Experiences with the Paperless Fax Image Reporting System

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I.   **Introduction**

In November of 1992, the CASIC Committee on Technology Testing recommended to the CASIC management that SRD build a small prototype system that used intelligent character recognition to recognize hand-printed data on faxed questionnaire images. In January of 1994, a PC based proof of concept (POC) system had been put in place and testing began on a small scale, starting with a group of fifty participants of the Survey of Manufacturer's Shipments and Inventories (M3). Fifty respondents would fax their completed questionnaire to an 800 number, and the system would automatically extract the data from the fax image. After six months of testing, we increased the size of the test group to 100 respondents.

In addition to receiving faxes and extracting the data, other applications of the PFIRS system were explored as well. The Survey of Industrial Research and Development (R&D) used the system in conjunction with the touchtone data entry (TDE) system (the POC system from Enhanced Systems) to provide replacement questionnaires on demand. Respondents who needed a replacement questionnaire called an 800 number, entered their CFN and fax number. After validating the CFN, the system would automatically send a replacement questionnaire to the fax number entered. The Investment Plans Survey (IPS) extended this by also using the fax out capabilities to send out reminder notices to delinquent respondents.

Most of the unanswered questions posed by the initial technical assessment were answered during the course of these test applications. In addition, the great demand for the outgoing fax capabilities of such a system has made us aware of additional things to look for in a large scale production prototype. In this paper, we will discuss what these test applications have shown **can** be done by the PFIRS system currently in place, and what that means when considering a large scale production prototype.

II.   **Description of the System**

The present configuration of the PFIRS system consists of a small Novell Network: a server running Netware 3.12, a dedicated fax server running Intel's Net SatisFAXtion with an expansion bus containing additional fax/modem boards, and a 486 PC designated as the "primary" workstation that is used to run Teleform 3.0, the software that is responsible for forms design, OCR, fax management, verification and export of the questionnaire data extracted from the interpreted images. More detailed discussion of the hardware and software that compose the system can be found in the six month report[1].
For the M3 forms (or any incoming form), the basic workflow is as follows. The form is faxed to an 800 number, which points to the first number in an 8 line hunt group. Each of the lines in the hunt group are plugged into a fax\modem mounted in the fax server expansion bus (except for one, which is in the local bus of the fax server). The fax server software receives the incoming fax into it's queue, keeping basic information such as the date and time of the transmission in the server's history file. The fax server automatically forwards all incoming faxes to the fax queue of the PC logged into the fax server as

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[1]   See "PFIRS Six Month Report" by Chad Russell.

"postmaster," in this case the primary Teleform Workstation (PTW).

Once the fax is deposited in the Intel fax queue of the PTW, it is picked up by Teleform's fax management software (FaxWorks) and placed in another fax queue "owned" by FaxWorks/Teleform. At user specified intervals, the system checks this queue and picks up images to feed to the OCR software. The images are aligned and deskewed, after which Teleform searches for a survey identifier mark placed on the form during the design process. If the software finds and reads this identifying mark, it begins OCR extraction of the data. The image file and the results of OCR are saved in a "suspense directory" to await any clerical verification that might be necessary. If the form is not identified as being an active Teleform form, the image file is saved in a special "NONFORM" directory.

The verification module provides a graphical user interface for checking the accuracy of OCR, and supplying any data that OCR was not able to extract with sufficient confidence. The verifier calls up the verification module (called the "Teleform Verifier") and selects one or more documents to verify and correct. The verified data can then be exported to a variety of database formats (dBase, CSV, Oracle, ODBC text) for use by other programs.

The ability to merge data from database files for automatic printing and faxing (form merge) is provided by Teleform as well. These features were used for the R&D and IPS survey applications. Information to be printed on the outgoing faxes or printed forms is arranged in a database having certain key fields, and these databases are associated with an outgoing form. Once these databases are placed in the "form merge queue," the system processes the records one at a time - printing or sending a fax, until it has processed all of the pending records in all of the databases in the queue.

III. **Test Description**

In building the PFIRS system and planning the pilot test, we wanted to answer the following questions regarding an image collection/reporting system:

1) Can a PFIRS proof-of-concept (POC) system be produced by integrating commercially available ("off the shelf") hardware and software products? If not, what custom coding would be required to make up for the unmet needs?

2) Can the system automatically identify which questionnaire it is receiving based on the image?

3) Can the system identify the respondent?

4) Can the system acknowledge receipt of the questionnaire to the respondent?

5) Can one estimate the necessary storage capacity as a function of the survey form and the number of respondents?

6) How accurate is the OCR interpretation of the data? Can the level of accuracy be easily controlled?

7) Can the OCR software be used to extract data from the Census Bureau's **existing** survey forms? If not, what design modifications are necessary?

8) Can we determine the number of phone lines necessary to conduct a survey of a given size?

With these questions in mind we designed the M3 pilot test. For the M3, each return is 100 percent verified and the following items are recorded:

1) whether the form type was/was not correctly identified
2) the presence of any unusual lines or interference
3) the length of each field (# of digits entered by respondent)
4) the number of characters interpreted correctly (interpretation was above the confidence level)
5) the number of characters interpreted correctly (interpretation was below the confidence level)
6) the number of characters interpreted incorrectly (interpretation was above the confidence level)
7) the number of characters interpreted incorrectly (interpretation was below the confidence level)
8) the number of extraneous characters
9) the number of ignored characters

In addition to collecting the above statistics, other information is also collected, such as the date of receipt, the time of day the fax was received, the number of returned forms, the size of the image files, etc.

IV. **Results of the M3 Targeted Test**

Attachment 1 and Attachment 2 summarize the data collected to date. The results that follow are calculated using these data.

Accuracy of Form Identification

If a form is not identified by Teleform, OCR is not performed. For the February 94 through July 94 reporting periods, of 214 questionnaires received, 5 (2.3 percent) were not recognized by the software as being questionnaires and were routed to the nonform directory. For August 94 through February 95 (Teleform 3.0 being used), of 523 forms received, 16 (3.0 percent) were not recognized. Some success has been noted with reevaluation; that is, it is sometimes possible to get a successful OCR pass by sending the nonform through OCR a second time. We do not know why this is so. One hypothesis is that repeated applications of the deskewing transformation can result in eventual form identification, but this has not been verified.

Accuracy of the OCR Interpretation

The ability of the OCR software to correctly interpret characters is the major factor when assessing the payoff of using OCR over keying. The greater the success rate of OCR, the fewer the keystrokes required to capture the data from the questionnaire image. Figure 1 shows the success rate of OCR on a character basis and a field basis. This is the percentage of characters/fields interpreted correctly by the software, regardless of the level of confidence at which the characters or fields were interpreted. One can think of this as the proportion of the characters or fields that would be correct if you did no verification of the data whatsoever.   **Figure 1**

PFIRS/M3
OCR Success Rates by Month
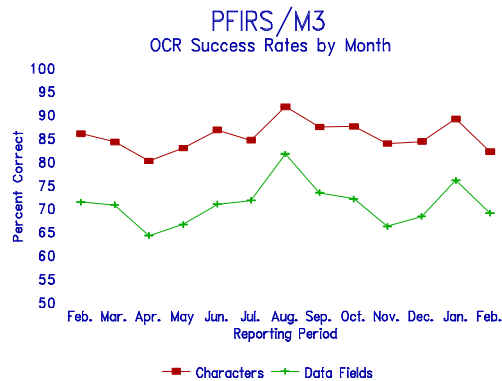
Beginning with August, the sample size was increased to 99 cases, and a software upgrade was installed. For the first six months of testing the average OCR success rate, defined as characters interpreted correctly by the software (regardless of their flagged/not flagged status) was 84 percent. For the next seven months, interpreted under the new Nestor recognition engine, the average OCR success rate was 86.5 percent. As one would expect, the slightly better recognition rate is reflected in the field success rate - 69.1 percent for the first six months versus 72.4 percent for the last seven months.

Whether or not these rates are "good" depends on the level of accuracy needed for an application. In the case of M3, the prior month's data is preprinted on the questionnaire that is sent to the respondent, thus it is important that this data reflect **exactly** what the respondent reported. In other applications, however, it might be sufficient only to enter the digits which the software did not read at all, and let the edits take care of the rest.

So how often was the software wrong? And more importantly, when it was wrong, were those digits flagged so that they could be set right by a verifier? The percent of characters falsely interpreted by the software can be seen in Attachment 2 on a monthly basis. One could argue on practical grounds that unless the item is correctly interpreted, it is "falsely

interpreted,", i.e., blank items, uninterpreted items, etc. might be considered false as well, since they require clerical action. By this way of thinking, figure 1 expresses the failings of the OCR engine through it's successes.

Table 2 shows the conditional probability that a character is flagged as questionable by the software, given that it is interpreted incorrectly. The data is grouped by confidence level, with the first category "Max." being the maximum confidence level allowed by the software (100 percent for version 2.0, and 99 percent for version 3.0). As attachment 1 shows, different amounts of data were collected at the various confidence levels, thus the level of precision in these averages is different. As expected, as the confidence level is lowered, the probability that an item is flagged is lower.

Table 2: P(Flagged|False) vs. Confidence Level

| Confidence Level	Version 2.0	Version 3.0
Max	64.2	65.6
95	49.3	76.4
90	34.2	69.0
85	N/A	45.1

Response Rate and Response Time

The persons participating in the M3 test had already been submitting their monthly survey via fax. The overall average response rate was 82.5 percent. This figure includes late returns - those coming in after the subsequent month's mailout, and is adjusted to account for different test sample sizes in each month.

Based on the period of July'94 - February '95, when we started measuring the arrival time of late arrivals, approximately 95 percent of the returns were returned before the next month's mailout. The remainder would continue to trickle in during the following months. Figure 2 shows the frequency distribution of the return data for the July '94 - February '95 reporting periods. These data show that 85 percent of returns are received by the end of the third week of the month.

Response Time
Arrival Day: July '94—Feb. '95
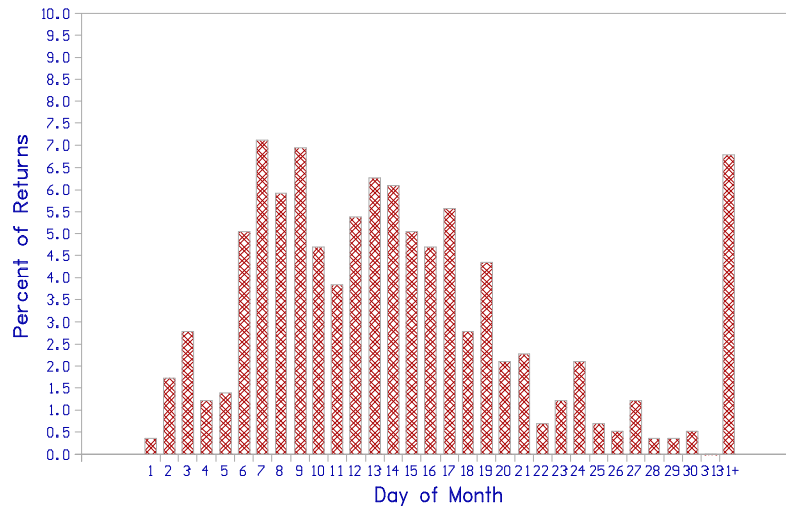
Storage Requirements

The required storage space for each image file improved greatly with the release of the software update, which made use of TIF compression. Under Teleform 2.0, the fax images were stored as PCX files, which filled about 300 Kb per questionnaire. In TIF format, the fax images take up about 45-50 Kb - a terrific improvement.

Ease of Use

Correction of returned questionnaires compared favorably with keying in preliminary time tests. On a test set of 80 questionnaires, a verifier was able to do 100 percent verification in 26 minutes, compared with a 23 minutes for a seasoned data entry person. This test was merely preliminary, and more rigorous designed experiments are necessary to make conclusive statements regarding ease of use. The graphical user interface, for all it's user friendliness, is more difficult to navigate. Having to click on the area you wish to correct, correct it, and repeat this process for each field is cumbersome compared with straight keying. The savings comes in when you don't have to correct a field, and can simply hit return. Data entry costs decrease linearly with the accuracy of OCR.

V. **Results from the R&D and IPS Applications**

The R&D survey and IPS survey gave us the opportunity to test the systems's fax sending capability, both in batch mode, and in fax on demand applications. For the IPS application,, we sent reminder notices to companies who had not responded by the cutoff date. For both the IPS and R&D applications, respondents who needed a replacement questionnaire were able to call a toll free number and enter their ID and fax number via a touchtone data entry system. PFIRS would then take this information and automatically fax a replacement questionnaire.

IPS Reminder Notices

The goal for the reminder notices was to fax out a reminder notice to all delinquent respondents for which we could obtain a valid fax number. The workload was approximately 10,000 cases, to be completed in one week (the first week of December, 1994). After one week's time, the balance of the reminder notices that had not been faxed would be mailed, along with the reminder notices for companies lacking a fax number.

The information to be preprinted on the fax image was assembled into a DBASE file and queued as a form merge and allowed to run continuously. The results were disappointing. Due to problems setting up the form merge, and system crashes on the primary Teleform workstation, we achieved only 47 hours of running time in which we were able to send 2651 reminder notices. The average fax transmission time for each notice was approximately 2 minutes.

A major source of inefficiency was the way that the software cycled through it's activities. Teleform is designed to do many things - check for incoming faxes and scanned documents, perform OCR on these images, send faxes, clean up queues, etc. It cycles through these activities according to user defined parameters. As a result of this cycling, the outgoing fax images were not being produced fast enough to occupy all eight phone lines available for sending. Thus, the full capacity of the faxserver was not being used. We failed to figure in this cycle time in our estimates and could not improve the throughput sufficiently by varying the user defined parameters. The situation was contrary to what we believed would be true - that any bottleneck would occur at the fax server. While this is true for larger documents (as it was for the replacement forms) it is not the case for shorter documents.

Replacement Questionnaires -R&D and IPS

For both the IPS and the R&D applications, the PFIRS system was integrated with the TDE system to provide fax on demand of replacement questionnaires. The respondent would call the TDE, enter their CFN and fax number, and the system would automatically send a questionnaire to that number. For the IPS application, there were actually two forms - a standard form for companies that were reporting in seven or fewer industry categories, and an extended form for companies reporting in more than seven categories. The latter was essentially the same, though it had space for the additional categories.

For the IPS survey approximately 13,000 people were sent reminder notices (faxed or mailed) that informed them of the availability of this service. Between December 8 (when the reminder notices were mailed) and January 3, 1794 requests were received, of these 1587 questionnaires were successfully sent. In all, there were 2018 successful sends. The requests not successfully sent include cases where the fax line was consistently busy, or the respondent entered a voice telephone number by mistake. Most of the requests coming in after January 3 were requests generated by CATI operators during follow-up. It was reported to us that respondents would often request a copy of the form during the CATI interview. CATI operators would take a fax number and initiate the TDE request on the respondent's behalf.

The R&D application was essentially identical. Accurate counts of TDE requests/completed send events are not available because the fax logs were not adequately kept the first time around. Based on the information that was kept, total workload for the year (from June, 1994 through January, 1995) was approximately 4000 requests. During the first two weeks of the R&D operation, more than 1200 requests were received. This caused some problems which will be discussed further.

In order to understand some of the problems that did or can occur with this type of operation, we shall examine the process in more detail. The respondent calls the TDE, and is asked to choose the survey form they wish to request. After pressing the appropriate key, they are prompted for their CFN. Once the respondent has entered the CFN, the TDE script searches the master database for that survey for a record with a matching CFN. If it finds the respondent's CFN, it then asks for a fax number.

Once the fax number is captured, the TDE script attempts to write the fax number, CFN, and other company information to another database, known as the "buffer." From the point of view of the PFIRS system, this buffer file is just another form merge database. This database contains information to be incorporated into the outgoing fax images and control fields required by Teleform that are used to keep track of the form merge process. In particular, a field called RECORD_STA contains the processing status of the current record. The value of the ReCORD_STA field indicates the following:

23: Needs to be processed
21: Processing complete
22:    Record is currently being processed
19, 20: An error occurred during processing.

In order to write the request to the buffer, the TDE script searches the buffer from the top for the first record that has RECORD_STA=21 (the record is processed and is therefore available to hold another request). It then writes the information to this record, changing RECORD_STA to 23 (needs to be processed). At the same time, the PFIRS system is processing records with RECORD_STA=23. It is also starting at the top and working it's way through the file, changing the RECORD_STA from 23's to 21's (or other in the event of error). Thus the TDE requests are the "inflow" to the database, and the outgoing faxes are the "outflow".

In applications where calls are coming in consistently faster than fax images are being created and sent to the fax server, the buffer may fill up, that is, there may not be an available record for the TDE to write the request to. In that case, the TDE script will keep trying until a record is freed up. The system reaches an equilibrium where incoming requests cannot be queued for processing faster than the fax images can be created. For the IPS application, a buffer size of 100 proved adequate. Further, the buffer was always clear in the morning when the system was checked - the nighttime hours were sufficient to clear the backlog.

Because the PFIRS system processes the first record with RECORD_STA=23 in the buffer, and the TDE system searches for the first 21 to write to, requests can be trapped indefinitely "below the top" during periods of high volume. Consider the first few records in the buffer. Suppose they all have RECORD_STA=23. First, PFIRS will come along and send record number 1, changing RECORD_STA to 21. If a TDE request is ready to be written, record number 1 will be the first "free" record, and the TDE will write the new request to record number 1. This in turn will be the first record requiring processing by PFIRS during it's next cycle, and record 2 will be left unsent until things slow down a bit. There is no way around this within the boundaries of this off the shelf software.

The R&D application was the first fax application that tied the PFIRS and TDE systems together in this way. During this first run, we discovered that the fax images were not automatically deleted from the FaxWorks send queue by default. This caused the disk to rapidly fill with image files that had already been sent, crashing the application. After that, Teleform's initialization parameters were changed to automatically delete images from the send queue during clean up passes if these images were more than 30 seconds old.

The potential for storage problems still exists however. Teleform is an "inflow" for the faxserver's queue, and the sending of faxes is an "outflow." If the rates are such that the outflow is not fast enough to accommodate the inflow given the available space, the system will eventually run out of space to create additional images.

During the period that the IPS survey was in production, the R&D survey was also in production, though the number of R&D requests was very small. This led to the discovery of another shortcoming in the way the software processes form merges. A form merge involves associating a particular database file with a form to be faxed or printed. Once a form merge is activated, the database file is said to be in the "form merge queue". While several form merges can be in the queue simultaneously, the queue is processed as if it were **a single set of records to be processed**.

This phenomena was observed when TDE requests for both IPS questionnaires and R&D questionnaires were waiting to be processed. The software would start with the IPS requests (the first database in the queue) and process those records in order. Only after there were **no** IPS requests requiring processing would it begin to process the R&D requests. But the TDE system was dumping requests into the IPS buffer as they came in. Thus, the R&D requests had to wait until the IPS buffer was cleared.

Fortunately, the R&D requests were few during the active IPS period. Had both types of requests been coming in at a constant rate of, say, one per minute, the R&D buffer would have filled up in a few hours, and subsequent incoming R&D calls would have tied up all available TDE lines until all of the IPS requests had been processed - possibly for hours. This sort of sequential processing cannot support multiple fax on demand applications effectively.

VI.   **Answers to the Research Questions**

Initial testing with the PFIRS system was geared toward answering eight questions. Many of these questions were answered in the PFIRS Six Month report. We will revisit them here, adding additional information that we have learned.

1)   Can a PFIRS prototype be configured completely from off the shelf hardware and software products?

Yes, with limitations. Packages may not be completely flexible, for example Teleform will only read forms which it has created. Different packages will have different limitations.

2)   Can the system identify the survey?
Yes, provided that the incoming image is not terribly skewed, and the reference marks are intact.

3)   Can the system identify the respondent?

No, not by any assigned ID number, since these are not associated with the image until the image is interpreted. In cases where a particular phone number can be associated with a respondent, this can be used to identify the respondent if the system is able to detect the remote fax number. Though we have asked Cardiff Software many times how to implement this feature effectively, we have not received assistance.

4)   Can the system acknowledge receipt of the questionnaire to the respondent?

This feature was available with Teleform 2.0, but was not implemented in our test. It is not mentioned in the documentation of Teleform 3.0. With faxed forms, however, one can enable autotracking of forms, as well as automatic timed reminder notices.

Autotracking is a feature which enables the user view forms sent, forms received, and allows for automatic sending of acknowledgements and reminder notices. We have only been able to get this to work with manually faxed forms, and not with forms faxed as part of a form merge.

5) Can one estimate the needed storage capacity as a function of the survey form and the number of respondents?

Yes.

6) How easily can we control the accuracy of the OCR software?

While we cannot control the accuracy of the actual interpretation, fields can be forced to verification to ensure that they are correct.

7) Can the OCR software be used to extract data from the Census Bureau's current survey forms?

Not with the present system. Furthermore, the majority of the Census Bureau's survey forms were not designed with OCR in mind and have many features that inhibit successful OCR interpretation.

Pieces of current survey forms that do not contain fields to be interpreted or areas where text must be merged (such as instruction pages), need not be designed with the forms design package. These sections of a form can be scanned as bitmap files and pasted into a form. This method is not only easier, but it significantly reduces the time required to create an outgoing fax image.

8) If it is not possible to use the Bureau's current forms directly, then what design modifications must be met in order to have the OCR software read the survey data correctly?

To use the present system, a mock up of the existing survey form must be created using the forms design features. Constrained print fields, where the respondents write their characters in boxes, work better than freeform text zones. With other systems, it might be possible to use drop out ink along with segmentation to get better performance.

9) Is it possible to determine the number of phone lines necessary to conduct a survey of a given size?

Subject to constraints, yes. One would have to determine what is an acceptable probability of receiving a busy signal, and then solve the problem as a queuing problem. During the IPS survey, we retained the fax logs associated with the TDE requests. This data could be used to model the problem in a particular case. Data on the incoming M3 surveys is also available.

VII. **Deficiencies of the Current System**

1) Currently it is not possible to identify a respondent by the name of the image file. Ideally, the name of the image file should be indexed in some natural way based on

a respondent ID or some other logical identifier. We are investigating the autotracking features of the software to solve this problem, but that may only apply to faxed forms.

2) The system can only read forms that it creates.

3) The confidence levels for interpretation are set at the time the form is created, and cannot be changed once the form is "activated." A better system would allow changes at any time.

4) The ability to limit certain phone lines to certain surveys would be nice if the system is to handle multiple applications simultaneously. Currently, one can only set the "ingoing/outgoing/both" status of a particular phone line. While the lines that are receiving can be controlled by controlling the phone number that a survey returns responses to, outgoing faxes are sent out through the first available outgoing line.

5) The current system cannot support more than one high volume fax on demand application at a time because of the way it processes form merges. Further, the timed send features are not very sophisticated. Sending faxes is not done on a first in first out basis.

6) The system performs very poorly when run from a server that is far away from the primary workstation. We have not identified the reason for this yet. The net effect is to make the verification process painstakingly slow.

7) We have observed that the time it takes to create an outgoing fax is highly variable. Generally, images in portrait, rather than landscape, take the least time to create.

VIII. **Recommendations and Future Research**

The current system will be transferred in phases to the Technology Management Office, who will make it available for use while a larger scale system is being tested and put into place. The system will continue to support the M3, R&D, and IPS survey activities.

During the migration process, we will continue to try and answer questions regarding the current system, such as why it runs so slowly when the client workstation is "far away" from the server. We will also continue to test the autotracking features by faxing forms to a subset of M3 respondents.

PFIRS was originally conceived of as a system which would receive data by fax. It has become clear that there is considerable demand for outgoing fax capability, to send what has traditionally been mailed via fax. In reviewing hardware and software options for a large scale prototype, we will look for large scale fax out capabilities as well as receiving capabilities.

Census Bureau surveys often involve complicated edits. The ability to customize and control the flow of verification is a desirable feature of a PFIRS system. Teleform has a very powerful scripting language that provides for this. The ability to build in complex edits without rewriting the application itself is another feature that will be sought for a large scale prototype.

PFIRS DATA	Feb-94	Mar-94	Apr-94	May-94	Jun-94	Jul-94	Aug-94	Sep-94	Oct-94	Nov-94	Dec-94	Jan-95	Feb-95
Number sent	50	50	50	50	50	50	99	99	99	99	99	97	97
Digits Interpreted	846	854	881	882	861	752	1738	1552	1328	1699	1777	1597	1489
Correct/Not flagged	556	526	682	708	714	614	1367	1204	950	1232	1312	1277	1085
Correct/flagged	171	193	24	23	33	22	225	151	212	193	185	146	137
False/not flagged	7	22	32	41	21	15	14	18	13	33	25	15	50
False/flagged	21	31	15	23	21	14	64	35	47	63	57	32	41
Couldn't intepret	67	74	105	66	63	66	23	104	70	125	149	112	138
Ignored	1	1	10	3	2	2	0	1	0	0	1	0	0
Erroneous digit	23	7	13	18	7	19	45	39	36	53	48	15	38
1+ Error in field	62	65	83	78	66	56	83	106	95	145	142	101	119
Fields w/o error	154	157	149	155	160	142	368	291	245	284	305	320	265
Number Received	49	45	44	44	44	37	78	81	63	85	84	77	73
Number Processed	49	40	43	44	42	36	75	77	63	82	83	74	71
Number not Identified	0	1	1	0	2	1	3	4	0	3	1	3	2
Perfect forms	10	10	5	5	9	8	14	7	6	5	3	8	10
Confidence Level	100	100	90	90	95	95	95	95	95	99	90	90	85

PFIRS DATA	Feb-94	Mar-94	Apr-94	May-94	Jun-94	Jul-94	Aug-94	Sep-94	Oct-94	Nov-94	Dec-94	Jan-95	Feb-95
Number sent	50.0	50.0	50.0	50.0	50.0	50.0	99.0	99.0	99.0	99.0	99.0	97.0	97.0
Digits interpreted	846.0	854.0	881.0	882.0	861.0	752.0	1738.0	1552.0	1328.0	1699.0	1777.0	1597.0	1489.0
Correct/not flagged	65.7	61.6	77.4	80.3	82.9	81.6	78.7	77.6	71.5	72.5	73.8	80.0	72.9
Correct/flagged	20.2	22.6	2.7	2.6	3.8	2.9	12.9	9.7	16.0	11.4	10.4	9.1	9.2
False/not flagged	0.8	2.6	3.6	4.6	2.4	2.0	0.8	1.2	1.0	1.9	1.4	0.9	3.4
False/flagged	2.5	3.6	1.7	2.6	2.4	1.9	3.7	2.3	3.5	3.7	3.2	2.0	2.8
Couldn't Interpret	7.9	8.7	11.9	7.5	7.3	8.8	1.3	6.7	5.3	7.4	8.4	7.0	9.3
Ignored	0.1	0.1	1.1	0.3	0.2	0.3	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Erroneous Digit	2.7	0.8	1.5	2.0	0.8	2.5	2.6	2.5	2.7	3.1	2.7	0.9	2.6
1+ Error in field	28.7	29.3	35.8	33.5	29.2	28.3	18.4	26.7	27.9	33.8	31.8	24.0	31.0
Fields w/o Error	71.3	70.7	64.2	66.5	70.8	71.7	81.6	73.3	72.1	66.2	68.2	76.0	69.0
Number Received[2]	98.0	90.0	88.0	88.0	88.0	74.0	78.8	81.8	63.6	85.9	84.8	79.4	75.3
Number Processed[3]	100.0	97.8	97.7	100.0	95.5	97.3	96.2	95.1	100.0	96.5	98.8	96.1	97.3
Number not Identified[4]	0.0	2.2	2.3	0.0	4.5	2.7	3.8	4.9	0.0	3.5	1.2	3.9	2.7
Perfect forms[5]	20.4	22.2	11.4	11.4	20.5	21.6	17.9	8.6	9.5	5.9	3.6	10.4	13.7
Confidence Level	100.0	100.0	90.0	90.0	95.0	95.0	95.0	95.0	95.0	99.0	90.0	90.0	85.0

[2]Reported as a percentage of forms mailed.

[3]Reported as a percentage of the number received.

[4]Reported as a percentage of the number received.

[5]Reported as a percentage of the number received.