too much about quality control. The timeline is really the wild card. The rest of the steps will be situation dependent, and beyond the scope of this discussion.

## **Opportunities**

If you're starting a quality program from scratch, you have the option of thinking forward and taking advantage of the clean slate. I've seen a number of quality programs and often thought that some forethought on the following items could have made a much more robust and enduring program.

- Consider all quality standards you may eventually use. See if it is possible to use the most restrictive as a basis for your program manual, which can be used by multiple programs. Then it's only your procedures that are program specific, which makes program training, maintenance, and revision all that much easier. It also ensures consistency across projects which leads to less confusion and fewer mistakes.
- Structure the program so it's project specific rather than company organization specific. This allows increased flexibility in staffing and implementation.
- Encourage the ability to create (or make mandatory) a project specific quality plan. Too often it's hard to figure out how to "modify" rigid quality requirements for unique situations. If you start with the mindset that every project will have its own quality plan, it provides a means to tailor the program at the start of the project.
- Define the exact training required for each role in the program. Too often it's difficult to tell whether the requirements for a role are fulfilled. Defining the requirement directly (even with a checklist) will minimize confusion on "is this person qualified".
- Think through how to approach a "graded approach" to a quality program. It's the new buzz word, but nobody seems to know what "it" is. Defining it up front (perhaps as part of the guidance on a project specific plan) could address a lot of future headaches.

Obviously, whether some or all of the opportunities are used will be dependent on application and company, but these are items I've often wondered why they weren't considered during generation of quality programs.

## ***Your Dose of Aphorisms***

I felt the need to come up with something catchy to match the theme of the newsletter. Ultimately a quality program does not ensure that you are right, just that you've taken steps to minimize the chances that you did not do what was intended. So judging the quality of a project is less about the ultimate result, but rather about the process.



*Quality is what you do, not the result.*

## ***The Future***

Any comments or suggestions on the discussion in this newsletter or for future newsletters will be welcomed at [newsletter@sigmaexpertsolutions.com](mailto:newsletter@sigmaexpertsolutions.com). The following list of topics is being considered for the future, and any strong opinions on any of the below or additions can also be expressed to the same address.

- Engineering Ethics
- The Role of Automation
- Managing Technical Teams
- Software development
- The role of rapid prototyping
- Commercial Grade Dedication