

**IT PROJECT MANAGEMENT AND SYSTEMS  
ENGINEERING INTERNSHIP  
FINAL REPORT**

**Lauren Cardamone**

**August 5, 2011**

**FLORIDA SPACE GRANT CONSORTIUM**

---

National Aeronautics and  
Space Administration

John F. Kennedy Space Center



## TABLE OF CONTENTS

1.0 OVERVIEW .....	1
1.1 INTRODUCTION .....	1
1.2 IT PROJECT MANAGEMENT AND SYSTEMS ENGINEERING .....	1
2.0 PROJECT DESCRIPTION .....	1
2.1 SMADb SOFTWARE TESTING .....	1
2.1.1 SOFTWARE VERIFICATION TESTING.....	1
2.1.2 SOFTWARE DEBUG TESTING.....	2
2.2 NPR TEMPLATES.....	2
2.2.1 PROJECT PLAN TEMPLATE.....	2
2.2.2 PMB POWERPOINT PRESENTATION TEMPLATE .....	2
2.3 SHAREPOINT 2010 PROJECT.....	3
2.4 ACES IMPLIMENTATION PROJECT .....	3
3.0 CONCLUSION .....	4

# IT PROJECT MANAGEMENT AND SYSTEMS ENGINEERING INTERNSHIP FINAL REPORT

## 1.0 OVERVIEW

### 1.1 INTRODUCTION

I was motivated to apply for the IT Project Management and Systems Engineering Internship as a result of previous positive experiences I have had at Kennedy Space Center. In the summer of 2009 I had the privilege of participating in the NASA INSPIRE program and during the summer of 2010 I was hired by ASRC Aerospace, a NASA contractor on the USTDC contract, as an Engineering Aide. These experiences combined inspired me to pursue a career in engineering and a goal to work as a NASA engineer and astronaut.

I frequently visited the NASA Education Office website in search of internship opportunities for the summer. I created an account on the One Stop Shopping Initiative (OSSI) website and conducted a search for summer internship opportunities at the Kennedy Space Center. I applied for the IT Project Management and Systems Engineering Internship listed on the website.



### 1.2 IT AND MANAGEMENT AND SYSTEMS ENGINEERING

I had the privilege of working with Mrs. Sue Waterman of NASA's IT (Information Technology) Project Management Office (IT-F) as she mentored me throughout the summer. My office location was in the Central Instrumentation Facility (CIF) building's IT Acceptance Test Facility (ATF).

## 2.0 PROJECT DESCRIPTION

### 2.1 SMADb SOFTWARE TESTING

The Safety and Mission Assurance Database (SMADb) System was developed to consolidate the surveillance reports from five Safety and Mission Assurance (SA) Divisions into a single database to improve Directorate-level data analysis and reporting capability.

#### 2.1.1 SOFTWARE VERIFICATION TESTING

I was tasked to perform two types of software testing for SMADb. The first was software verification testing to ensure documented customer requirements were met. This required access the SMADb system testing environment. The SMADb testing environment allows the user to perform tests and enter information without altering the existing production database. I compared the testing environment database to the SMADb System Requirements Document (SRD). Testing the requirements often involved submitting data into the system database, adding attachments, and verifying that action buttons and messages appeared when required. All requirements that were not met were noted in the SRD and submitted to the SMADb Project Manager (PM) for review.

## 2.1.2 SOFTWARE DEBUG TESTING

The second software testing I performed was software debug testing to determine whether documented bugs had been fixed, or introduced new bugs. The bugs were identified by users and submitted in the form of trouble ticket items. I was tasked to identify the open trouble tickets and determine if the issues were resolved. I created a document for the SMADb PM organizing the trouble tickets, displaying the status of each bug, and noting new bugs introduced to the system.

## 2.2 NPR TEMPLATES

The project plan template, and PMB PowerPoint presentation template standardizes two project management artifacts that were previously disparate.

### 2.2.1 PROJECT PLAN TEMPLATE

The project plan template was developed according to Appendix F of the NASA Procedural Requirements (NPR) 7120.7 titled, *NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements*. NPR 7120.7 details the requirements for a NASA IT project plan to include sections and headings relating to the governance structure, technical approach, Work Breakdown Structure (WBS), Schedule, and resources baselines, as well as control plans, risk management plans, security plans, and acquisition plans. NPR 7120.7 allows the project plan template to be tailored for each project.

The project plan template provides all the required sections that the document should contain, and provides detailed instructions in each section to aid IT Project Managers. The project plan template was designed using Microsoft Word Developer, which enables the user to easily enter dates, data, and information into the template. The template prompts the user to enter specific information, such as dates and document numbers, further ensuring that the user does not omit required information. The template also presents requirements from NPR 7120.7 within the document, allowing users to recall the requirements of 7120.7, without requiring them to reference the physical NPR booklet.

The NPR 7120.7 project plan template was uploaded to TechDoc repository as KDP-T-3359.

### 2.2.2 PMB POWERPOINT PRESENTATION TEMPLATE

NPR 7120.7 defines the Project Management Review Board (PMB) as, "the Governing Body for IT programs and projects." Project Managers are required to report to the PMB and present a PowerPoint presentation detailing team accomplishments, plans next period, an updated Level 3 schedule, a project status overview, financial status, and project risks assessment.

The objective of the PMB PowerPoint presentation template is to standardize the presentation, and enable users to complete the presentation with more efficiency and ease. The template was designed to address each requirement on a separate slide, allowing users to enter data and information.

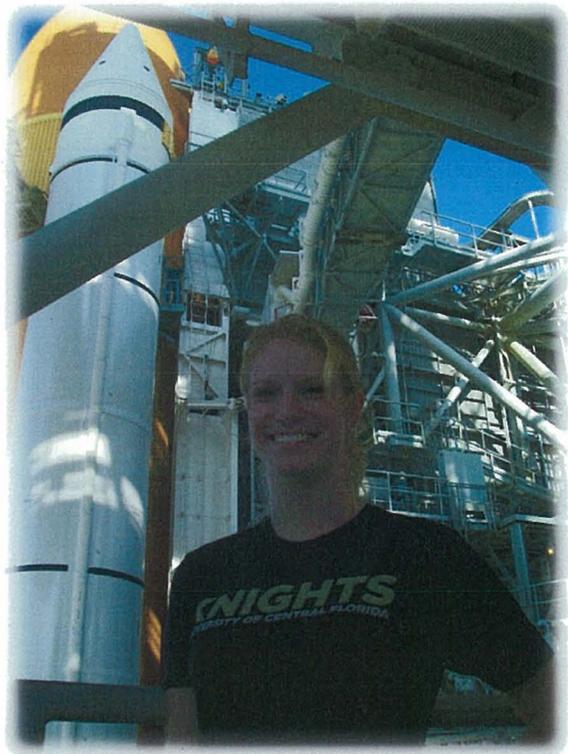
The Level 3 schedule, project overview, and project risks slides were developed to open into Microsoft Excel spreadsheets. The Level 3 schedule in Excel allows the user to design a clean schedule with perfectly aligned lines, shading, and text to identify key project milestones. The project overview slide in Excel supports a clean presentation of the data, and is programmed to alter cell color based on data entered into the worksheet, eliminating additional effort. The projects risks data table is also programmed to alter cell color based on data entered into the worksheet. The project risks table colors are determined by a risk likelihood matrix programmed into the worksheet.

### **2.3 SHAREPOINT 2010**

The SharePoint 2010 Project involves an institutional upgrade from the existing SharePoint serving KSC, SharePoint 2007 to SharePoint 2010. The customer requirements for the institutional upgrade include a project server and data migration. The SharePoint 2010 project also includes an external environment requirement suggesting the development of a server designed to service outside companies that do not have a NASA NDC domain. This requirement allows private users without NASA credentials to have access to the NASA SharePoint site.

I was tasked to assist the SharePoint PM in the development of the Project Plan according to NPR 7120.7. In order to complete this task effectively, I was required to have substantial knowledge of the project in order to develop a plan involving schedules, governance, resources, and controls. I was able to utilize the Project Plan template I developed for the creation of the Project Plan.

As part of the SharePoint 2010 Project, I developed a project schedule in Microsoft Project. This required identifying the key milestones and documentation required for this particular project and tailoring the project schedule template accordingly. I also created the project Tailoring Matrix excel file identifying the Work Product Matrix and Descriptions, and Gate Products.



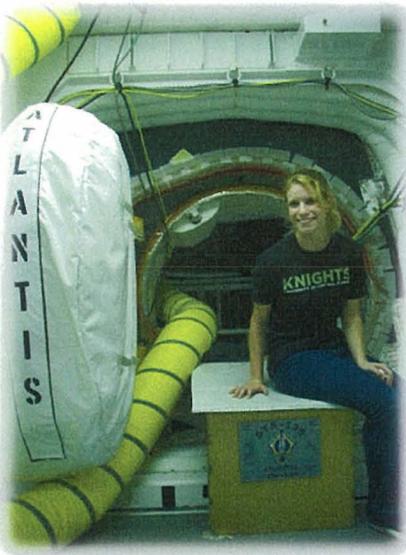
### **2.4 ACES IMPLIMENTATION**

I was tasked to create the Agency Consolidation End-User Services (ACES) project plan to describe details sufficient to facilitate a well coordinated agency rollout. The ACES project is an agency level project to provide and manage most of NASA's personal computing hardware, agency-standard software, mobile information technology (IT) services, peripherals and

accessories, associated end-user services, and supporting infrastructure. NASA's current ODIN services will transition to ACES across the agency. The project plan developed was to assist the PM in identifying the dependencies, organizational responsibilities, resources, schedule, configuration, and reviews.

### 3.0 CONCLUSION

Working in the project management office this summer gave me exposure to an aspect of NASA I had never before considered. The majority of project managers working in the directorate shared the same engineering education I am currently pursuing. When considering engineering, however, I had only anticipated technically related design, implementation, and testing projects.



I was unaware that project management may present itself as a job opportunity for engineering majors.

Despite what my future decisions may be in regard to which position I obtain once I earn my degree, the experience working in project management is of great benefit. Whether I become a project manager, design engineer, or astronaut, project management experience allows me to have the unique opportunity to understand the connection between the project managers and engineers. This experience has enabled me to have an understanding of the project development processes, which is very useful as I pursue a job position at NASA.

Participation in this project has influenced my career and academic goals by inspiring me to pursue a career at NASA. The experience has forced me to consider the many job opportunities NASA offers and has influenced my decision to apply for co-ops. I am now, more than ever, excited and determined to fulfill my dreams of becoming a NASA employee and astronaut and am eager to become part of NASA's legacy.