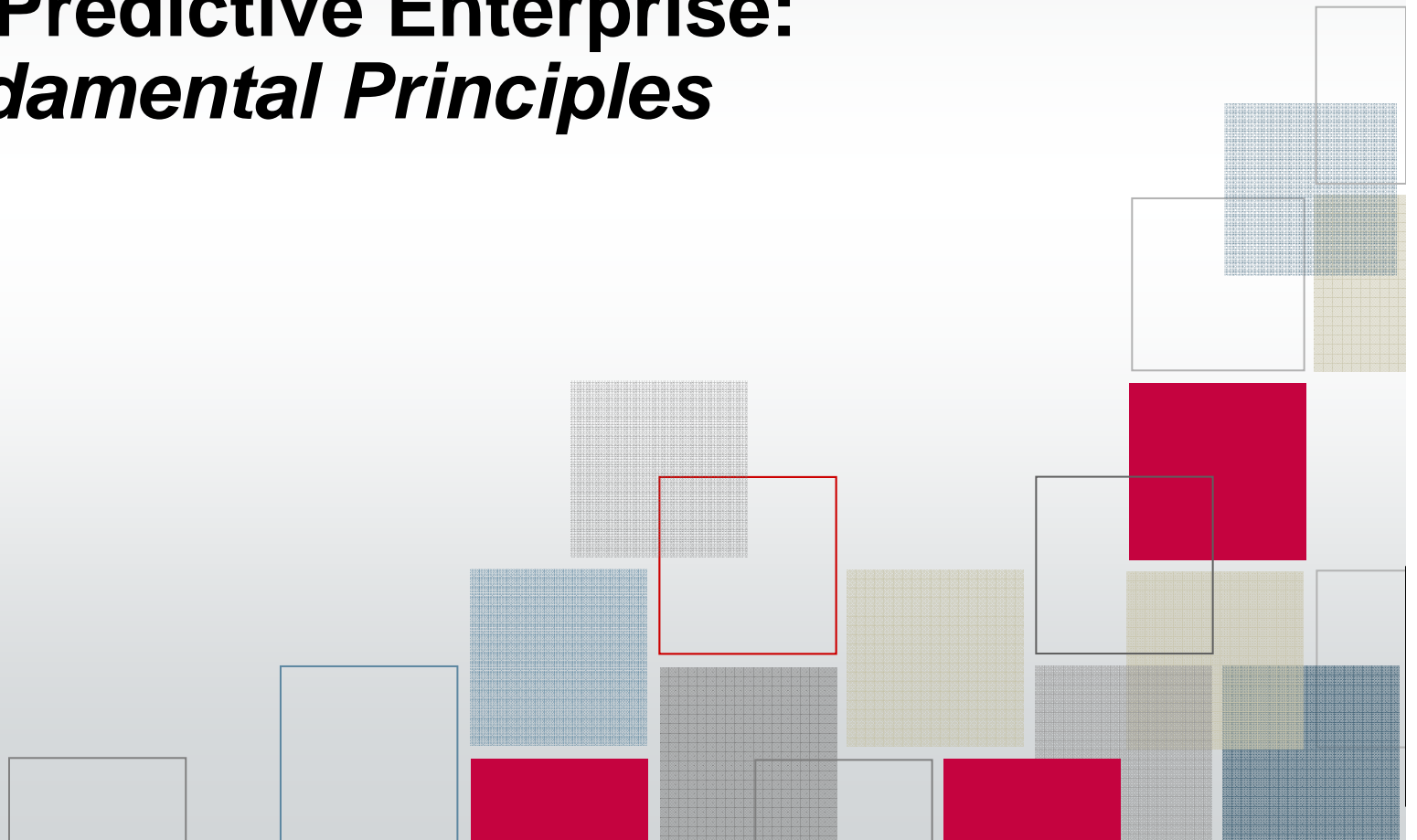


> The Convergence of Data and Analytics in the Corporate World

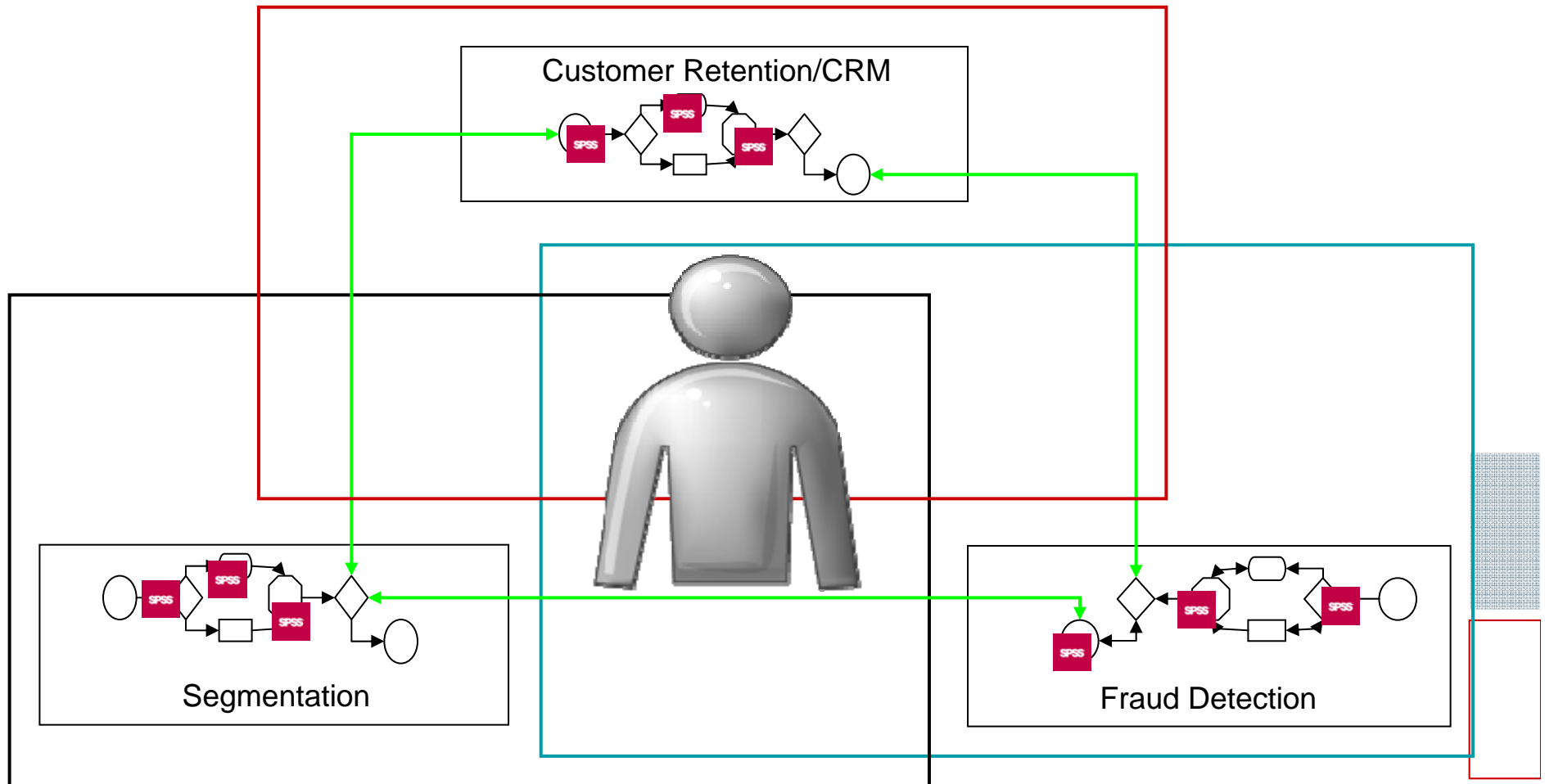
Is it possible to draw parallels between commercial experience and tax applications?

Jack Noonan
President & Chief Executive Officer
SPSS Inc.

> The Predictive Enterprise: *Fundamental Principles*



> The Predictive Enterprise In Action



> People at the Heart of the Enterprise

Enterprise Data Sources

Marketing
Attitudinal
Interaction
Web
Call-center
Operational



Interaction data

- Offers
- Results
- Context
- Click streams
- Notes

Descriptive data

- Attributes
- Characteristics
- Self-declared info
- (Geo)demographics

Attitudinal data

- Opinions
- Preferences
- Needs & Desires

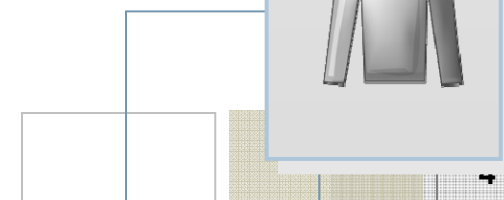
Behavioral data

- Orders
- Transactions
- Payment history
- Usage history



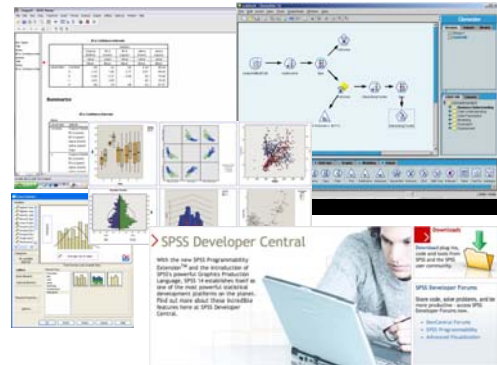
Customer Contact Channels

Website
Email
Phone
Mail
Branch
ATM
Agent
Mobile...



> Predictive Analytics Process

Analyze data to provide insight and predict the future



Predictive Tools

Predict

Recommend the most appropriate action to take

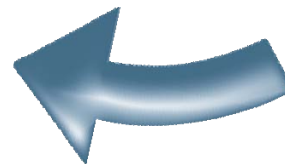


Understand



People Data & Enterprise Data Sources

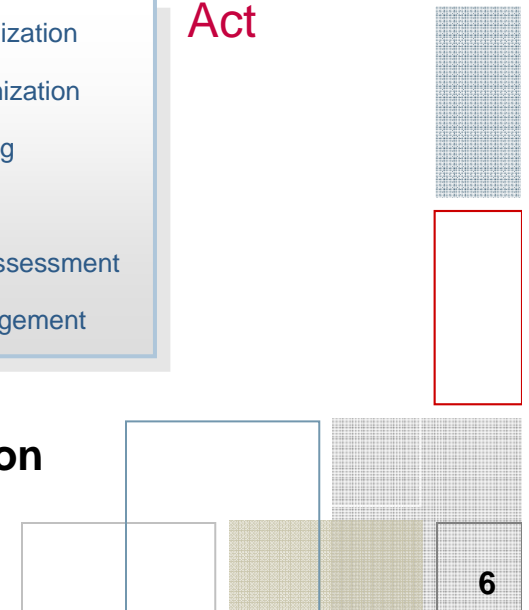
Store detailed data on customers, events, etc.



Act

- Campaign optimization
- Interaction optimization
- Real-time scoring
- Batch scoring
- Real-time risk assessment
- Feedback management

Decision Optimization

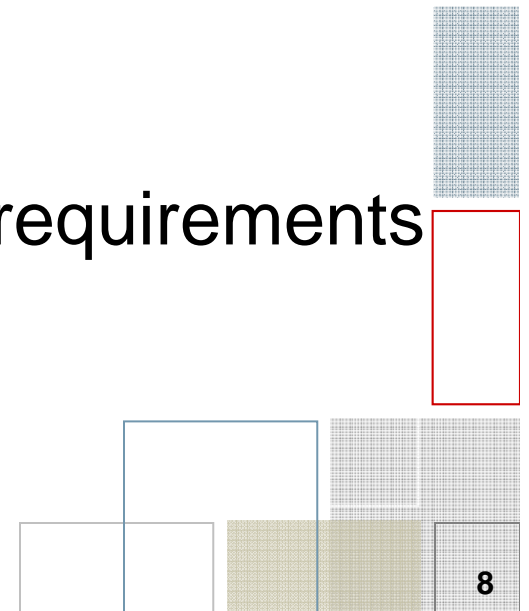


> Predictive Scenarios



> Customer Retention

- *Scenario: Predict why customers are leaving*
- Process: Use all available customer data to build churn propensity models. Make offers and change services to improve satisfaction and reduce churn.
- Return:
 - Proactively reduce customer churn
 - Build service around real customer requirements
 - Reduce the costs
 - Take control of customer feedback

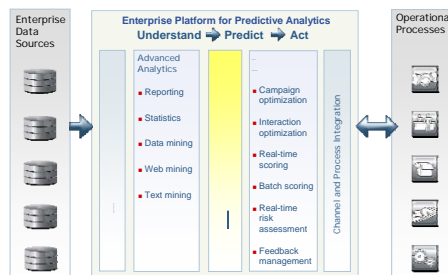
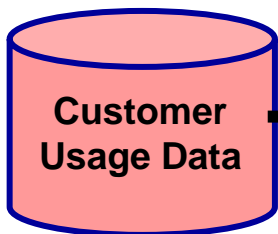
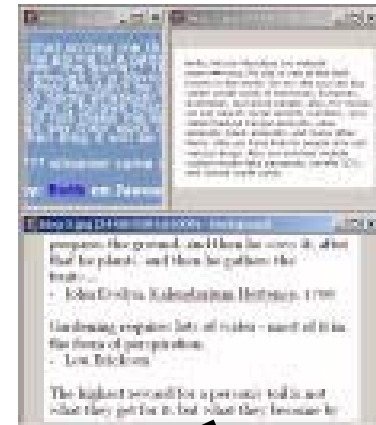
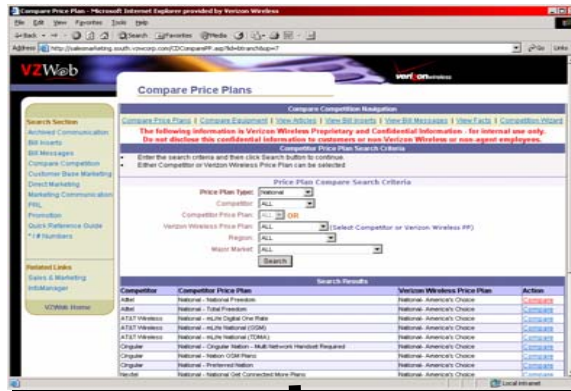


> Churn - Wireless Communications

Demographic Data

Web Data

Text Mining: Comments



Customer Retention & Collections Activities

Customer Retention

Predict **Churn**

Predicted value:
Leave/Not Leave

Associated Churn Risk:
Between 0 and 100%

Collections Activities

Predict **Collections Outcomes**

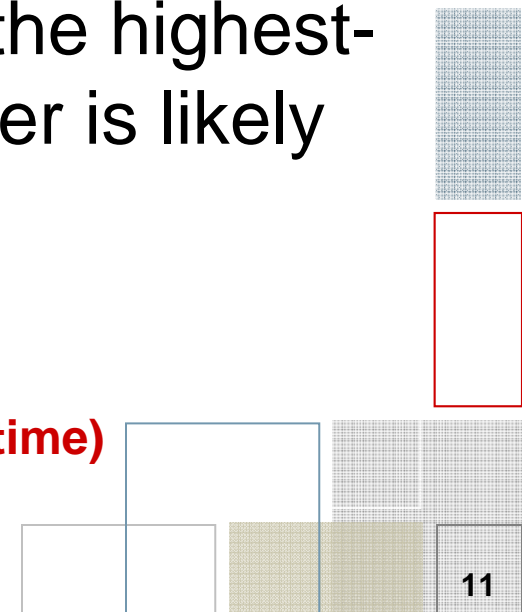
Predicted values:
**Non-Payment
Enforcement
Bankruptcy**

Associated Risk:
Between 0 and 100%

> Segmentation

- *Scenario: Outbound cross campaign optimization*
- Process: Applies predictive analytics to targeting the right customers and improve optimization across multiple campaigns.
- Return: Using a combination of predictive analytics and business rules, choose the highest-value offer or campaign that a customer is likely to accept.

(The right offer to the right customer at the right time)



> Segmentation for Direct Marketing

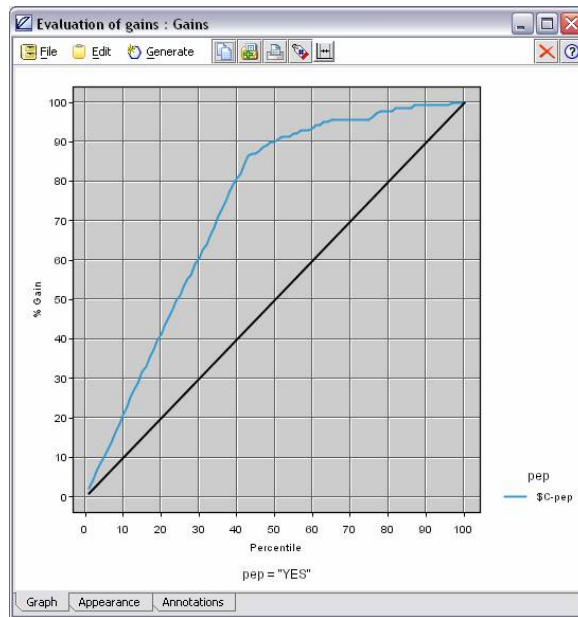
#	Use	Segment	Target	Resp%	Mail Co...	Margin
1	<input checked="" type="checkbox"/>	Model AGE_YRS, CHLD_AT_HOME_BAND AGE_YRS between (15, 37) CHLD_AT_HOME_BAND between (3, 5)	Response	33.41	9,424	35,624.36
2	<input checked="" type="checkbox"/>	Model AGE_YRS, MARITAL_STATUS AGE_YRS >= 57 MARITAL_STATUS = "M"	Response	38.32	1,375	17,620.79
3	<input checked="" type="checkbox"/>	Model AGE_YRS, MARITAL_STATUS AGE_YRS between (50, 55) MARITAL_STATUS = "M"	Response	26.17	1,625	11,130.39
4	<input checked="" type="checkbox"/>	Model CHLD_AT_HOME_BAND, NUM_PROD_OWN CHLD_AT_HOME_BAND >= 2 NUM_PROD_OWN between (3, 5)	Response	17.8	3,461	9,537.24
5	<input checked="" type="checkbox"/>	Model CHLD_AT_HOME_BAND, NUM_PROD_OWN CHLD_AT_HOME_BAND >= 1 NUM_PROD_OWN = 3	Response	15.94	4,513	6,243.18

“Automatically discover new target groups and predict their potential value”

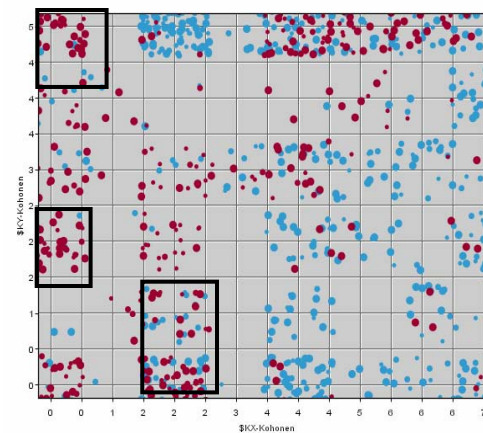
```

Rules for T - contains 7 rule(s)
Rule 1 for T
if CAUSE_ACCIDENT = Exceeded speed limit
and COLLISION_BETWEEN_CARS = 0.000
and DAYS BETWEEN ACCIDENT AND CLAIM OPEN DATE <= 27
and DAYS BETWEEN ACCIDENT AND LAST TERM EFFECT DATE <= 27
and NUMBER OF CLAIMS ON THE SAME POLICY <= 3
and POLICE_INTERVENTION = 1.000
then T
Rule 2 for T
if CLAIM_TYPE = Material and injury
and DAYS BETWEEN ACCIDENT AND LAST POLICY COVERAGE DATE <= 27
and DAYS BETWEEN ACCIDENT AND LAST TERM EFFECT DATE <= 27
and NUMBER OF CLAIMS ON THE SAME POLICY <= 3
and POLICE_INTERVENTION = 1.000
then T
Rule 3 for T
if DAYS BETWEEN ACCIDENT AND CLAIM OPEN DATE <= 5
and DAYS BETWEEN ACCIDENT AND LAST POLICY COVERAGE DATE <= 27
and INSURED_AGREED = Not yet
and NUMBER OF CLAIMS ON THE SAME POLICY <= 3
  
```

“Discover new risk profiles”



“Model campaign response and select high responder groups”



“Use clustering to segment customers, target retention offers at low-loyalty segments”

Segmentation & Discovery

SPSS

Direct Marketing

Discover new customer segments for marketing

Target offers on high performing segments

Optimize **Return on Investment (ROI)** from direct marketing activities

Tax Compliance Discovery

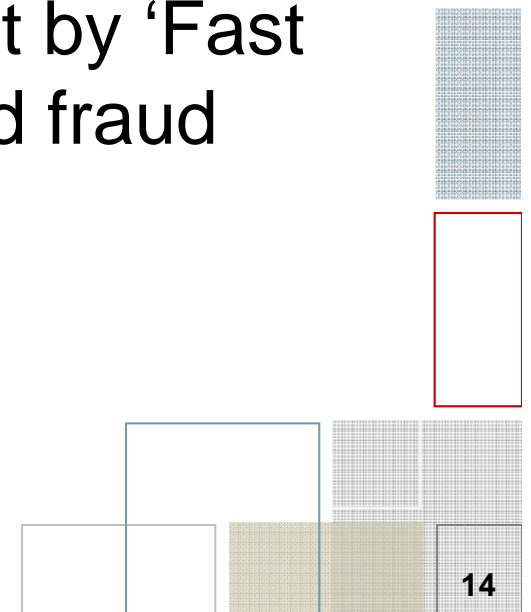
Discover new taxpayer groups and their characteristics.

Target investigation on taxpayers exhibiting unusual / low payment patterns

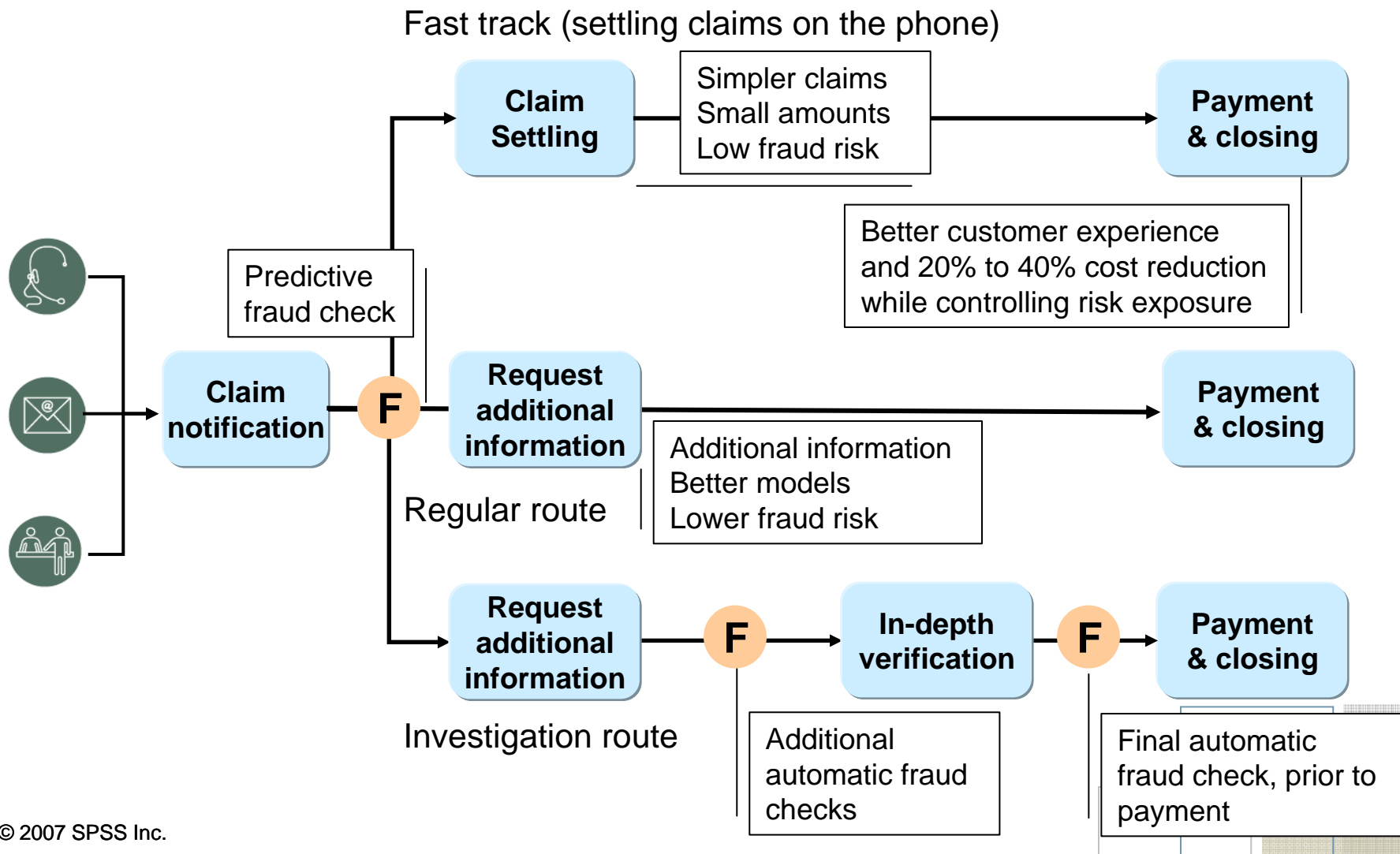
Optimize **Return on Information (ROI)** from direct marketing activities

> Fraud Detection

- *Scenario –Optimizing claims handling*
- Process: Build predictive analytic models and business rules based using former claims investigated. Apply to new claims to proactively identify potential fraud.
- Result: Lowered claim processing cost by 'Fast Tracking' low risk claims and improved fraud detection rates. (lower false positives)



> Optimizing claims handling

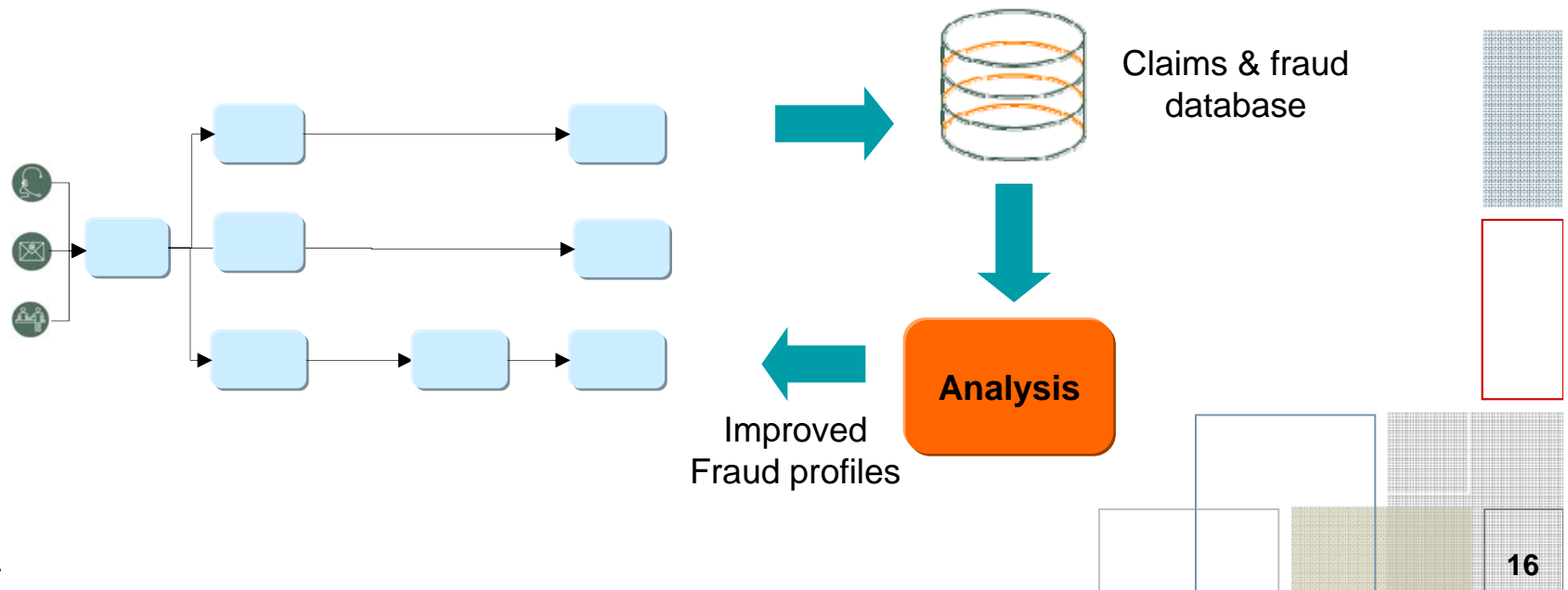


> Continuously improving fraud profiles

SPSS

ING 

- Predictive application for fraud detection in Shared Service Center (390,000 claims/year)
- Enable fast track claims handling: 20% to 40% cost reduction (€5 – €10 million)
- Increase the effectiveness of the fraud department: from a 50% to 70% hit rate
- Discovering and profiling previously unknown forms of fraud
- **No BI or operational software company is doing this type of application.**



Fraud Detection & Payment Error Prevention

Fraud Detection

Goals: stop claim payment errors and investigate fraudulent claims

Process

- Claim Submitted
- Predictive Fraud Check
- Payment Verification
- Investigation
- Improved Fraud Profiles

Revenue Loss Prevention

Goals: stop tax return payment errors and investigate high risk returns

Results

- Reduce the number of refunds with questionable credits
- Increase voluntary compliance through program publicity
- Increase revenue

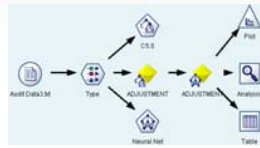
> Customer Relationship Management

- *Scenario: Create a central predictive view of the customer to improve customer lifetime value.*
- **Process:**
 - Present predictive information to improve service
 - Make real-time recommendations
(balance likelihood of acceptance with profitability)
 - Make real-time recommendations that improve retention
 - Deploy predictive skill-based call routing
 - Gather real-time feedback
- **Return:** Improved customer relationships that translate into more revenue, less cost and better satisfaction.

> CRM - Banking



Predictive Modeling



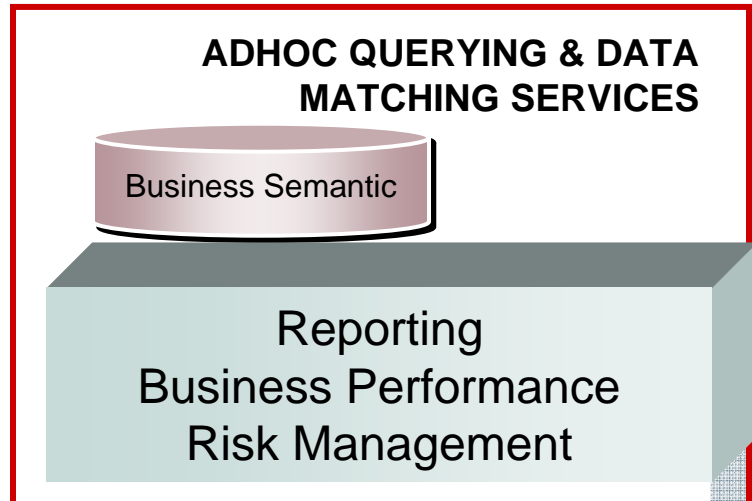
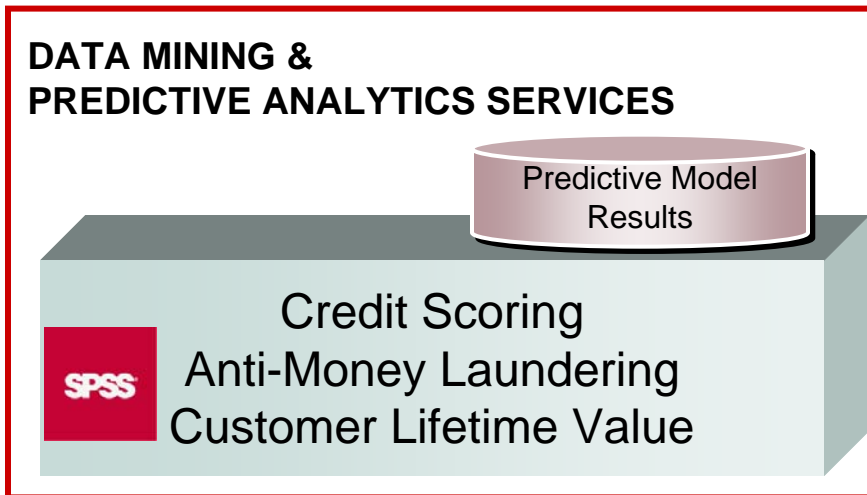
Dashboards



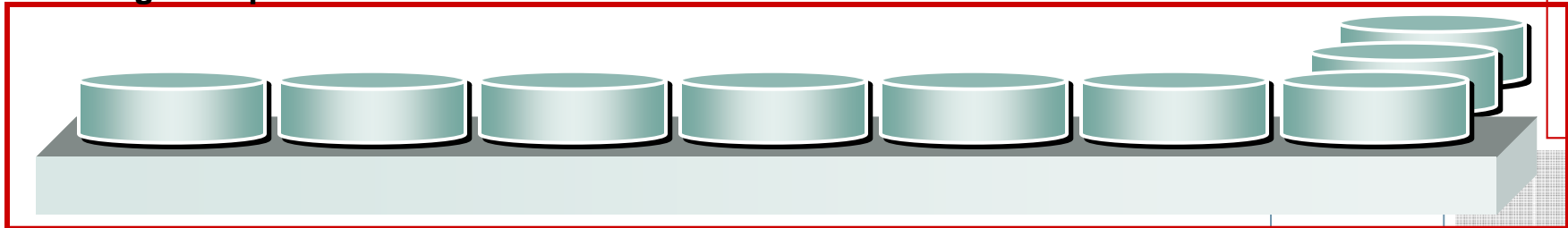
Compliance Reporting



Statistical/Trend Analysis



Existing Enterprise Data Sources



CRM & Predictive Tax Compliance

SPSS

Customer Management

Customer touch points: respond, purchase, support, service, etc

Combine Data Sources: customer profile, call center, service calls, etc

Predict: response, churn, purchase, satisfaction

Taxpayer Management

Taxpayer touch points: filing, payment, audit, adjustment, collections, enforcement

Combine Data Sources: taxpayer profile, tax returns, call center, audit history, etc

Predict: non-filing, audit, assessment, collections activities, satisfaction

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