

# Redesigning Project Management Within Institutional Research in a SAS Environment

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## ABSTRACT

In today's data-driven world, universities of all sizes, are dealing with increasing requests for more complex data and robust ways to visualize this data on a seemingly weekly basis. To that end, many institutional research offices are struggling to juggle their traditional routine reporting tasks as well as delivering these complex analyses in a timely fashion. The time for bringing structured project management techniques and processes to the modern institutional research office to handle these demands is on the doorstep.

In this paper, the evolution of project management in the office in a large metropolitan university and the state of Florida will be discussed. The discussion will show how integrating structured project management processes, specifically as it pertains to business intelligence and data visualization tasks, improve delivery time and the overall quality. The importance of weaving the project management processes into the development lifecycles within both a SAS® Visual Analytics and SAS® Business Intelligence will also be discussed.

## INTRODUCTION

The University of Central Florida is a large metropolitan university located in central Florida. In the Fall of 2017, the university's headcount was 66,174 students with 56,966 being undergraduate, 8,723 graduate, and 485 medical school students. This past summer, the university also welcomed its fifth president, Dr. Dale Whitaker. With the growth of the university, changing initiatives, and the drive for increased student success, there comes the need for increasing amounts of data and analysis. The office of Institutional Knowledge Management (IKM) is tasked with providing reports and data to a large swath of the university population, state agencies, and a variety of external entities. While typical institutional research (IR) reports are still needed, the office has seen a surge in the need for interactive and more robust analysis through the use of business intelligence tools and dashboards. This increased demand caused IKM to rethink and come up with new approaches to project management as opposed to what was being done in the past.

It became increasingly clear to department leadership that past project management practices were insufficient to deal with the current requests and the increasing requests for dashboards and other analytical tasks that took much longer and required broader development than previous projects required. Part of the challenge was it was no longer sufficient to simply process requests and disseminate the results after a few conversations with the customer requesting the data. It also became clear that it would be necessary to better integrate any new processes with the current SAS® environment. The new project management framework that IKM developed focuses on four pillars that ultimately provide better internal project control and customer deliverables.

## PILLAR I - INTERNAL PROJECT TEAM

The very first implementation in the project redesign process was to put in place a project team to oversee the overall project management of the unit. A small internal project task force of three to four members from leadership get together twice a week to review all open and upcoming projects and discuss the requests amongst each other. While this might not be feasible for smaller IR units, a dedicated individual or set of individuals who are tasked with overseeing projects is valuable in the project management process. At a minimum, it allows department leadership to see the entirety of projects at hand and their impact on the unit. At its maximum, it allows for broader and deeper resource leveling and project control. This control can span anything from prioritizing projects that directly relate to university initiatives to delaying others. In addition, it keeps all leadership members abreast of the projects regardless if it impacts their area or not. The formation of an internal team was critical to the initial phases of the project management redesign within IR.

## PILLAR II - PROJECT MANAGEMENT SOFTWARE

Most IR offices have some type of project management software that manages their projects. These tools can range from simple task lists to more complex software that resides on site or in the cloud. Regardless of the medium, the software needs to be utilized and leveraged effectively to maximize the new time constraints currently facing most IR offices. Implementing a solution that at a minimum allows for visualization of project timelines and resource usage is the second key component to better project management within IR.

The current solution for IKM is a homegrown ticketing system developed by the university's central IT office that simply lets the user create a project, assigns a number, and allows for users to enter in notes and other metadata about a project. Unfortunately, the tool does not allow for more modern features such as Gantt charts, executive dashboards, Kanban boards, or workflows. However, by utilizing SAS Visual Analytics against the software's database, the project team can see the projects in a more robust view (Figure 1) rather than a simple list.

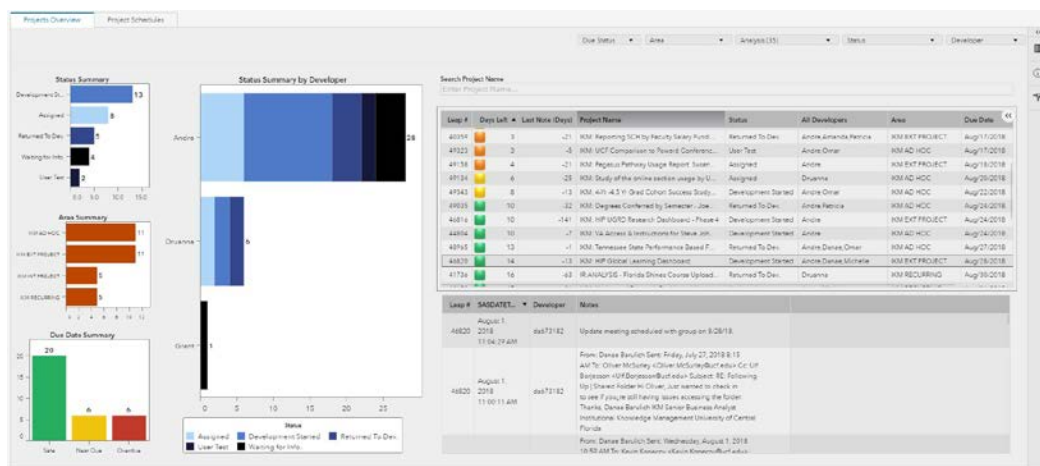


Figure 1: IKM's SAS Visual Analytics Project Management Dashboard

The dashboard shows projects that are upcoming, overdue, and ones that upcoming. It is the main tool used by the project team during the weekly meetings mentioned above in Pillar I and is available to all staff members as well. Maximum visualization of the project management landscape is key to complete control and effective management of projects. Even if one does have more modern tools that provide their own internal visualization capabilities, they are often very basic and may not fit what an IR office

needs for higher education. However, using SAS Visual Analytics against the data (if available), will allow for more customized and focused reporting that can fit a particular office's needs.

### PILLAR III - STRUCTURED PROCESSES FOR LARGE PROJECTS

As noted earlier, the biggest challenge facing the UCF IKM office was dealing with the increasing amounts of large projects which take up vast amounts of time and resources beyond the typical ad-hoc and routine tasks. IKM leadership concluded that a real structured project management process would need to be implemented to manage better these large projects that take one month or more to complete, especially those revolving around dashboards and data visualization. The primary reasons for the decision were to ensure that these projects were delivered on time and that other tasks outside of these would not get lost in the shuffle. After a series of meetings, a six-step project management framework (Figure 2) was created. The framework very closely mirrors how typical projects are managed, but the parts within are specifically tuned to how the IKM office operates. Each step has documented inputs and outputs along with supporting templates which are used for standardization across projects.



**Figure 2: Six Step Project Management Framework**

The phases of the framework are summarized as follows:

**Definition:** Clarifies the user needs, identify objectives, and determine resources and constraints.

**Planning:** Create and finalize the project plan, and determine and agree on a timeline.

**Development:** Data and user interface (if necessary) development tasks. Periodic reviews of outputs with the customer.

**Review:** Two-step process that involves an internal review within IKM and then an external review with customer.

**Delivery:** Push product to development or deliver output to the customer.

**Feedback:** Internal project review to discuss what went right and wrong with the project.

Each step of the process was meticulously designed from the ground up to focus on the customer's needs as well as IKM's needs. All phases have specific templates and requirements that go along with them to make sure that each of these projects has a similar documentation pattern that can easily be followed in the future. Essentially, the framework is simply a documented process of what already takes place for most, if not all projects. The difference is this new process allows for better time management within IKM and strategic alignment of the deliverable and customer needs.

Beyond the initial definition and planning phases, a key aspect to the framework is the iterative review process with the customer in the development phase. These periodic reviews go above the traditional way in which projects were handled in the past which typically consisted of an initial conversation at the outset and then delivery at the end. The addition of periodic reviews, especially for visualization projects, ensure that the product is moving along the lines of what the clients were expecting. The reviews serve to keep the customer engaged and prevent having to perform major changes after the project is delivered.

The other key aspect of the process comes at the end with the feedback phase. To make sure that IKM is providing the best service possible, garnering and analyzing customer feedback provides the critical intelligence necessary for the unit to improve itself. This phase is larger internal after feedback from the customer is retrieved and consists largely of “what worked, what didn't work, and what do we need to focus on for the next one.”

## **PILLAR IV - INTEGRATION OF CRITICAL BUSINESS PROCESSES**

It's easy to forget the importance of following business processes while in the middle of a project - especially large and lengthy ones. The critical last pillar of the new project management process is designed to avoid business process gaps. These business processes can range from everything from technical documentation to communication plans with their requesting client. A key example for IKM has to do with the development of the dashboards within the SAS Visual Analytics environment and ensuring that the look and feel of all visualization projects are similar. An internal style guide was created so that all developers can easily reference a document that covers everything from coloring to layout and other design parameters that the office wants for each project. Part of the development phase for dashboards is the requirement of using the style guide. The next evolution of this standardization would be to create a SAS Visual Analytics template that all projects can start with during the development.

The second critical business process which is part of the new project management process has to do with the development and production environments of the SAS Visual Analytics environment. During the delivery phases of the framework in Pillar III, there are steps developers must follow in order to push their products to production. This process is also true of projects that are delivered in the SAS Business Intelligence product environment as well. The formalized steps include developers notifying the individuals within IKM who have rights to push to production the fact that a project is ready to move which starts a documented chain events. This particular process is part of the work flow and managed by the project management software so that all steps are covered and nothing is left to chance. Other types of business processes that are covered by the entire process include data dictionaries, maintenance and updating timelines, and identification of IKM project owners for easier knowledge transfer and cross training.

## **CONCLUSION**

Project management takes many forms, however, the core balance of time, quality, and the cost will always be there. For Institutional Research offices, it's paramount in today's world that special attention to the project management process be given renewed vigor if they want to meet the increasing demands of university leadership. The approach by UCF's Institutional Knowledge Management's office is only one method of many, however, it's clear that new methods and approaches need to be thought about and implemented in today's landscape. Regardless of department size, IR offices can and should think about how their individual project management practices are equipped to meet their institution's demands. However, one thing is certain, improvement and driving towards that improvement should always be strived for regardless of the solutions employed.

## CONTACT INFORMATION

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