



**Federal Credit Reform Budget and Program Management:
Industry Innovations and Capacity Development**

December 2017

Table of Contents

FEDERAL CREDIT REFORM BUDGET AND PROGRAM MANAGEMENT:	1
INDUSTRY INNOVATIONS AND CAPACITY DEVELOPMENT	1
INTRODUCTION	2
Federal Credit Program Challenges	2
Strategic Approach for Capacity Development	2
GOAL #1: IMPROVE THE QUALITY AND RELIABILITY OF BUDGET AND ACCOUNTING DATA	4
Data Validation Tools	4
Data Storage Solutions	4
GOAL #2: STREAMLINE, AUTOMATE, AND COMMUNICATE BUDGET CALCULATIONS	4
Tools for Automation and Reporting	5
GOAL #3: TRAIN STAFF AND AUGMENT WITH SPECIALIZED TECHNICAL ADVISORS	6
Credit Reform Training Curriculum and Delivery	6
Seasonal Support and Technical Advise	7
COMPETENCIES NEEDED TO ACCOMPLISH GOALS	7

Introduction

Due to the Federal Credit Reform Act (FCRA) and the various Federal guidelines that govern its implementation – e.g., OMB Circulars A-11 and A-129 as well as Treasury’s Federal Accounting Standards Advisory Board (FASAB) and Statements of Federal Financial Accounting Standards (SFFAS) guidelines – Federal Credit programs face unique budget, accounting, and program requirements. As a result, Federal Credit programs’ workload can be complex, varied, and highly specialized.

To cover all required budgetary and programmatic functions, staff are often required to take on many roles and adhere to tight deadlines inherent to the budget process for Federal Credit programs. This combination of complex requirements, tight deadlines, and limited resources leaves Federal Credit programs in need of innovative ways to expand their capacity.

Federal Credit Program Challenges

Four challenges currently limit Federal Credit programs’ capacity to manage their expansive area of responsibility:

- **Challenge #1: Data Quality** – To conduct budget formulation and budget execution for Federal Credit programs, accounting data from a variety of disparate but overlapping information systems is often used. Data from these systems are not always independently monitored for quality, meaning Federal Credit program analysts must spend a significant amount of time validating and formatting data before even beginning their analysis.
- **Challenge #2: Procedural Complexity and Information Sharing** – Many of the required federal budget processes are time-consuming and highly manual in nature, leaving little time for training, in-depth analysis, or quality control on each task. Moreover, the complexity of credit reform budgeting complicates efforts to share and communicate information effectively with stakeholders inside and outside of the agency. Federal Credit program staff frequently must provide training and guidance to these stakeholders in order to facilitate the knowledge transfer. In this context, information requests from auditors and agency or department executives can present major workload demands on top of day-to-day responsibilities.
- **Challenge #3: Effective Training and Specialized Support** – Credit reform budgeting carries a steep learning curve that complicates the timely completion of work products within the tight deadlines often required. To be successful, analysts must have a strong command of credit reform concepts, and they must apply other technical competencies that are not widely taught as part of the standard budget training curriculum for non-credit programs. It may be costly and impractical to retain the specialized staff required to complete these important tasks as year-round, full-time employees.

Strategic Approach for Capacity Development

In response to the challenges identified above, Federal Credit programs should develop a long-term strategy to expand their capacity for timely, efficient, and accurate budget analysis. In order to implement this long-term strategy, Federal Credit programs must develop a practical approach to fulfill the following goals:

- **Goal #1: Improve the quality and reliability of budget and accounting data** – To safeguard the quality of data used to inform budgetary functions, Federal Credit programs require cost-

effective, scalable solutions for data management and validation. These solutions should prioritize “quick wins” for the program, but they should also be designed with consideration of any shared requirements across organizational boundaries.

- **Goal #2: Streamline, automate, and simplify reporting of complex budget data and calculations** – Federal Credit programs can simplify their budget formulation, execution, and credit subsidy workload by reviewing and redesigning—where appropriate—the processes, tools, and resources supporting each task. Significant efficiency gains are possible through the development of low-cost solutions that build on the tools and processes already in place.

To collaborate more effectively with auditors and agency executives, Federal Credit programs can implement a more proactive approach toward sharing budget data and analytical work products. This goal requires the development of low-cost tools for regular and ad hoc reporting as well as advanced visualizations for large or complex data.

- **Goal #3: Train staff and augment with specialized technical advisors** – Federal Credit programs require a comprehensive training curriculum for staff that covers the concepts unique to this type of work. To supplement staff knowledge and resources during busy times, programs require access to specialized technical advisors with deeper knowledge in the disciplines relevant to Federal Credit programs.

This white paper proposes specific approaches and resource needs for the implementation of each goal.

Goal #1: Improve the Quality and Reliability of Budget and Accounting Data

To complete their assigned responsibilities, Federal Credit programs often rely on data gleaned from numerous sources, including several different accounting databases. These systems may have a complex architecture, marked by an opaque flow of data between many overlapping databases. In practice, data validations tend to be the purview of the data consumer, which leaves analysts dependent on the quality of data that they do not control. Furthermore, analysts may also receive requests for reconciliations between different reported values across multiple accounting systems, which can be a timely and often manual process.

To mitigate these challenges, Federal Credit programs require a strategy for data management that includes a set of cost-effective data validation tools and storage solutions for budget activities.

Data Validation Tools

One common approach involves the development of a data validation programs and tools that automate quality checks on source data derived from the various, relevant accounting systems. This tool could pull data directly from the relevant systems via highly structured, auditable queries or could read in reports uploaded by the user. The tool could then perform a series of pre-programmed checks on the data to identify errors or anomalies, such as formatting mistakes, missing values, or inconsistencies between data elements or across systems. Such tools can be developed at a low cost by combining information technology solutions and software already in place at many Federal Credit programs with new, cloud-based solutions.

Data Storage Solutions

Federal Credit programs can benefit from a scalable, user-friendly data warehouse that can centralize the storage of and version controls on data extracted for use in budget operations. The exact nature of this warehouse can be designed to fit the preferences of Federal Credit program management. If the Federal Credit program seeks to exercise direct control over the quality of the data that it uses, this data warehouse could serve as an official storage place for approved datasets that have passed through the data validation engine and that have been formatted for analysis. The data warehouse would then serve as a secure storage space that could connect to the credit subsidy models, workflow tools, and reporting platforms.

Put together, these tools would equip analysts to monitor data quality throughout the year, rather than only at key junctures when budget deadlines are tight. These tools would also streamline the flow of trusted datasets directly into the Federal Credit program's existing models, workflow tools, and reporting platforms, as well as enable the continued expansion of such tools at a minimal cost in the future.

Goal #2: Streamline, Automate, and Communicate Budget Calculations

The federal budget cycle is inherently complex, as it requires analysts to conduct formulation and execution work on at least three different budget years at once. Furthermore, most budget formulation and execution processes are highly manual in nature, meaning analysts must invest a substantial amount of time in data entry and formatting, and there is often little time left over for analysis and quality control.

Even once analysis is completed, the program faces a number of challenges that can prevent analysts from reporting data and budget analyses in a timely, accurate, and organized manner. The complexity of the work complicates effective communication with auditors and agency executives. When submitted work products lead to questions regarding the underlying source data or assumptions used, it can be challenging to provide that data or summarize the relevant information in a format that is easily consumable.

To address these challenges, Federal Credit programs should evaluate efficiency gains possible from increased automation of analysis and reporting, through easy to use tools that augment their staff's capabilities.

Tools for Automation and Reporting

Federal Credit programs require low-cost solutions that reduce analysts' workload, augment their capabilities, and streamline quality control. For example, Summit has developed a system to do this that it uses internally, called Sherlock. This system automates key portions of the budget process and generates budget and program data summaries. Systems like Sherlock can make analysts work easier and faster by using modern user-friendly web technologies, and by taking advantage of the availability, scalability, and security of cloud IT infrastructure services such as Amazon Web Services. Below are key budget cycle areas where automation can help Federal Credit programs.

Budget Process Automation

- **Budget Formulation:** Federal Credit programs can automate the completion of key budget formulation work products. For instance, analysts spend a significant amount of time at the end of each calendar year entering data into OMB's MAX A-11 database for submission in the President's Budget. Since the required entries tend to be the same from year-to-year, they present an example of a task where automation can facilitate the production of timely, accurate work products.
- **Credit Subsidy:** Automated credit subsidy tools would provide analysts with access to the agency's subsidy models and results, through a modernized, web-based interface. This would enable analysts and other designated users to manipulate key levers driving the subsidy estimate for each program, and enabling them to examine different scenarios. These tools would increase transparency and foster a wider understanding of the credit subsidy calculations produced by the Federal Credit program analyst.

As an example of such a tool, Summit's Sherlock system takes data about the program along with assumptions about future economic activity, feeds these into econometric models to forecast a program's expected future cash flows, and then feeds these cash flow outputs from the models directly into the OMB's Credit Subsidy Calculator to produce the official files needed for submission to auditors and OMB. All inputs and outputs from these calculations are stored for recall on-demand, allowing easy version control, replication, and auditability of all results.

Budget and Program Data Summarization

- **Reporting:** Federal Credit programs require tools that produce reports and dashboards for consumption by agency stakeholders, including agency Program and Budget Management, as well as OMB and other auditors. These should include capabilities for scheduled, pre-formatted reporting, as well as capabilities for ad-hoc reporting according to user-defined specifications.

Dashboards of common summary level data show analysts important information about their program without requiring them to re-create them each time they need to see them. Additional examples of useful reports may include dashboards that summarize the results of credit subsidy estimates and CSC outputs, reports of trends over a program's history, and comparisons of estimates from multiple scenarios of the program's forecasted future activities.

- **Advanced data visualization:** Visualizing budget estimates and program portfolio data is an effective way of understanding and gaining insights about the program. Moreover, modern data visualization capabilities help both analysts and management digest large, complex datasets and relationships or changes over time. These are especially helpful in scenario and trend analysis, where we can compare this year to previous years, or to scenarios over a range of future borrowing or economic assumptions. Interactive maps of an agency's portfolio are also often helpful for programs where analysts need to understand how funds or defaults are distributed regionally, and are not possible in an ordinary Excel workflow. Finally, data visualization is also often helpful in identifying and diagnosing data validation issues, which become clear when viewed in a graph rather than as a table of numbers.

These capabilities can be developed in a cost-effective manner based upon existing processes, tools, and products. These solutions would not require any large infrastructure investments, but rather would involve the customization of off-the-shelf software tools to address the specific needs of the Federal Credit program. Further, using cloud IT infrastructure allows agencies additional flexibility and takes advantage of 'managed' IT services provided by organizations with deep expertise in them. Amazon Web Services, as an example cloud provider, has some of the largest, most sophisticated IT infrastructure in the world, is compliant with all major Federal IT and security standards, and currently serves many Federal agencies.

Goal #3: Train Staff and Augment with Specialized Technical Advisors

Credit reform budgeting is unique among federal budget lines of business for its high degree of complexity and its interdisciplinary nature. Analysts who work with credit programs must have a strong understanding of fundamental budget formulation and execution concepts, but they also must have a practical understanding of key concepts from the fields of finance and statistics, as well as strong computer skills.

To address these challenges, Federal Credit programs require a training curriculum specific to unique needs of Federal Credit programs, as well as seasonal support from technical advisors with a deep knowledge in the disciplines defined above.

Credit Reform Training Curriculum and Delivery

Federal Credit programs require a core training curriculum that covers fundamental topics in credit reform budgeting. The curriculum should include general instruction in the basic principles of credit reform budgeting and accounting, appropriations law, and budget formulation and execution. Additionally, the curriculum should include tailored training on the specific programs, policies, and procedures in place for each major budget activity. This customized curriculum would include instruction on any tools or documentation developed to streamline the program's budget activities. The curriculum should be developed and delivered by credit reform experts who have real-world experience working with credit programs throughout the government.

To maximize the value gained by the program, these materials may be presented in small groups or one-on-one to designated staff, with follow-up exercises designed to reinforce any instruction provided. These offerings should also be flexible enough to cover any new needs identified periodically by analysts and program management.

Seasonal Support and Technical Advice

To ensure that analysts and program management have adequate support during the busiest seasons of the budget cycle, Federal Credit programs often require targeted, seasonal support and technical advice from experts in budget formulation, execution, and credit subsidy work. This type of support can be critical in ensuring the timely completion of budget tasks given limited program resources during times of peak demand. To minimize any necessary learning curve, this support and advisory services should be provided by professionals with experience providing formulation, execution, and reestimate support for similar programs throughout the federal government.

Competencies Needed to Accomplish Goals

To complete the above set of complex and unique activities in an efficient and accurate way, Federal Credit programs may require access to contractors that bring recent and relevant experience in the following areas:

- Budget Formulation and Budget Execution for Credit Programs
- Credit Subsidy Estimation
- Econometrics and Advanced Data Analysis
- Project Management
- Credit Reform Training Development and Delivery

Contractors should also ideally bring a working, if not strong, understanding of the relevant program's data flow, databases and future data architecture changes, policies, tools, and important business lines. These tasks also require staff that specialize both in credit reform budget formulation and execution and in statistical methodologies specifically applied to credit subsidy estimation. Furthermore, it would be necessary for the Federal Credit program to have access to experienced trainers in the area of credit reform budgeting, including ready training materials, and ideally, a local training facility. Contractors who do not bring these lists of competencies may not be able to perform the duties within the tight timelines required.