Electronic Data Collection at the U.S. Bureau of Economic Analysis

Louise Ku-Graf

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Outline

- Background
- Automated Survey Transmission and Retrieval (ASTAR) System
- eFile: BEA’s Second Generation of Electronic Filing
- Future Plans
- Questions
Background

- U.S. Bureau of Economic Analysis
  - Produces national and international economic accounts
  - Most source data from outside sources (Census, Bureau of Labor Statistics)
  - Collects primary source data in two areas:
    - Direct investment
    - Trade in Services
  - 16 surveys
    - Mandatory
    - Confidential
Automated Survey Transmission and Retrieval System (ASTAR)

- Developmental efforts began in late 1990s
- Initial implementation in 2000 (2\textsuperscript{nd} quarter)
- Gradually expanded to cover almost all surveys
Chart 1: Total documents filed via ASTAR and paper for Form BE-605
ASTAR Usage - continued

- ASTAR users account for an ever increasing proportion of key metrics

**Chart 2: Documents Filed via ASTAR as a Percentage of Total Assets and Total Sales**

*Data obtained from the benchmark and annual surveys of foreign direct investment in the United States, BE-12/15.*
System Description of ASTAR

- JAVA applet runs in the respondent’s browser
- Respondents can work on-line or off-line
- Data are encrypted in transit
- Assigned unique passwords are used to retrieve/decrypt/encrypt data
- Generates printable forms in PDF format
System Description of ASTAR - continued

- Encrypted data are stored on BEA’s web server
  - SQL server accesses encrypted data, and decrypts the data
  - Decrypted data are loaded into internal database
  - Automated e-mail notification is generated

- ASTAR system includes import and export features (CSV file format)
ASTAR Usage - continued

- Import feature tends to be most widely used for the quarterly survey of U.S. direct investment abroad, Form BE-577

### Table 1: Minutes Per Document for Form-577 ASTAR Users

<table>
<thead>
<tr>
<th>Year</th>
<th>Average</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Total Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 Q1</td>
<td>6.27</td>
<td>0.05</td>
<td>42.00</td>
<td>4973</td>
</tr>
<tr>
<td>2006 Q2</td>
<td>6.49</td>
<td>0.12</td>
<td>205.00</td>
<td>5013</td>
</tr>
<tr>
<td>2006 Q3</td>
<td>6.19</td>
<td>0.01</td>
<td>50.50</td>
<td>5609</td>
</tr>
<tr>
<td>2006 Q4</td>
<td>7.87</td>
<td>0.01</td>
<td>181.00</td>
<td>5528</td>
</tr>
</tbody>
</table>

Reflects only time spent online
Chart 3: Method of filing used by respondents for Form BE-605

- **Total documents filed via ASTAR as a percentage of total mailouts**
- **Total documents filed via ASTAR as a percentage of total documents received**

The chart shows the proportion of documents filed via ASTAR as a percentage of total mailouts and total documents received, with data points for each quarter from 2001 Q1 to 2006 Q4.
ASTAR Successes - continued

- Improved timeliness
- Reduces BEA’s costs
- Reduces timeframe for accessing reported data
- Eliminates keypunch errors
- Increases data integrity
  - Data pass through a series of checks prior to submission
ASTAR Challenges

- High maintenance costs
  - Must be supported by outside contractor
- Significant maintenance effort
  - Changes in technology
  - Changes in forms
- Burden of password maintenance
  - Unique period-specific password
- Limited flexibility in applying checks
BEA’S 2nd GENERATION OF ELECTRONIC FILING

- BEA began researching and developing electronic filing alternatives in 2005
- Adobe E-forms were selected: eFile
- eFile prototype went into production in 2005 for Form BE-10, Benchmark Survey of U.S. Direct Investment Abroad
Initially supported by outside contractor

BEA subsequently began constructing PDF markup, encryption, and hosting of data collection in-house

Currently used for 9 surveys

Over the next 18 - 24 months, eFile will be extended to all BEA surveys
System Description of eFile

- Compatible with any computer that has Adobe Acrobat or the free Adobe Reader

- Users can change and update passwords at eFile password “portal” site
  - The password portal meets the E-authentication requirements
  - Passwords are never transmitted via email
Password “portal” site

- Users complete an online form and submit a password
- Portal verifies and validates password to UserID
- E-mail confirmation is sent to respondent
- Respondent confirms password by following link given in email

Respondents save and submit data through BEA website

Data transmitted via Secure Sockets Layer (SSL) and encrypted on BEA web server
User Acceptance of eFile

- 3 surveys converted to eFile in late 2006
- 6 additional surveys recently converted to eFile
- Encouraging usage rates
  - 30 percent of all BE-45 respondents
  - 26 percent of all BE-120 respondents
Benefits and Features of eFile

- Lower maintenance cost
- Improved password administration
  - Respondents manage their own passwords
  - Reduces BEA and respondent burden
  - Meets E-authentication requirements
Benefits and Features of eFile - continued

- More flexibility in validity and form-specific logic checks
- Data security
- Rapid confirmation of submissions
Future Plans

- Over the next 18 to 24 months, BEA will phase out ASTAR and convert to eFile for all surveys
- Develop an XML-based import and export feature
- Continue to improve and enhance the system
Contact Information

Louise Ku-Graf
U.S. Bureau of Economic Analysis

Email: Louise.Ku-Graf@bea.gov
Phone: (202)606-9894