Development and Implementation of New State Reports Using SAS

Dr. Nicolas A. Valcik
Donielle Maust
Jessica Michael
Institutional Research
West Virginia University

Rebecca Tarabrella
Michael Gaines
Office of the Registrar
West Virginia University

Rocky Mountain Association for Institutional Research
Bozeman, Montana, October 28, 2016

© 2016 by the Office of Institutional Research, West Virginia University, Nicolas Valcik and Rebecca Tarabrella, no part of this paper should be reproduced with permission. Please contact WVU at navalcik@mail.wvu.edu or 304-293-4245.
A BRIEF OVERVIEW OF WVU

• Public Land Grant University Founded in 1867

• Carnegie Classification R1

• Enrollment – 28,662 Main Campus/22,550 Undergraduates/6,112 Graduates and Professional Students

• 16 Colleges and Schools including Law, Medical, Agriculture and 2 Regional Campuses

• State Flagship
BACKGROUND ON COMPLIANCE REPORTING PROCESS

• West Virginia University – Prior to 2013

• State of West Virginia Higher Education Policy Commission (WVHEPC) Reports.

• State of Federal Reports.

• Resource Constraints.
WHY CHANGE?

• New Institutional Research Director

• Existing Inaccuracies in the WVHEPC Reports

• Inefficient Processes to Construct and Edit WVHEPC Reports

• No Departmental Control over the Programming

• Resources are Scarce in Institutional Research
Flowchart Constructed and Provided from Amanda Petersen – WVU ITS 2016
PRIOR 2013 PROGRAM ARCHITECTURE

• Mainframe style architecture controlled by IT

• Edits were completed in both the root BANNER system and staging tables

• Little or no documentation from IT on the 7 different programs which are used for state reporting

• Little or no personnel existed from when the programs were first constructed

• Manual data entry onto the files themselves or staging tables
Inefficiency of Existing Programs

• Instead of six different programs on the student information system to allow for cross-checking, one main file was extracted

• Dated programming language

• Some variables defaulted to zero or a dummy variable instead of a valid code

• Variables not consistent with those in use by units and departments
Inefficiency of Existing Programs (continued)

• Programs ran only on the host system and were unable to use any client side processing

• Personnel time to produce the reports was exorbitant

• Edits often made to the program and data not changed in the source tables – always out of sync

• Timing of running file was inconsistent and cumbersome

• Edits could not be made prior to submission of the data
DETERMINING WHAT SYSTEM TO USE

- What access would be permitted from IT for IR to use against BANNER and MAP?
- Data warehouse is not ideal to produce state reports
- Clone databases
- Production, Development and Test
What Software to Use

- Oracle Tool drawbacks – Replacement and Lack of Statistical Capability
- Standardization on one tool for training
- Capability to be able to do statistical analysis as well as be a good data management tool
- Connectivity using ODBC
What Software to Use
(Continued)

• Cost Effective Solution
• Run Efficiently
• Could be Automated
• Easy to Use

SAS was selected because it met all of the necessary criteria
**REVISING PROCESSES AND PROCEDURES**

- Registrar’s Office and HR with SSNs
- Standardized coding put into BANNER for County
- Clarification of WVHEPC file specifications (e.g. Refugee Students)
- WVU was the guinea pig for pilot program for PIDM numbers and Medical Students
DEVELOPING THE PROGRAMS

• Integrating the programming language with SAS’s language

• Learning the BANNER and MAP table structures

• Learning the variables in the data warehouse

• Cross checking files

• Correcting root system by rerunning the programs

• Running programs proactively for the semester ahead
HOW WERE THE NEW PROGRAMS DEVELOPED?

• Coding had to be obtained from ITS on Existing Programs and Analyzed since no documentation existed
HOW WERE THE NEW PROGRAMS DEVELOPED? (CONTINUED)

- SAS Program architecture was developed for six different student reports
- Applicant, Student, Registration, Course, Workload and Graduation
- Personnel File will be the 7th Program developed from the MAP system
HOW WERE THE NEW PROGRAMS DEVELOPED? (CONTINUED)

• Resolving Issues with ITS programs and Where Variables were located in BANNER

• IR Personnel worked extensively with the Office of the University Registrar for how data is stored and used in BANNER
HOW WERE THE NEW PROGRAMS DEVELOPED? (CONTINUED)

• Verification of the Data being consistent in all Files
• Identified the criteria for HEPC edits for all programs
• Extensive Testing with HEPC submission process
• Documented all changes and processes in the programs
HOW WERE THE NEW PROGRAMS DEVELOPED? (CONTINUED)

• Developed a Reporting Manual to Document all variable and programming information
• Created an accessible Shared Drive for Edit Reports
• Trained the departments how to use the edit reports
NEW REPORTING PROCESS

- ITS Population of SSN
- Files Submitted to WVHEPC
- SAS Programs
- Edit Reports to the Departments
- Corrections To The Root System

Programs are re-run until the files are error-free and final files are accepted by WVHEPC.
RETURN ON INVESTMENT

- Accuracy and consistency of data improved
- Increased documentation for current and future users
- Personnel cost significantly lowered
- Reduced redundancy with departmental overlap
CONCLUSION

• Data quality improved significantly

• Data standards with WVHEPC has been clarified and has resulted in improved specifications

• Efficiency and Effectiveness has been vastly improved resulting in significant cost savings and streamlined reporting

• Departments have been enabled to handle corrections with inputting and extracting data
QUESTIONS?
The Authors would like to thank Amanda Petersen and Jill Pirillo for providing the flowchart for the previous WVHEPC process.

The authors would like to thank the staff at WVHEPC for working so diligently with the staff at WVU.

The authors would also like to thank their staff members and employees who have worked so hard on this project for the last three years.