FEATURE

The Bid, Evaluation, and Optimization Solution (BEOS)

September 2008

This issue of the WBSCM Update features a behind-the-scenes look at the Bid, Evaluation, and Optimization Solution (BEOS) during the Build Phase of the WBSCM program.

What is BEOS?

BEOS is the third-party COTS software solution from the vendor CombineNet that will integrate with the SAP WBSCM system to support the USDA procurement process. BEOS will replace the legacy Linear Programming (LP) system and will provide new and extensive optimization and reporting functionality across each category of Procurement: Domestic, International, and Long-Term Contracts (LTC).

BEOS provides comprehensive standard COTS functionality to support USDA's bid evaluation process, including standard reporting and analytic capabilities, pre-populated procurement best practices, and extensive flexibility in modifying and updating optimization rules/constraints through user-friendly interfaces.

The objective of using BEOS is to select the set of vendor bids which allows USDA to realize the lowest landed cost of procurement while respecting vendor and port capacity constraints, federal regulatory requirements such as small and disadvantaged business set aside rules, and other USDA defined parameters and constraints.

Key Process Changes with BEOS

Some of the key process changes associated with BEOS that will affect USDA program agencies (FSA and AMS) include the following:

❖ **User Interfaces**–

- o Pre-populated rules, parameters, and constraints
- o To manage and create constraints using English based rules

❖ **Bid Evaluation**

- o Ready access to custom event templates that include default sets of rules/constraints for specific optimization types (i.e., Domestic Poultry vs. Domestic Fruits & Vegetables, International Title II vs. International FAS, etc.)
- o Out of the box optimization functionality to help implement all set aside programs
- o Easy generation of additional constraints through BEOS rule creation functionality

❖ **Reports**

- o Standard CombineNet reporting toolbox and analytic capabilities (a sample Scenario Comparison Report is on page 2)
- o Dynamic reports that can be sorted, and filtered in real time
- o Standard reports (Scenario Comparison and others) that will help USDA measure the effects of set aside programs on optimization outcomes
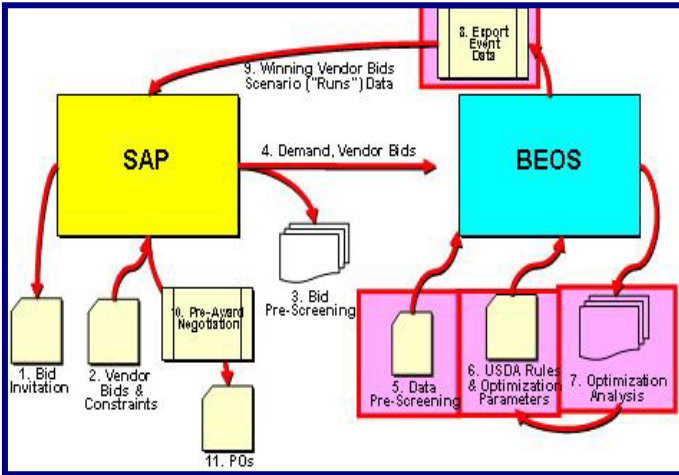
Scenario Comparison Report
(Example Only)

How Will BEOS Be Used?

Procurement Specialists will publish bid invitations, receive vendor bid responses, and award the winning bids while utilizing BEOS for the bid evaluation, optimization and analysis process. A step-by-step example of the BEOS integration in the Source to Award process phase is detailed below.

BEOS Integration
(Example Only)

Source to Award BEOS Integration Steps:

1. **Bid Invitation** (SAP) – The Procurement Specialist will create a Bid Invitation in SAP.

2. **Vendor Bids and Constraints** (SAP) – Vendors will submit bids through SAP.

3. **Bid Pre-Screening** (SAP) – After bid opening, vendor data and bid response data are pre-screened in SAP for obvious errors, or if any additional attributes should be flagged in the bid prior to transmission to BEOS (i.e., non-responsible or non-responsive indicators due to expired CCR Registration).

4. **Demand, Vendor Bids** (BEOS) – The Procurement Specialist will trigger the transfer of all related vendor and bid data manually for the specific bid invitation from SAP to BEOS. Once the transfer is complete, the Procurement Specialist will access BEOS to initiate a BEOS Event for the specific bid invitation and select the appropriate event template to be used (domestic, international, LTC-Master, and LTC-Allocation).

5. **Data Pre-Screening** (BEOS) - A secondary pre-screening of bid and demand data can be performed in BEOS to identify, for example, bid outliers (i.e., bids with prices outside of a user-definable range).

6. **USDA Constraints/Rules & Optimization Parameters** (BEOS) – The Procurement Specialist creates the BEOS Scenario (optimization run) by selecting the applicable set of constraints/rules and defining the appropriate parameters to govern the optimization run.

7. **Optimization Analysis** (BEOS) – The Procurement Specialist accesses BEOS online reports to analyze and compare the results between different scenarios (optimization runs).

   Export Event Data (BEOS) – The Procurement Specialist can create and run multiple scenarios for each bid optimization event. Once all necessary scenarios have been evaluated, Procurement Specialists will select the scenario results to be used for award purposes. This will trigger an automatic data transfer that will send data from BEOS to SAP for award, PO creation, and data feeds into BI for reporting.

BEOS Capabilities

The following represents notable features and capabilities of CombineNet's bid optimization software (BEOS):

- ❖ COTS solution with built-in Procurement "best practices"
- ❖ Customized engine for solving procurement bid optimization problems
- ❖ Online standard and pre-defined reports and analytics based on procurement best practices for the analysis of bid data and optimization results
- ❖ Users create optimization scenarios by assembling available constraints/rules and/or filtering and qualifying these rules through parameters for each optimization run

In addition to the features above, the CombineNet application provides other capabilities which could enhance USDA's bid evaluation processes. The joint SRA-CombineNet Team will work with USDA to determine which of the capabilities below to leverage as part of the WBSCM BEOS application:

- ❖ Rules to perform new optimization analyses, including:
  - o Favor/penalize bids on a percentage basis based on any bid attributes (e.g., Socioeconomic Designator, Plant, and Price).
  - o Consideration of new supplier attributes (vendor incumbency, vendor lead-time, vendor customer service record) in the bid optimization.
  - o Implementation of dollar-based spending limits in the bid optimization.
  - o Create requirements for awards to occur in certain quantities dynamically (such as Truck Load multiples).
  - o Implement new Set-Aside rules for different socioeconomic programs dynamically. (Rules can easily be

customized when new programs or new regulations are added.)
  - o Create requirements dynamically for awards to be granted to at least or at most a specific number of vendors.

- ❖ Incorporating committed funds and/or commodity price history information into the bid optimization and the associated reporting/analytics.

STATUS CORNER

- ❖ The SRA Team delivered the Final Release 1 Design Document (RDD) F.46, the Final Disaster Recovery Plan (DR) F.4, and the Final Technical Architecture Design Document (TAD) F.26

- ❖ Currently the Human Capital Transition (HCT) Team is identifying the affected WBSCM users and stakeholders, and has started reviewing and assessing the change impacts identified in the Release 1 Design Document

- ❖ The SRA Team conducted the International BEOS walkthrough session

- ❖ The team completed the following Build Phase Cycle 1 activities: Baseline configuration for the Org. Structure including Vendor Master, Material Master, and Master Data entry

DID YOU KNOW?

…The USDA is rapidly increasing the volume of exported food commodities to other countries? China's demand for US fruit and vegetable products last year was $6.5 Million.

…The USDA uses private and state agencies to inspect food companies that market organic food commodities?

… The procurement of food commodities by AMS and the Domestic Procurement Division of FSA (KCCO/FSA) accounts for over 55 percent of what USDA buys?

ED CORNER

❖ Here is the latest sample of the "WBSCM dictionary."

WBSCM Terms
Common BEOS Terminology….

Event – A BEOS Event is the mechanism that groups multiple optimization runs for the same Bid Invitation together and then allows for online analytics and comparisons between multiple runs. Every BEOS Event corresponds to a particular Bid Invitation in SAP. A USDA specialist will trigger the creation of a BEOS event from SAP. Upon doing so, the corresponding bid invitation, vendor bid, and constraint data will be passed to BEOS.

Templates – A BEOS template is a predefined set of rules and constraints that is used to create an event within the BEOS solution (LTC, Domestic, and International). An International template will include commodity and freight-based rules, whereas a Domestic template will only include commodity-based rules. For each event, only one template can be selected, though multiple scenarios can be created for each event.

Scenarios – Once a template has been selected, available constraints and rules can be applied to a specific bid optimization. The collection of rules used in a specific optimization run defines a scenario. USDA can create multiple scenarios for each event, altering the rules and constraints applied to the invitation. Each scenario is optimized and will produce a proposed set of winning bids. USDA users will select the appropriate scenario to be used for award purposes.

Rules – BEOS captures constraints using rules. Rules are English-based representations of constraints.

NEXT MONTH

We will continue to report on the progress of the Build Phase and feature the Human Capital Transition (HCT) Team.

ASK US

We'd appreciate your thoughts and feedback! Please email any WBSCM questions or suggestions you have to:

WBSCM@kcc.usda.gov

You can find more WBSCM information on the WBSCM Program Web site.