

## Statistical Programming Roles – Time to Reevaluate Job Profiles & Career Ladders

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### ABSTRACT

Be it a CRO or Pharma industry, traditional statistical programming/analyst roles have always been centered around programmer supporting from data programming to TLF (Tables, Listings and Figures) programming. Job profiles, job postings, screenings and hiring have always been focused on evaluating individuals on their well-rounded experience on all expected tasks to be performed by programming department. The job profiles have always been created to hire a generalist who has experience in all the aspects programming to support diverse programming needs of the department.

Hiring specialists into the generic roles has been perceived as bottleneck for the department. On the contrary, drastic computing environment changes, Industry wide data standard implementations, complex study designs, and regulatory process requirements can make the generic programmers & programming skills more of bottleneck in the future.

To understand these challenges and approaches to support career growth of these specialists, authors would like to take the case of Ajay Gupta, Technical Programming Manager at PPD, as an example to illustrate the career growths of Specialist programmers. He is one of the programming specialists we have at PPD. Ajay comes with experience and background of Information Technology, Non-clinical, Phase 1, Phase II-IV and CDISC. This paper will shed light on some common challenges faced by specialists and provide a roadmap to support their hiring and career growth. These approaches will help to develop a pool of resources within the department to handle specialized tasks and in turn cultivate a sense of well-being in the employee's work environment.

### INTRODUCTION

Current & future work requires skillsets with technical background, life science background, CDISC knowledge, regulator process knowledge like DMC/DSMB (Data Monitoring Committee/ Data Safety Monitoring Board) requirements and IRC (Independent Review Committee) programming support, to name a few. It is a lot to ask from any programmer to be an expert on all these areas without lot of focused exposure. But on the flipside, individuals feel that being specialized in one area can make them less marketable not only outside of their current organization but also within the same. These individuals may struggle to progress within their current organization to next levels as compared to other generalists. There are ways to avoid this and cultivate a sense of well-being in the employee's work environment.

Sense of career progression is critical for any staff member and ability to use full skills at work will give job satisfaction for any employee. But individuals that come with diverse technical abilities, it is essential for organizations to provide them challenging opportunities to motivate them as well as make best use of their abilities. But most of the time, organizations try to assign the same type of work to all and find it difficult to figure out best ways to harness their staffs' diverse skillsets. One of the reasons is most of the times programming leadership is concentrating on performing typical programming tasks is due to the expectations from the department and expectations that all staff must do all the work required for the department performance and progress.

Statistical programming department and its name suggests that all staff working in this department perform programming related to statistical reports and work with clinical data analysis. That general expectation creates boundaries in the scope of work that would be done by this department and reflects that same in the job description and hiring process. The general expectation is that a programmer should be able to use SAS proficiently to work with data processing and creation of required reports needed for regulatory submission or any other related purposes. This work expectation hasn't changed from many

years as the deliverables expectations hasn't changed much and programming work still involves analysis database creation and reports creation. For many years, standalone SAS installation and its usage has been common, and everyone was comfortable using PC-SAS as tool to develop the standard reports with standard format requirements. Most programmers, especially not coming from IT background, had no issues using the PC-SAS as there was lesser complications of using and there were no expectations of understanding the underlining platform of SAS and its installation.

## **JOB REQUIREMENTS – HOW RELAVENT ARE THEY?**

For many years, most of the job postings for programming roles required experience of 4th general languages or any other languages and experience of relational databases. Of course, experience of using SQL could help in the SAS programming, most were discouraged to use SQL codes with the SAS programs as others may find it difficult to debug the programs. But SQL knowledge alone couldn't bring success in the careers of statistical programmers as understanding of statistics and clinical science is also required to succeed. Individuals who have expertise in the technical area ability to write complex programming logic or explore complex SAS functions and procedures wouldn't have time to develop science knowledge also unless they have educational background in that area.

Compared to current SAS platforms and its usage, as mentioned before, SAS usage was simple and very few would notice the platform differences or need to adjust to it. At the same time, lot of programmers have come from other language or technical background and had no difficulty to adjust to SAS programming. But still the job requirements insisted on technical qualifications. But now that SAS platforms and its dependence or usage of underlining IT infrastructure & configuration is key to make best use of SAS, our job requirements rarely reflect this level of technical expectations. Current job requirements show less emphasis on SAS and more on usage and understanding of Industry data standards & reporting expectations.

Our intention is not to de-emphasize the importance of knowledge of industry standards but more to emphasize the importance of understanding of technology as programmers sometimes get bogged down on the challenges of using system and due to lack of technology background struggle to explore the full-blown features of the application. New comers to the industry from different education backgrounds with less emphasis on technology knowledge can struggle to get adapted to the systems and its usages even before they can fully use their knowledge of the science to provide quality service. Rarely job postings mention about the requirement to be exposed to complex programming installations and other related applications usage like version control tools. By the time they acquire the basic skills to navigate the system, the system can change due to application requirements. Organization leadership needs to explore and ask the question of how relevant the job requirements is based on their current set up as well as expected future changes.

## **JOB PROFILES – HOW RELAVENT ARE THEY?**

As discussed above the challenges of the job requirement documents, it has ripple effect on the job profiles also. Based on the job requirements and expectation to show higher level performance level with those requirements as one gains more experience, job profiles created to accommodate individuals who show higher abilities. This is a logical progression and genuine expectation but as the starting point itself is not correctly defined, downstream impact can be higher. Individuals who show higher performance on projects and exhibit leadership skills get to climb up the career ladder. That means, in most cases, someone needs to perform and excel in tasks mentioned in the job requirements to move up and job profiles are set up to facilitate that movement. But this approach ignores that individuals may be performing at the highest level in few niche areas and may be considered as expert in certain technical areas but as not considered as well-rounded talent, may not progress and go higher up in the titles.

Industry trying to catch up with the technological advances that other industries made and adopting to some of the disrupting innovations to benefit the industry and clients it is serving. Industry is trying its best adopt to scientific innovations that are possible due to technological innovations and at the same time dealing with the idea of leaving behind those can't adopt quickly. These changes necessitate the frequent review of the job profiles to make sure organization is set up for long term success and success in retaining the top talent of not just current need but of future needs also.

## **HIRING WITH AN EYE ON FUTURE**

PPD has been constantly investing on and developing new technology and tools in all aspects of clinical trial conduct. Every new technology and Off the Shelf products need customization and that means we need internal team members to understand the technology and customize them. Many times, we develop internal tools to supplement with external tools. As most of the tools are for advanced data analysis and reporting, anyone working on these tools need to have best knowledge SAS and statistical analysis requirements as well as understanding of tools and technologies behind them. PPD has always has hired programmers with diverse skillsets and exposed them to the clinical industry standards and when there is a need, used them effectively in the tools development.

As industry is investing on tools and technologies emerging from AI (Artificial Intelligence), migrating their legacy SAS platforms to SAS GRID and working on advanced data analytics & data visualization tools, it is imperative to bring in individuals with diverse technical skillsets and show them career progression to retain them. PPD has created different job profiles to show the growth for individuals who bring in some very good niche technical skillsets and constantly evaluating the profiles to make sure they are relevant and meets the expectations of the staff.

## **HOW IT WAS IMPLEMENTED**

Ajay Gupta has been working with PPD as Programming Technical Manager and leading & contributing on lot of technical initiatives. His career progression and overall industry journey is an example we would like to use to emphasize the need to reevaluate the job profiles within the programming department. Ajay has Information Technology based educational background and worked on IT related projects. He started his career in this industry at the entry level programming role and started showing interest to opportunities that require skill beyond SAS skills. Very early, PPD leadership realized the need for programmers whose experience and expertise go beyond regular SAS programming but have skills to understand the IT platform/ operating system and its usage in integrating SAS with other tools. As we had more members showing that interest and skills, conversations started on how we can make sure to satisfy the hunger of these employees have and ways to challenge them. So staff like Ajay pushed PPD to not to push them to the traditional titles like Principle Programmer, which is considered by most organizations as technical track, but carve out roles for them.

This debate helped in creating job profiles and career ladders that are fine tuned to fit staff with specialized skills. Even though there is always a pressure to keep the job profiles and career ladders as generic and similar across the regions, PPD tried to insert some variations to cover aspirations of the employees. When hiring or reviewing performance of these specialized resources, care taken to make sure the traditional managers are viewing these performances separately and not comparing with other regular programmers. This allows parallel growth for all irrespective of what kind of work you do within the department and review is based on merit of performance on tasks assigned or volunteered. Ajay grew into Technical Manager role due to his hard work as well as support and understanding from the leaders. Of course, there are more than one Technical managers in PPD as many others have these interests and aspirations. This helped PPD reduce tools development cost as this is an cost effective option for PPD instead of buying an Off the Shelf products or hiring consultants to do the work. This is a win-win situation and it is not a hard decision to make.

## **CONCLUSION**

Ajay's personal case of career growth as well as approach of PPD to accommodate these skills and creating job profiles & career ladder for technical talent shows that a change is possible, and it is for better reasons. Our intention is not to down play the need for traditional SAS/ Statistical programmers and career ladder for them but would like the leaders of statistical programming group keep an open mind and mend their career ladders to accommodate the diverse talents. Industry still needs programmers with strong SAS, clinical knowledge, CDISC standards experiences. But it is not question one or other but both. Our interest is to showcase the need for flexibility and benefits it is going to the team.

## **CONTACT INFORMATION**

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