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

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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 (2nd quarter)
- Gradually expanded to cover almost all surveys
Chart 1: Total documents filed via ASTAR and paper for Form BE-605

Document count

Total documents filed via ASTAR

Total documents filed via paper
ASTAR Usage - continued

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

*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)
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></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
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 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
eFILE - continued

- 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
System Description of eFile - continued

- 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

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