



New York State Department of Taxation and Finance



## Advanced Analytics for Audit Case Selection

*Presented by:*

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## **Audit Case Selection**

**Putting a scientific approach to selection  
into the Auditors hands**



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### *Goals of this Presentation*

- Gain an understanding of how TACS got started, the theory of normal taxpayers within peer groups and outliers, and how models and features are designed
- Gain an understanding of peer group selection and the process for model creation
- Learn how "values" and "scores" are created
- Understand how to interpret these values and scores using various graphical presentations of the data along with canned reports and how an understanding of these scores leads to the selection of an audit case.
- Learn how TACS was further developed for scoring and ranking pre-processed returns
- Understand the term CISS



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***The project business objective was to maximize the return of the DTF investment in tax return audit programs.***

- Target tax returns with greatest potential payback
- Provide information to support investigation, litigation, and settlement functions
- Provide information to counter/prevent loss in the future

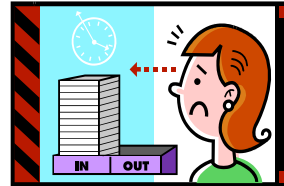




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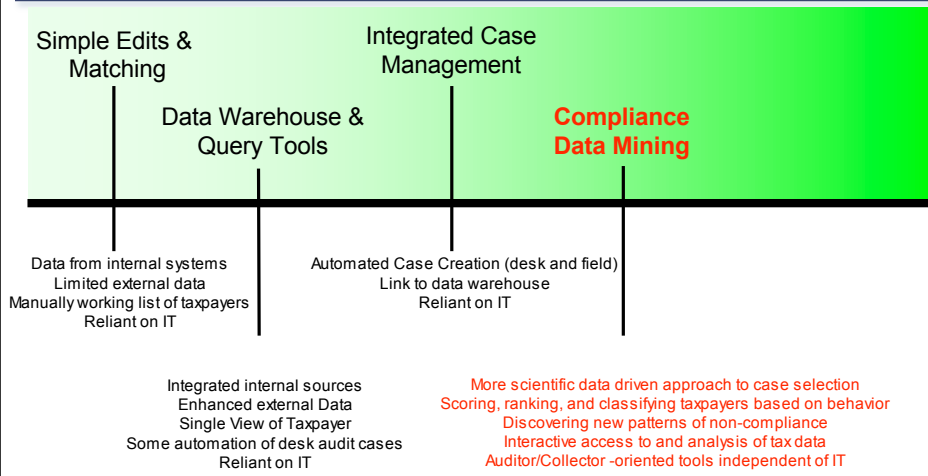
*The Audit Division wanted a better way to select cases and manage and/or prioritize their inventory*

- Reduce screening time by focusing on attributes of non-compliant returns
- Identify characteristics of successful and unsuccessful audits
- Target tax returns that resemble those that historically produced successful audits
- Assist with assignment and management of cases by estimating...
  - case complexity
  - confidence in the selection
  - additional revenue



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*To accomplish these objectives NY realized it needed to take a more scientific approach to case selection*





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## Tax Audit and Compliance System (TACS)

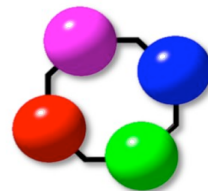
### A New Way to Select Audit Cases



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***TACS is a solution that enables taxing authorities to detect and investigate the fraudulent and abusive practices of taxpayers.***

- Sorts through information on tens of thousands of tax returns in minutes
- Ranks taxpayers in relation to their peers
- Results are displayed in a variety of graphical formats that easily identify taxpayers who fall outside norms
- Supports further investigation
  - enables users to drill down into detailed information
- Integrated data mining, interactive data visualization and ROLAP drilldown reporting enable the system to display results as
  - reports
  - spreadsheets
  - bar graphs
  - two and three dimensional scatter plots
  - various other presentations

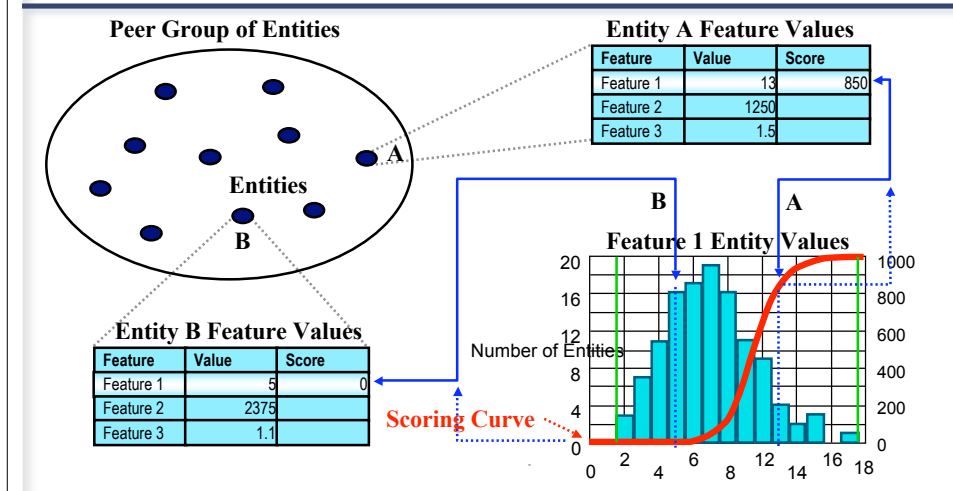


TACS – IBM's Tax Audit and Compliance System



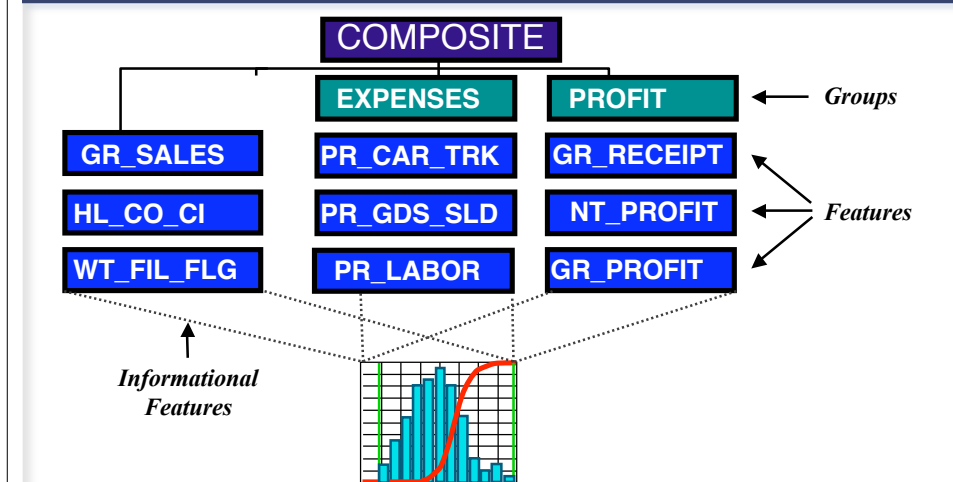
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*The foundation of TACS deviation detection is peer group profiling of similar entities using feature values and their profile scores.*



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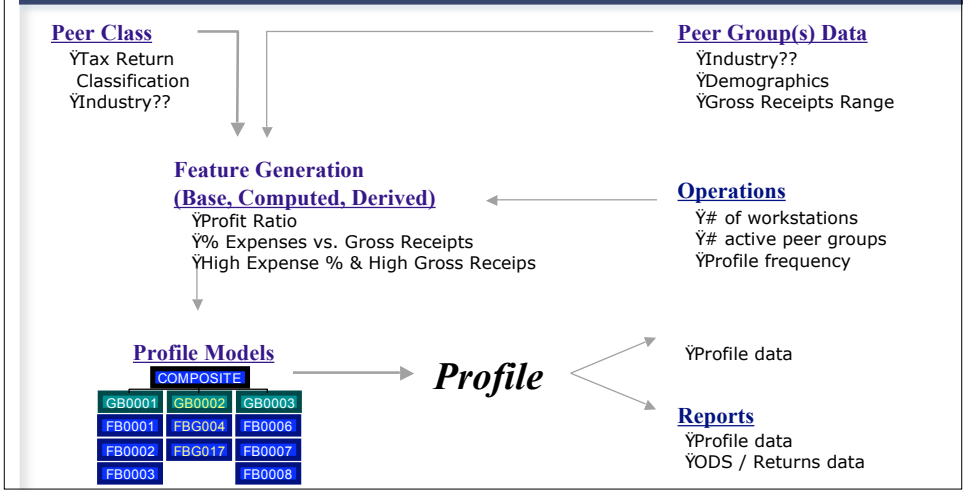
*The profile model defines the content and structure of the profile. Scores for features roll up to groups, and groups to the composite.*





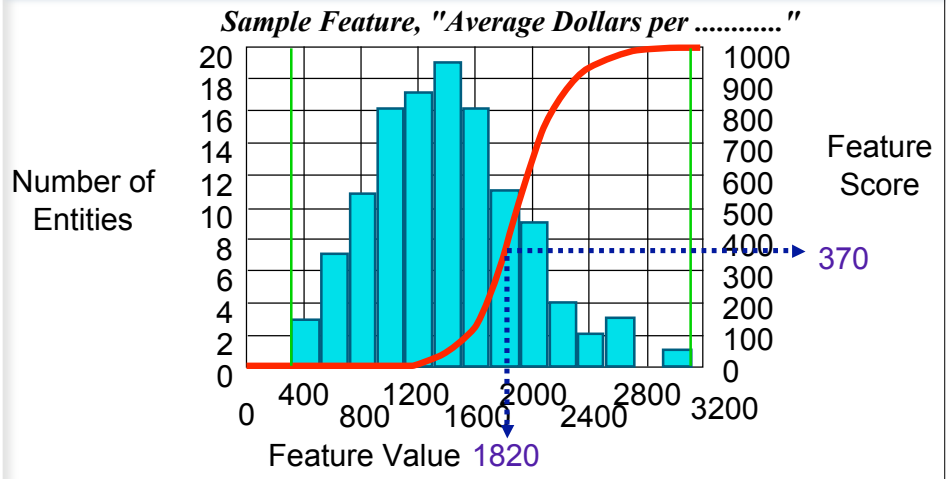
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## The profile model Objective: Who, How, When, What to Profile and What to Report



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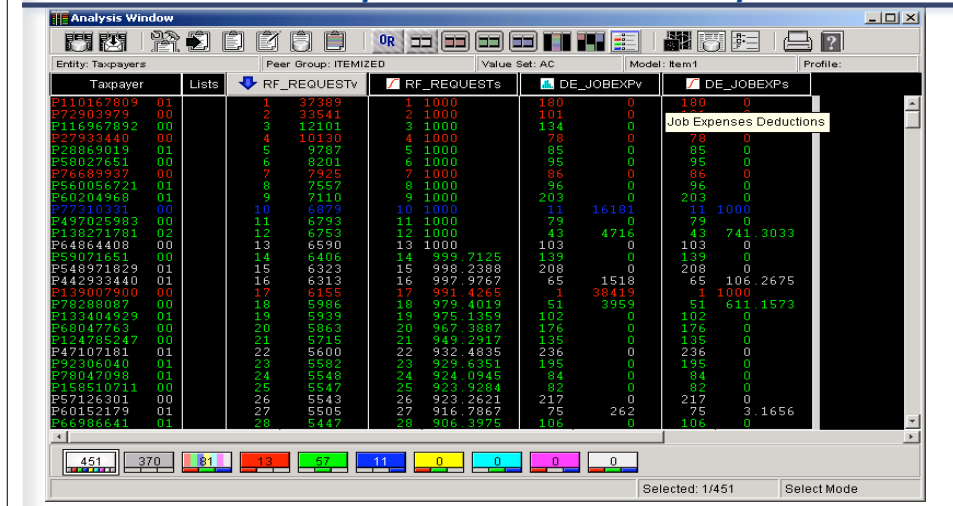
## The metrics of the distribution of all entity values for a given feature are used to define the transformation of values into scores.



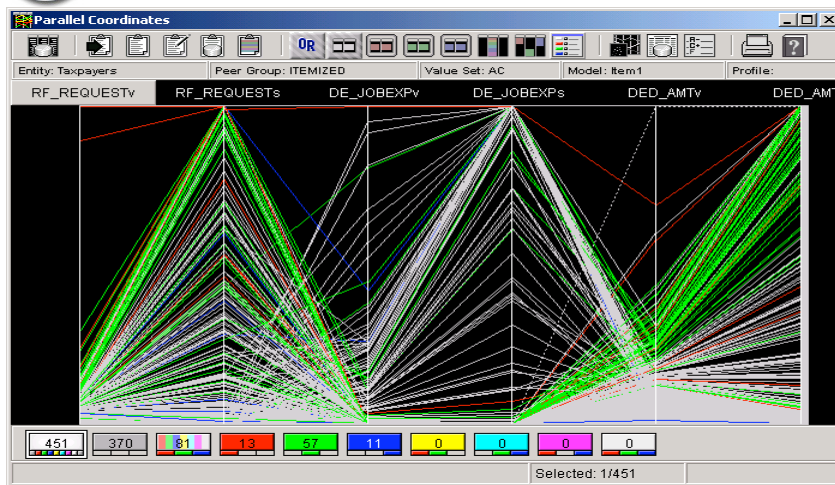


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*Interactive visual data mining is provided by the integration of data visualization into the profile mode and into the report wizard.*

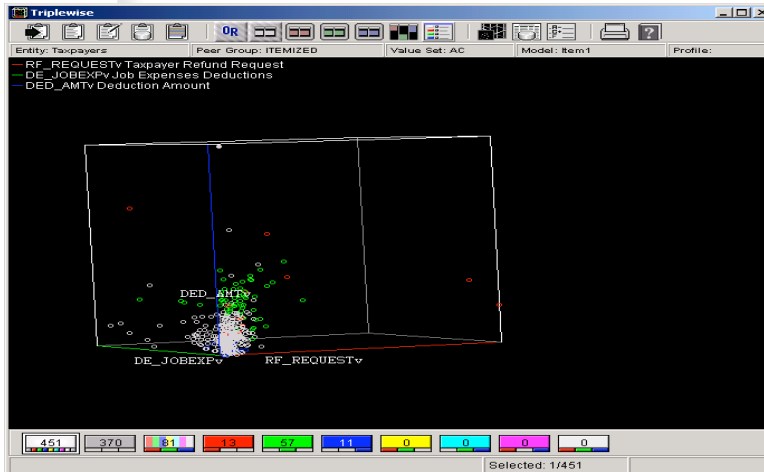


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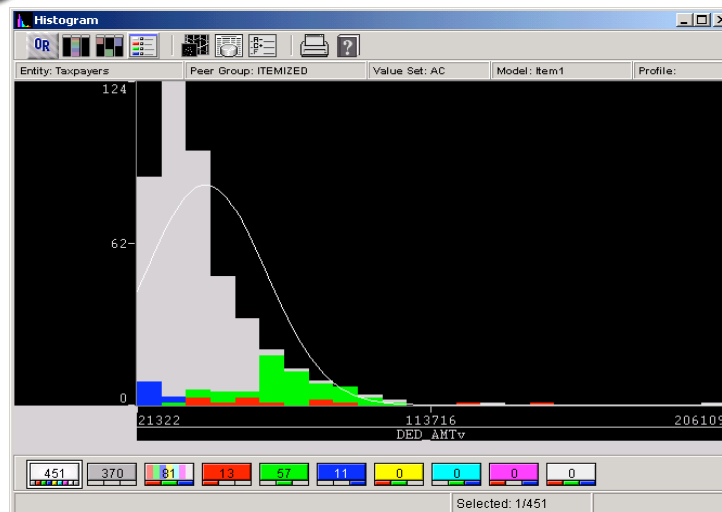




## New York State Department of Taxation and Finance



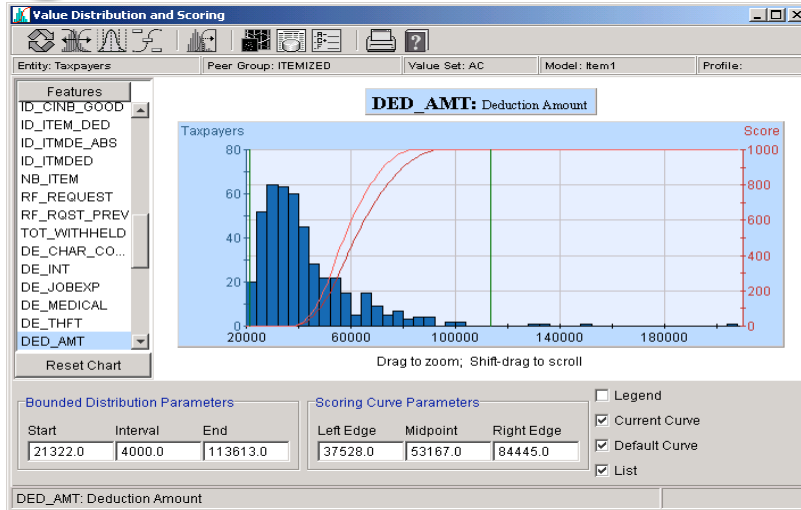
## New York State Department of Taxation and Finance



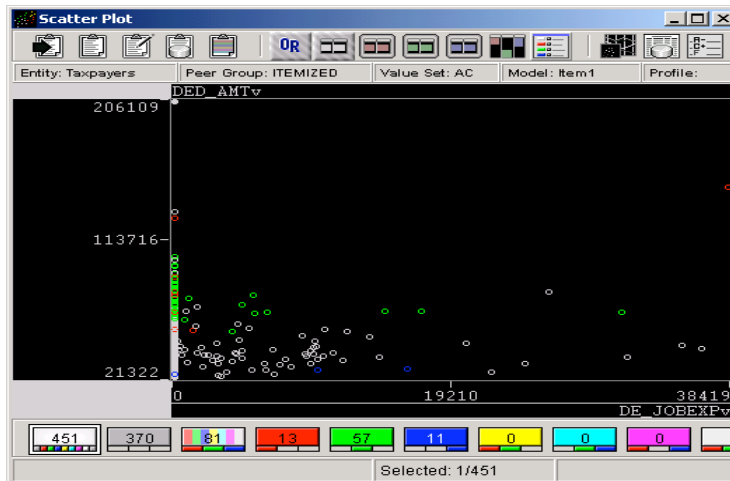




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**Crystal Reports is the integrated report engine accessed through the extensible table / token / data driven Report Wizard.**

Visualization Report Card

Entity: Taxpayers Peer Group: ITEMIZED Value Set: AC Model: Item1 Profile:

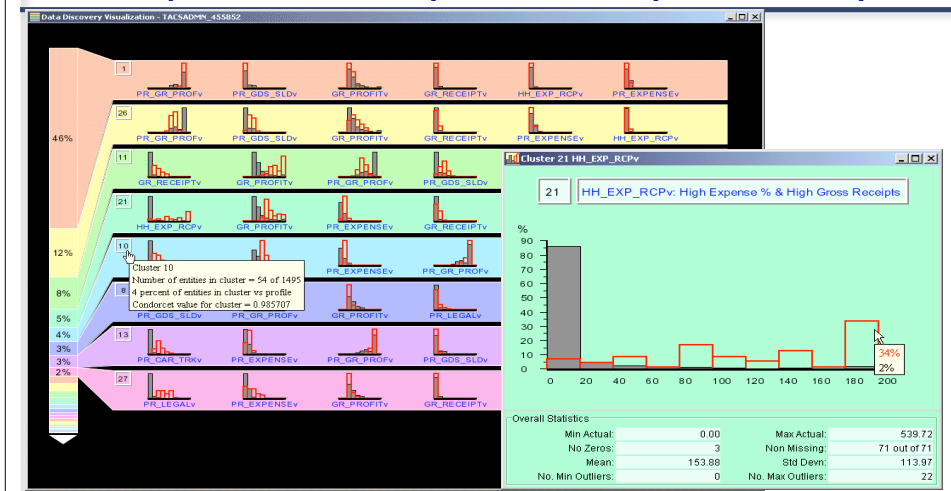
Taxpayer	Name	Color	Lists	Taxpayers	Number
P136284722 00	(N/A)	None		451	5 of 13

Element	Description	Rank	Score	Value	Min	Med	Max	WC	WV
ID_CINB	Prior Yr CINB and Adjustment Made	14	*	*	0.0	0.0	0.0	5	1
ID_CINB_GOOD	Questionable Item Deductions - Revie...	14	*	*	0.0	0.0	0.0	5	1
ID_ITEMDED	Itemized Deduction Category Indicator	14			0.0	0.0	0.0	5	1
ID_ITEMDED	Itemized Deduction Indicator	14	*	*	0.0	0.0	0.0	5	1
ID_ITEMDE_ABS	Itemized Deductions Abuser Indicator	14	*	*	0.0	0.0	0.0	5	1
ID_MRTO_F1	PM1 - Federal Hm Mortgage Ind	14							
ID_PREPR_QST	Questionable Preparer Indicator	14							
NB_ITEM	Itemized Ded Cat Next Best Case Value	52	637	2523.9	0.0	1206.6	9930.5	5	1
NB_ITEM_LTR	NB Item Letter	14							
RF_REQUEST	Taxpayer Refund Request	66	432	3962.0	1502.0	2401.0	37389.0	5	1
RF_ROST_PREV	NY Refund Requested Previous Year	14	*	*	0.0	0.0	0.0	5	1
RN_ITEM	Rule number broken	14							
TOT_WITHHELD	Total Withheld	46	587	4713.0	0.0	2568.0	37389.0	5	1
SCH_A_EXP	SCH A EXP	27	518	0.0	0.0	130.12	796.34	5	1
DED_AMT	Deduction Amount	52	744	65077.0	21322.0	37564.0	206109.0	5	1
DED_AMT_1	PM1 - Deduction Amount	14	*	*	0.0	0.0	0.0	5	1
DED_AMT_PREV	NY Deduction Amount Previous Year	98	171	39155.0	7500.0	28325.0	196913.0	5	1
DE_CHAR_CONT	Gifts to Charity	47	444	2406.0	0.0	0.0	66770.0	5	1
DE_INT	Interest paid	47	914	22119.0	0.0	0.0	113512.0	5	1
DE_JOBEXP	Job Expenses Deductions	5	1000	31059.0	0.0	0.0	38419.0	5	1
DE_MEDICAL	Medical Deductions	41	0	0.0	0.0	0.0	75659.0	5	1
DE_THFT	Casualty and theft deductions	16	0	0.0	0.0	0.0	55170.0	5	1
IT_BANK_MRTG	Bank mortgage interest paid deduction	14	*	*	0.0	0.0	0.0	5	1
IT_MRTO_F	Financial Home Mortgage Int - IRS Indiv	21	12857.0		0.0	10381.0	69857.0	5	1



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**Cluster IDs from profile data segmentation are dynamically added back to profile data in memory for iterative analysis and discovery.**





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## **Case Identification and Selection System (CISS)**

### **Taking Audit Case Selection to Pre-processed Returns**



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## **Business Background**



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*There are 3 major programs for the questionable refund detection unit*

### Categories of Questionable Returns

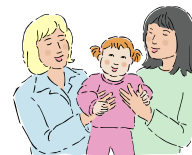
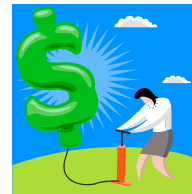
- **Earned Income Tax Credit (EITC)**
- **Itemized Deductions**
- **Wage / Withholding**
- **Other**
  - **Dependent Child Care Credit**
  - **Real Property Credit**
  - **Suspect DB's (Prisoner, Identity Theft, Preparer, Bad Address)**

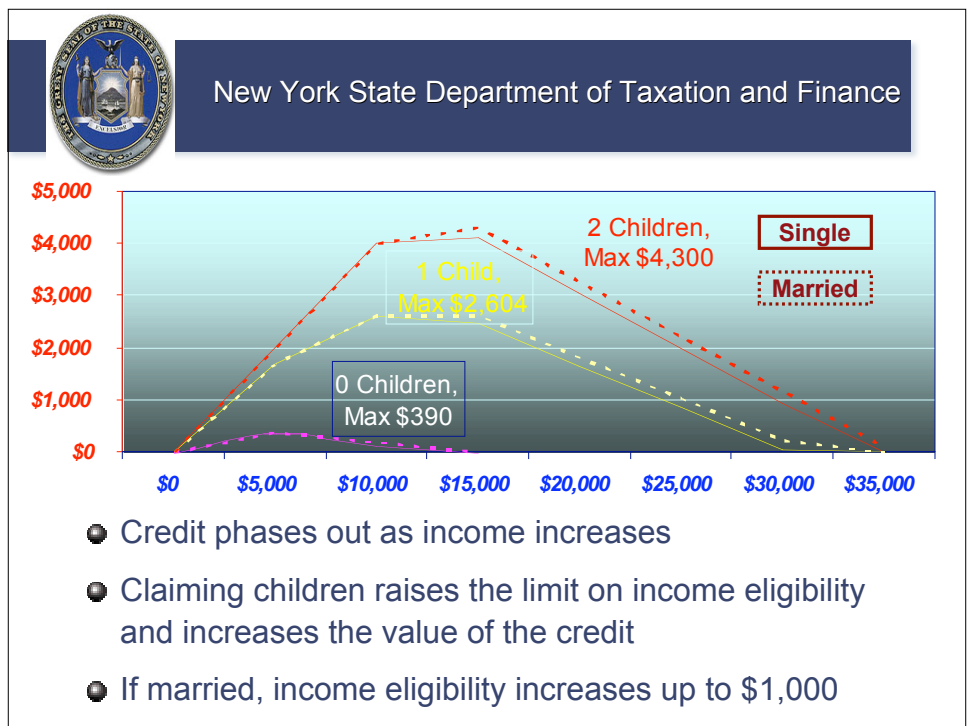
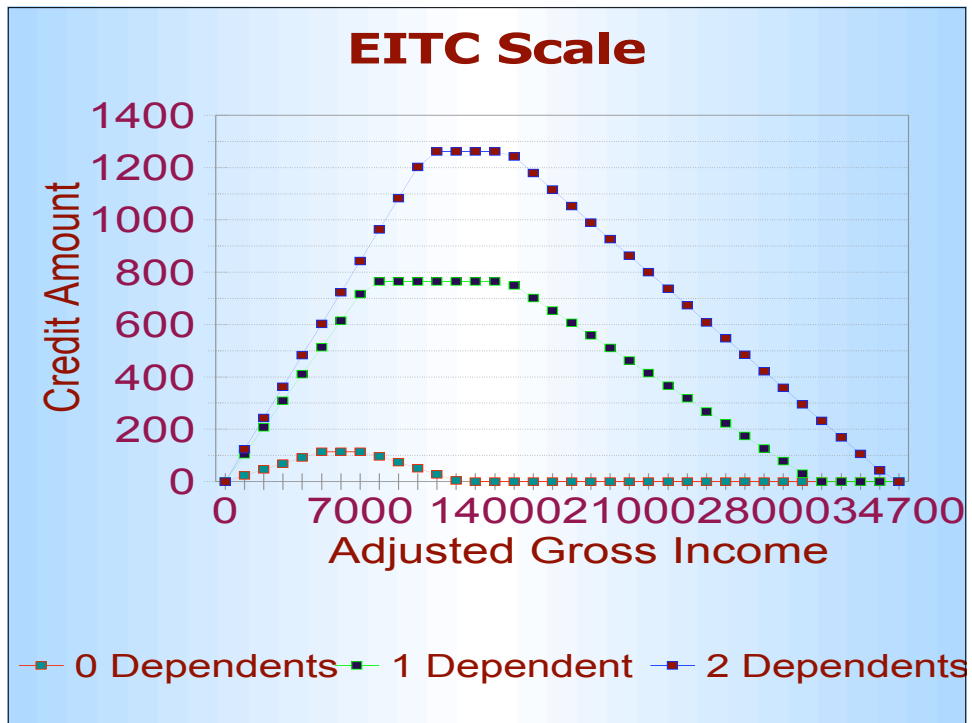


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*The EITC audit issues mainly stem from the misrepresentation of income and/or dependents to maximize the credit.*

- **Potential Fraud – Maximizing the EITC Claim**
  - **Questionable Business Income Gains/Losses -Schedule C**
  - **Questionable Wages And Withholdings**
  - **Ineligible Dependents**
  - **Preparer Fraud**
  - **Multiple Claims**
- **Domestic Issues**
  - **Custody Disputes**
  - **Duplicate Claims**
  - **Math Errors**
  - **Social Security Number Verification**







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*As always, Itemized Deduction audit issues stem from the overstating of deductions to wipe out AGI and are hard to verify*

- Taxpayers claiming high deductions in areas of
  - job expenses
  - personal mortgage interest
  - contributions
- Hard to verify deductions at the time of filing
  - No requirement to provide proof of deductions claimed on Schedule A
  - Schedule A data not available at review time for paper filers
  - Limited third party data
- Most audits are performed post processing
  - Deductions like job expenses and cash contributions need to be verified by correspondence with the taxpayer
  - Very labor intensive process



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*Falsifying employer withholding is a rapidly growing area of concern for the department and validation is difficult.*

- Stolen social security numbers
- Fabricated wage and tax statements
  - Easy to obtain W-2 statements with a valid employer EIN
  - Print their own W-2 on a computer to be submitted with their return
- Limited employer withholding information available at time of filing





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*Past enforcement efforts were not keeping up with the ever-changing compliance environment*

- “Early warning” compliance detection was rudimentary
- Existing strategy was limited to “deferred detection” and “pay and chase”
- Batch selection systems were inflexible and difficult to change
- Case workflow was disjointed and mostly manual
- Auditors did not have the complete picture of why a case was selected
- Limited capability to analyze the effectiveness of the audit programs
- Limited capability to detect or predict new schemes



## New York State Department of Taxation and Finance

*The project objective was to build a system to enhance existing audit case selection methods to detect questionable returns before processed*

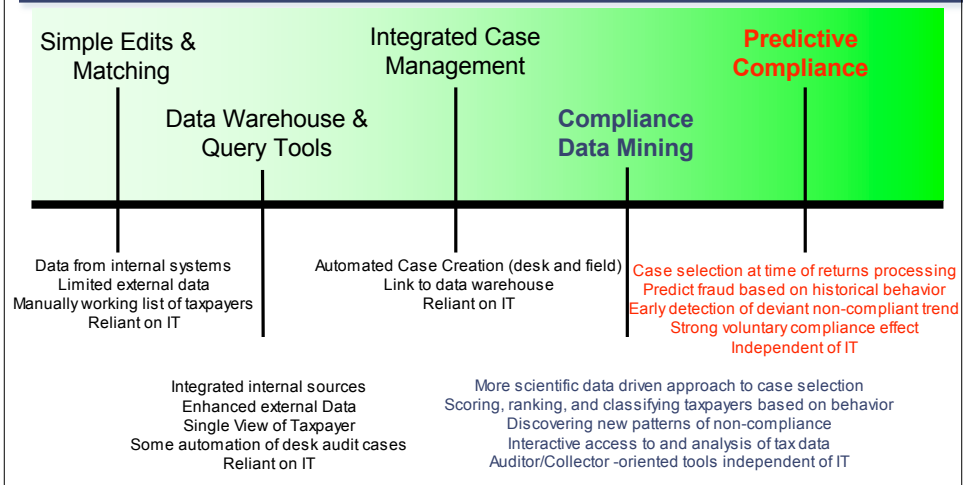
- The Questionable Refund Detection unit wanted...**
- **A better way to identify questionable returns**
  - **To question suspect returns before issuing refunds**
  - **To improve the ability to collect on additional tax audit cases**
  - **To issue refunds in a timely manner**
  - **To make program management more flexible**
  - **To leverage investments in data warehousing and business intelligence technologies**
  - **To scientifically predict good audit candidates utilizing return filing patterns, case history, and other external indicators**
  - **To improve their ability to detect new areas of fraud**





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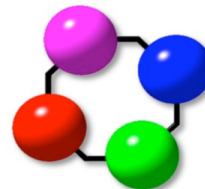
**NY realized it needed to find a way to detect a questionable return before issuing the refund avoiding a the “pay and chase” procedure**



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**CISS is an end-to-end system for audit case selection, resolution, and post processing year analysis**

- **Business rules and predictive models are applied to categorize and score returns received nightly**
  - Determine the “next best case”
    - Based on all returns received not on a batch or daily basis
    - Dynamic re-ranking of all potential cases nightly
  - Identify screener and auditor focus area
  - Trigger automated downstream processes
    - Accept Refund Request
    - Automatic Stop
    - Audit Case Creation
    - Informational Letter
    - Manual Screening
- **Provides a web based application for return screening, audit case resolution, and answering taxpayer inquiries**



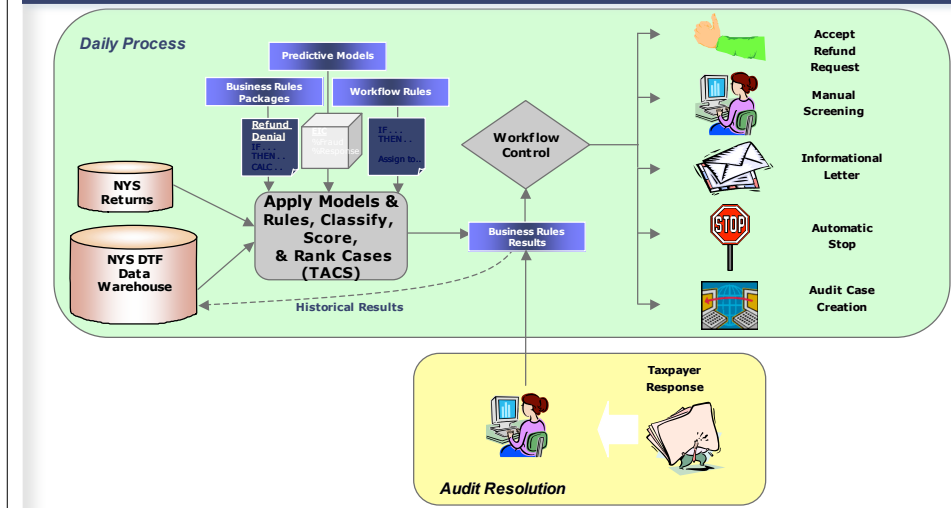
Powered by TACS – IBM’s Tax Audit and Compliance System





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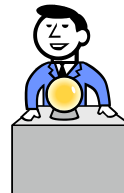
### Process flow for CISS



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### The Rules Engine applies the business logic and predictive models to score returns and set workflow controls for downstream processes

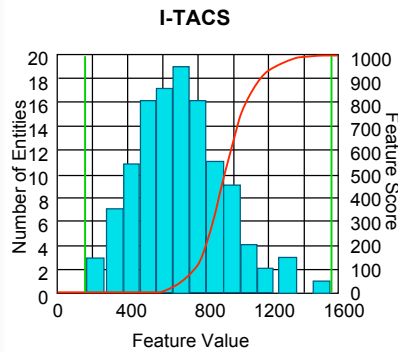
- Business rules
  - Business logic that evaluates data from each current tax return, previous returns, audit history and other sources to make a determination about the action to be taken by the department regarding each return
- Predictive modeling
  - Predictive models utilize historical case results to predict such things as probability of fraud or taxpayer response



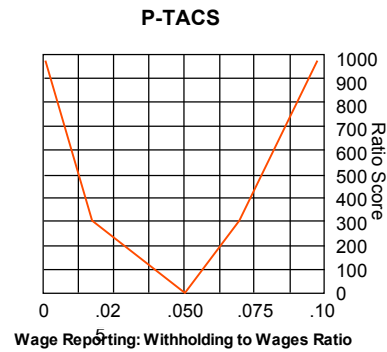


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**The Rules Engine scoring curve differs from the profile model scoring curve in that the user pre-defines the scoring curve points**



I-TACS Scoring – system derived based on data distribution of the peer group



P-TACS Scoring – user defined based on data analysis



## New York State Department of Taxation and Finance

**The Rules Engine scoring process prioritizes cases to ensure the auditors and screeners are continually working the "Next Best Cases."**

- Identify "next best case"
  - Selection of the best case based on all returns received not on a batch or daily basis
  - Dynamic re-ranking of all potential cases nightly
  - Browser based front end which provides a single point of entry for case identification, screening, analysis, selection, creation, and reporting





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***Externalized rules allow the user to manage the inventory and keep the volume of cases at a level that can be worked by the audit staff.***

- Improved Program Management
  - **Management of selection thresholds based on predicted resource availability**
  - **Current year case analysis capabilities to identify new areas of fraud with immediate implementation.**
  - **Externalized business rules provide greater flexibility in modifying existing edits and creating new ones**
  - **Post-year analysis of system edits to improve business rules, identify new areas for case review, and enhance the predictive model**



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***Users now have the ability to implement business logic from existing compliance methods as well as "discover" new deviant patterns***

- **Advanced analytics takes detection to the next level**
  - **Augments return data with comprehensive indicators and scores to be used in rules engine**
  - **Utilizes predictive modeling to discover patterns in historical data for application to current returns**
  - **Utilizes profile modeling to identify new patterns and relationships in current returns**





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**CISS incorporates a web based information portal to support the return screening, audit resolution, and customer service processes.**

- Improved user application for screening and auditing cases
  - **Enhanced System Screens**
    - Placing Needed Case Information In One Spot
    - Quick Access To Other System Screens
    - Reduced Clerical Support time
  - **Automation Of Screening And Case Closing Functions**
  - **Improved Taxpayer Correspondence**
    - Taxpayer Inquiry Letters Now Target The Specific Audit Issues
    - Utilized By Call Center For Refund Status Inquiries



### An Example of a Case on an Auditor's Worklist To begin review process auditor would click on "Review" button

DB01MEF/ALBWSUAT11/10.67.102.124 GUIDE - New York State Department of Taxation and Finance - Microsoft Internet Explorer

CISS Build: 2.1.9

**GUIDE**

Current Org Unit: BAD

Org Unit Select  
OICS  
CM Image Viewer  
CISS

Search  
Worklist  
Retrieve Case  
Reply Received  
Reset Menu  
02/18/05 10:26:53

Retrieve/Work Case - Search for Return

Search Type: FRN Search Input: 13777311

Search Clear

Action	TP Name	SSN	Tax Year	Return Type	FRN	Status	Run Date	Address
Review	EXAMPLE-ANN	110-44-1040	2003	IT-201	13777311	Awaiting Screening	07/23/2004	190 25-WOODHALL AVE 3G HOLLIS NY 11423

Start | Applications | Marie Fariel... | Microsoft E... | InfolMaker ... | IBM WebSp... | http://albw... | DB01MEF/... | Microsoft P... | 10:25 AM

**Summary screen shows case scored 806 in the withholding category. Note key identifiers shows T/P not found on previous RP file and prime T/P filed another return this year.**

DB01MEF/ALBWSUAT11/10.67.102.124 GUIDE - New York State Department of Taxation and Finance - Microsoft Internet Explorer

CISS Build: 2.1.9

FRN: 13777311 Tax Year: 2003 TP SSN: 110-44-1040 Spouse SSN: No Audit Action Select for Audit  
 Name(s): EXAMPLE-ANN Deny Refund Unable to Work

Summary Rule Results Results Return Filed: 07/07/2005 Earliest Exp: 01/01/2054 Status: Awaiting Screening

**Form IT-201 Resident Income Tax Return**

**General**  
 Federal AGI NY Col: 42120  
 NY AGI NY Col: 42120  
 Filing Status: Head of House  
 Exemptions: 1  
 Deductions: 15905  
 Taxable Income: 25215

**Refund / Tax Due**  
 Refund Requested: 1149  
 Tax Due: 0  
 Payment with Returns: 0

**Taxes**  
 NY State: 1210  
 New York City: 802  
 Yonkers: 0  
 Other Taxes: 0  
 Tax Claimed: 2012

**Credits**  
 EIC Requested: 0  
 DCC Requested: 0  
 Real Property Tax: 0  
 STAR Credit: 62  
 Other Credits: 0

**Withholding**  
 NY State: 1982  
 New York City: 1137  
 Yonkers: 0  
 Estimated: 0

**Dependent SSN**  
 EIC Dependent 1:  
 EIC Dependent 2:  
 DCC Dependent 1:  
 DCC Dependent 2:

**Additional Information**  
 Preparer SSN/PTN: 115366230  
 Preparer EIN: 0

**Category Summary**

Category	Tax Potential	Score
EIC DCC Category	0	0
Withholding Category	0	806
Itemized Deductions Category	0	0

**Key Taxpayer Indicators**  
 Prime not found on the Previous RP Database  
 Prime filed another return this year

**Audit Maintained Databases**

**Bad**  
 Identity Theft  
 Quest. Dir. Dep. Acct. - Rev.  
 Prev. Denied EIC Claim (EDPM)  
 Prev. Fraud - SSN

**Neutral**  
 Prev. Bad Addr. - Rev.  
 Prev. Protester Database  
 Prev. Validated Withhldg Claim

**Good**  
 Previous valid EIC claim  
 Prev Validated Withhldg Claim

**Processing Exceptions**  
 n/a EIC Dep1 SSN invalid vs SSA tbl  
 n/a EIC Dep1 SSN used on other DTF return  
 n/a EIC Dep1 age not w/in EIC range per SSN  
 n/a EIC Dep1 age not w/in EIC range per TP  
 n/a Prime/Spouse SSN matches EIC Dep1 SSN  
 n/a EIC Dep2 SSN invalid vs SSA tbl  
 n/a EIC Dep2 SSN used on other DTF return  
 n/a EIC Dep2 age not w/in EIC range per SSN  
 n/a EIC Dep2 age not w/in EIC range per TP  
 n/a Prime/Spouse SSN matches EIC Dep2 SSN  
 n/a Prime SSN claim EIC invalid vs SSA tbl  
 n/a Spouse SSN claim EIC invalid vs SSA tbl  
 n/a Investment income yearly limit exceeded  
 n/a DCC Dep1 SSN invalid vs SSA tbl  
 n/a DCC Dep1 SSN used on other DTF return  
 n/a DCC Dep1 age not w/in DCC range per SSN

**Rule results screen shows which edits taxpayers return met and by clicking on the rule auditor gets a summary of data about the case.**

DB01MEF/ALBWSUAT11/10.67.102.124 GUIDE - New York State Department of Taxation and Finance - Microsoft Internet Explorer

CISS Build: 2.1.9

FRN: 13777311 Tax Year: 2003 TP SSN: 110-44-1040 Spouse SSN: No Audit Action Select for Audit  
 Name(s): EXAMPLE-ANN Deny Refund Unable to Work

Summary Rule Results Results Return Filed: 07/07/2005 Earliest Exp: 01/01/2054 Status: Awaiting Screening

**Category Summary**

Category	Tax Potential	Score
EIC DCC Category	0	0
Withholding Category	0	806
Itemized Deductions Category	0	0

**Current QRDT Edits**

Not Met	Prev. Fraud - SSN
Not Met	Prev. Denied EIC Claim (EDPM)
Not Met	Questionable EIC/DCC Dependent Claim
Not Met	Federal Questionable EIC Claim DB (EDPO)
Not Met	Questionable EIC/DCC - Deceased Dep
Not Met	Prior Yr.-CINB and Adjustment Made
Not Met	Questionable Item.Deductions - Reviewed
Not Met	RPTC - Multiple to Same Address
Not Met	RPTC - Nursing Home
Not Met	RPTC - Public Housing
Not Met	RPTC - Match to Fraud DB
Not Met	RPTC - Match to Prisoner DB
Not Met	RPTC - Dupe Filing with 1st One Denied
Not Met	RPTC - Out of State Add Curr + Prior Yr.
Not Met	RPTC - Zip Code Match
Not Met	RPTC - Out of State Add 1st Time Filer
Not Met	RPTC - Yes on Line 5 of IT-214
Not Met	Prisoner DB - Reviewed
Not Met	Prisoner DB - Reviewed
Met	Questionable Taxpayer - Reviewed
Not Met	Questionable Withhldg - Reviewed
Not Met	Questionable Withhldg - Reviewed
Not Met	EDPE (Not in use)
Not Met	Questb. Sch C With EIC/DCC Claim (EDPF)
Not Met	EDP31 (Not in use)

**Relevant data about the return is displayed: Note wages were found on our withholding system. however this is the second filing for the ID**

Rule Details - Microsoft Internet Explorer

**Code Description:**  
Withholding Category

**Full Rule Description or Calculation:**  
Every return is evaluated for a variety of withholding issues based on scores received for various ratios. Returns that score high for each of the following ratios have a high category score for potential fraud. Scored ratios include the Wage Ratio (Wage reporting Wages / NY AGI (less suspicious as it approaches 100%)), Withholding Ratio (Wage Reporting Withholding / TP Claimed Withholding (less suspicious as it approaches 100%)),

**Relevant Data:**

Wage Reporting System Wages:	42526
Wage Reporting System Withholding Amount:	3213
Total Withheld:	3099
NYS Tax Withheld:	1962
Total tax withheld Yonkers:	0
Total tax withheld NYC:	1137
NYS AGI:	42120
Taxpayer Refund Request:	1149
NYS EIC Claimed:	0
DCC Amount:	0
Withholding Category:	806.818
Withholding Category Potential:	0.000
Withholding Cat Next Best Case Value:	806.818

Close

**Results Screen shows that the case is in Process, Once the auditor works the case the results will be posted here. Auditor will click on 'Deny Refund' button to continue**

DB01MEF/ALBWSUAT11/10.67.102.124 GUIDE - New York State Department of Taxation and Finance - Microsoft Internet Explorer

CISS Build: 2.1.9

**GUIDE**

FRN: 13777311 Tax Year: 2003 TP SSN: 110-44-1040 Spouse SSN:    
 Name(s): EXAMPLE-ANN

Current Org Unit: BAD  
 Org Unit Select  
 OICS  
 CM Image Viewer  
 CIRS  
 Search  
 Worklist  
 Retrieve Case  
 Reply Received  
 Reset Menu  
 02/10/05 10:29:22

Summary Rule Results Results Return Filed: 07/07/2005 Earliest Exp: 01/01/2054 Status: Awaiting Screening

**Form IT-204 Resident Income Tax Return**

**General**  
 Federal AGI NY Col: 42120  
 NY AGI NY Col: 42120  
 Filing Status: Head of House  
 Exemptions: 1  
 Deductions: 15905  
 Taxable Income: 25215

**Refund / Tax Due**  
 Refund Requested: 1149  
 Tax Due: 0  
 Payment with Return: 0

**Taxes**  
 NY State: 1210  
 New York City: 802  
 Yonkers: 0  
 Other Taxes: 0  
 Tax Claimed: 2012

**Credits**  
 EIC Requested: 0  
 DCC Requested: 0  
 Real Property Tax: 0  
 STAR Credit: 62  
 Other Credits: 0

**Withholding**  
 NY State: 1962  
 New York City: 1137  
 Yonkers: 0  
 Estimated: 0

**Dependent SSN**  
 EIC Dependent 1:  
 EIC Dependent 2:  
 DCC Dependent 1:  
 DCC Dependent 2:

**Additional Information**  
 Preparer SSN/PTN: 110300200  
 Preparer EIN: 0

**Screening Results**  
 In Process...  
 Results should be posted by the Earliest Expiration Date listed above.

**Auditor has selected to deny the refund because the W/H was claimed by someone else and has selected to send an auto letter to T/P denying refund**

Deny Refund - Microsoft Internet Explorer

**Reason to deny refund (Select at least one)**

- EIC - Income not substantiated
- EIC - Dependant(s) not substantiated
- EIC - Federal disallowance
- DCC - Dependant(s) not substantiated
- DCC - Qual expenses not substantiated
- DCC - Care provider not substantiated
- Withholding - Employer/wages not valid
- Itemized Deductions - Casualty Loss
- Itemized Deductions - Charitable Contributions
- Itemized Deductions - Job Expenses
- Itemized Deductions - Medical

**Function Code / Letter**

Select One

- Select One
- CODB: DTF-973.51 Wage/Withholding scheme denial**
- COME: No Automatic Letter IT-210 NYC Star Credit Scheme
- COMQ: No Automatic Letter Misc. Questionable Returns
- COCA: No Automatic Letter IT-216 Child Care Credits
- CNCU: No Automatic Letter
- CNGF: No Automatic Letter IT-214 Previous Real Prop. Fraud

**Enter Additional Tax Amount**

OK Cancel

**Auditor is assigning a Scheme number to the case and has entered an additional tax due amount of \$1947, a bill will be sent to the T/P**

Deny Refund - Microsoft Internet Explorer

**Reason to deny refund (Select at least one)**

- EIC - Income not substantiated
- EIC - Dependant(s) not substantiated
- EIC - Federal disallowance
- DCC - Dependant(s) not substantiated
- DCC - Qual expenses not substantiated
- DCC - Care provider not substantiated
- Withholding - Employer/wages not valid
- Itemized Deductions - Casualty Loss
- Itemized Deductions - Charitable Contributions
- Itemized Deductions - Job Expenses
- Itemized Deductions - Medical

**Function Code / Letter**

CODB: DTF-973.51 Wage/Withholding scheme denial

**Scheme (Optional)**

**Comments (Optional)**

Test Case - Example of a Deny Refund with Additional Tax Due

**Enter Additional Tax Amount**

OK Cancel



New York State Department of Taxation and Finance

***The audit division has increased revenue by approximately \$31 million from the previous year due to the implementation of CISS***

Tax Year	<u>2002</u>	<u>2003</u>
▪ Inquiry Letters Issued	55,776	78,000
▪ Response Rate (%)	41%	35%
▪ Refund Denials (%)	80%	80%
▪ Cases Completed Per Day Per Auditor	8	8
▪ Denied Refunds (\$)	\$49 Million	\$80 Million



New York State Department of Taxation and Finance

***CISS provides the capability of adjusting thresholds such as the number of letters to send based on staffing limitations.***

Tax Year	<u>2003</u>	<u>2004</u>
Inquiry Letters Expired	27,458	49,966
Potential Denied Refunds (\$)	\$30.6 Million*	\$70 Million **

•These cases were selected into the pool of potential letters to be sent, however were not sent due to the limitations of Audit to handle the additional potential responses

\*\* On the assumption that the Category score were reduced to 500 and the probability of fraud were reduced to .74





New York State Department of Taxation and Finance

## Next Steps.....



New York State Department of Taxation and Finance

*Build on our success from the previous years.*

### ***Future Compliance Initiatives***

- **Enhanced Refund Denial**
  - **Filing Status**
  - **Demographics Data**
  - **Preparer Analysis**
- **Expansion into other Audit Programs**
  - **Non-resident**
  - **Tax Shelters**





## New York State Department of Taxation and Finance

*Develop TACS for the Tax Compliance Division to aid in collection enforcement, risk analysis, and selection of next best collection case*

- Understand the make up and complexity of cases
  - Determine what cases have the highest and lowest probability of being collected.
  - Determine the most effective and efficient collection path to assign to a case to maximize the chances of collection
- Streamline current risk assessment processes
- Enable managers to make smart and timely mission critical business decisions



## New York State Department of Taxation and Finance

# Questions?

# TACS Data Presentation

*Interactive visual data mining is provided by the integration of data visualization into the profile mode and into the report wizard.*

The screenshot displays the TACS Data Presentation software interface, which is divided into several main sections:

- Parallel Coordinates Analysis:** A 3D visualization showing multiple parallel lines representing data points across different dimensions. The axes are labeled EK\_TOTALY, OR\_PROFITV, OR\_RECEIPTV, EXPENSES, and HHLE.
- Visualization Report card:** A table showing a list of elements with their descriptions, ranks, scores, and values. The table includes columns for Element, Description, Rank, Score, Value, Min, Med, Max, WC, and VW.
 

Element	Description	Rank	Score	Value	Min	Med	Max	WC	VW
COMPOSITE	Composite Score	29	550.4	0.0	0.0	125.68	704.2	0	0
INFORMATION	Informational & Operand Features Group	9	0.0	0.0	0.0	0.0	0.0	0	0
NM_SIGFEAT	# Significant Features	81	5						
EX_TOTAL	Total Expense	61	1000.0	51878.0	0.0	4769.0	17821.0	5	1
OR_PROFIT	Gross Profit	151	825.6	45661.0	-16797.0	11010.0	20264.0	5	1
OR_RECEIPT	Gross Receipts	168	360.7	53411.0	0.0	12800.0	42897.0	5	1
EXPENSES	Expense Percentages Groups	198	274.2	0.0	0.0	80.419	718.47	5	1
PR_CAR_TRK	Car and Truck Expense Percent	431	0.0	0.0	0.0	0.0	805.0	5	1
PR_GDS_SLD	Cost of Goods Sold Percent	654	127.8	14.529	0.0	0.0	1976.2	5	1
PR_OR_PROF	Gross Profit Percent								
PR_HOM_BUS	Home Business Expense Percent								
PR_LABOR	Cost of Labor								
PR_LEGAL	Legal Expense Percent								
PR_MEAL	Meal Expense Percent								
- Analysis Window:** A table listing various taxpayers with their corresponding values for OR\_RECEIPTV, KEY\_FEATRS, and OR\_EXPENSEV.
 

Taxpayer	OR_RECEIPTV	KEY_FEATRS	OR_EXPENSEV
066240446C	122	72870	6
120677427C	120	75130	9
001038840C	150	62379	8
145502839C	167	69559	8
144806494C	151	53050	8
044448022C	149	64152	12
072424380C	129	57412	15
036744643C	24	185672	15
081010190C	21	43043	11
084703713C	182	82158	10
103608478C	170	107180	10
145402428C	155	64011	20
062549638C	157	51850	20
087089320C	206	58208	24
096801007C	220	48159	25
100831813C	154	63863	28
097622438C	36	116550	31
056622280C	148	62852	34
- Visualization Report card (Bottom):** A 3D scatter plot showing data points in a 3D space, with axes labeled EXPENSES, HH\_EXP\_RCPV, and PR\_EXPENSEV. The plot includes a legend and a color scale at the bottom.