

- The audio portion of this event will come through your computer speakers. (see adjusting volume control below)
- If you do not have functioning speakers, and would like to dial in to the call using your telephone, please dial:

UK free phone: 0800 028 8023 or local call rate: 0207 365 1860

Event Number: 661 162 684

- Upon joining the call, **you will not hear hold music**. Periodic announcements will be made to test the volume through your speakers.

Q & A

- Type any questions into the chat tab on the right

Adjusting volume control

- Through the Volume Control Panel on your computer
- Through the Webex Audio Broadcast window (see image below). You can adjust the volume slider on this control as needed.



Commonly Asked Questions

- **Can I get copies of these slides after the event?**
- **Is this event being recorded for later viewing?**



Commonly Asked Questions

- Can I get copies of these slides after the event?

Yes

- Is this event being recorded for later viewing?

Yes

www.spss.com/events



Find your best customers with Predictive Analytics



Jarlath Quinn
Principal Sales Engineer



Predictive Analytics helps connect **data** to effective **action** by drawing reliable conclusions about **current conditions** and **future events**.

— Gareth Herschel, Research Director, Gartner Group



Predictive analytics

From Wikipedia, the free encyclopedia

Predictive analytics encompasses a variety of techniques from statistics, data mining and game theory that analyze current and historical facts to make predictions about future events.

In business, predictive models exploit patterns found in historical and transactional data to identify risks and opportunities. Models capture relationships among many factors to allow assessment of risk or potential associated with a particular set of conditions, guiding decision making for candidate transactions.





Click Streams/Blogs

**Free Text/
Call Centre**



Interaction



**Feedback/
Surveys**

Attitudinal



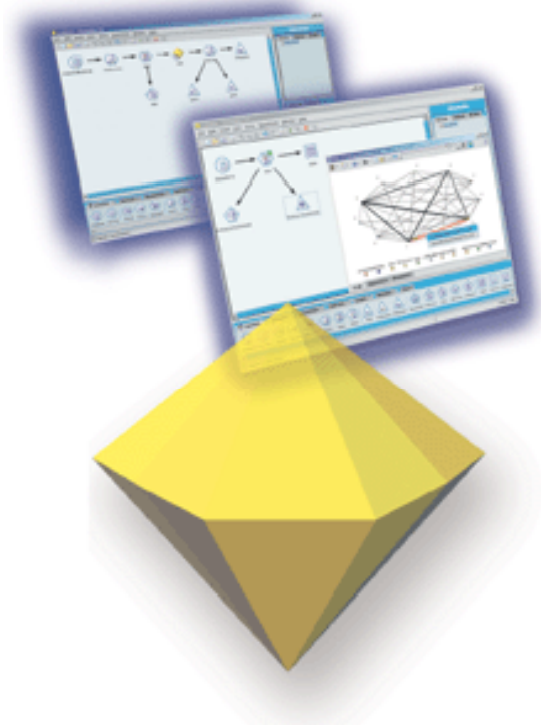
Descriptive



Behavioural

Predictive Analytics with IBM SPSS Modeler

- **Data mining uses existing data to:**
 - Predict
 - Category membership
 - Numeric Value
 - Group / Find Outliers
 - Cluster (group) things together based on their characteristics/attributes
 - Associate
 - Find events that occur together
 - Sequence
 - Forecasting/ Time-dependent events



Key Features

- **Ease of use**
- **Openness**
- **Productivity**
- **Automatic Model Selection**
- **Powerful Data Manipulation/Transformation Functionality**
- **Multiple Levels of Model Deployment**
- **Very Scalable***
- **Leverages existing database functionality***
 - SQL Pushback
 - *In-Database Mining*



*Server

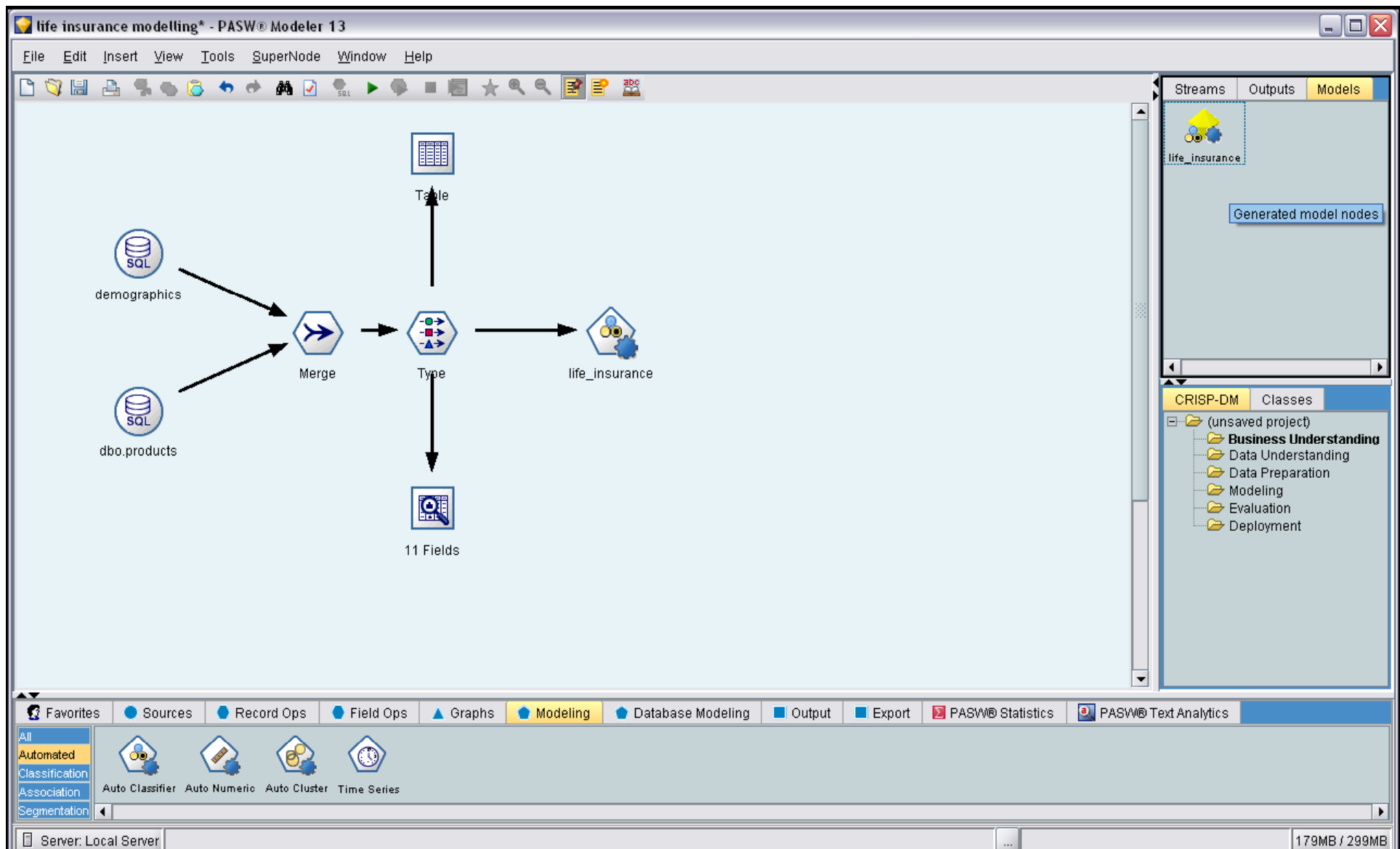


Breadth of Applications

- **Campaign Response Prediction**
- **Customer Churn Modelling**
- **Profiling and Segmentation**
- **Fraud and Anomaly Detection**
- **Credit Scoring**
- **Demand Prediction/Forecasting**
- **Basket Analysis**
- **Text Mining**



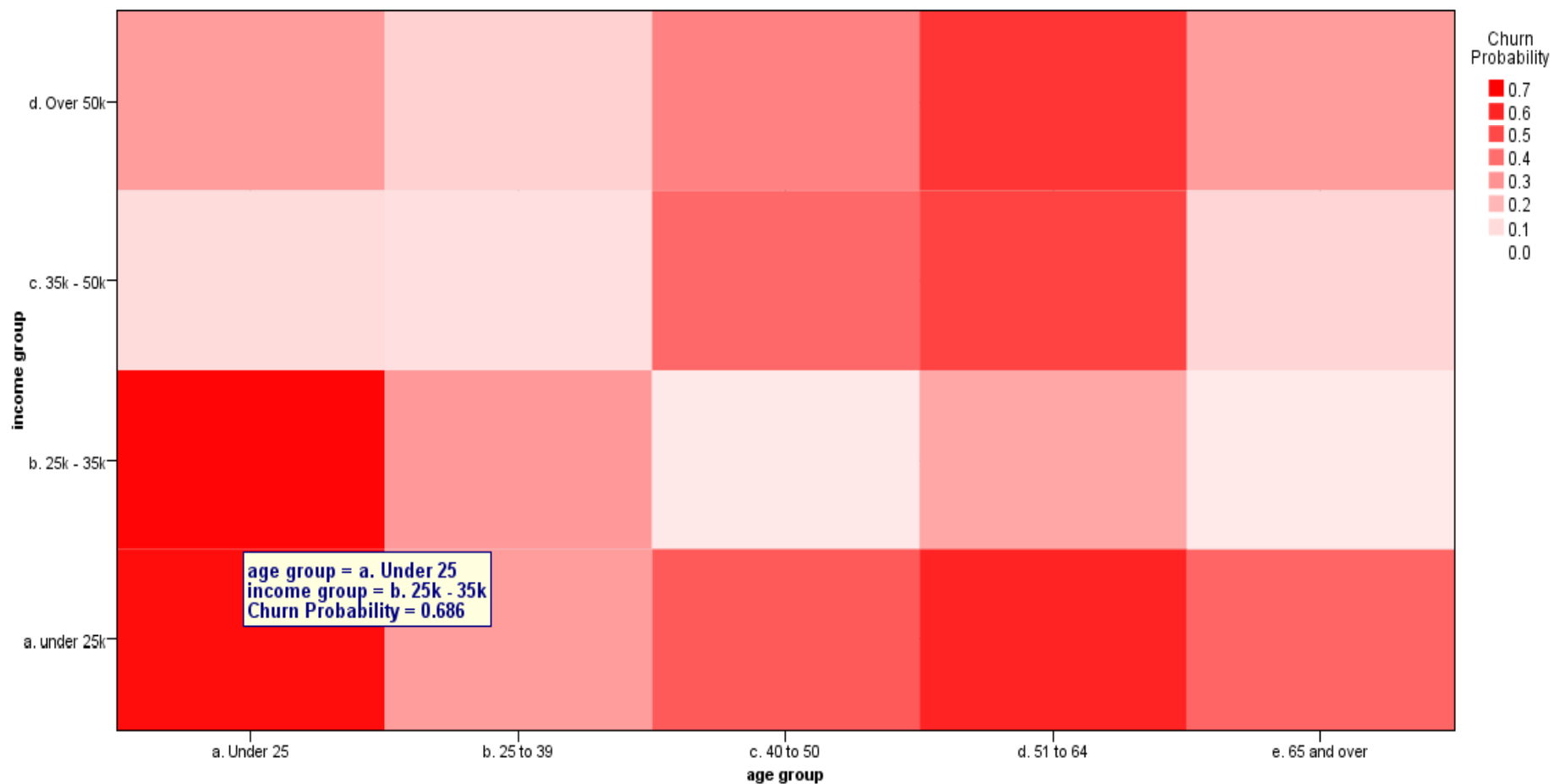
Building a stream



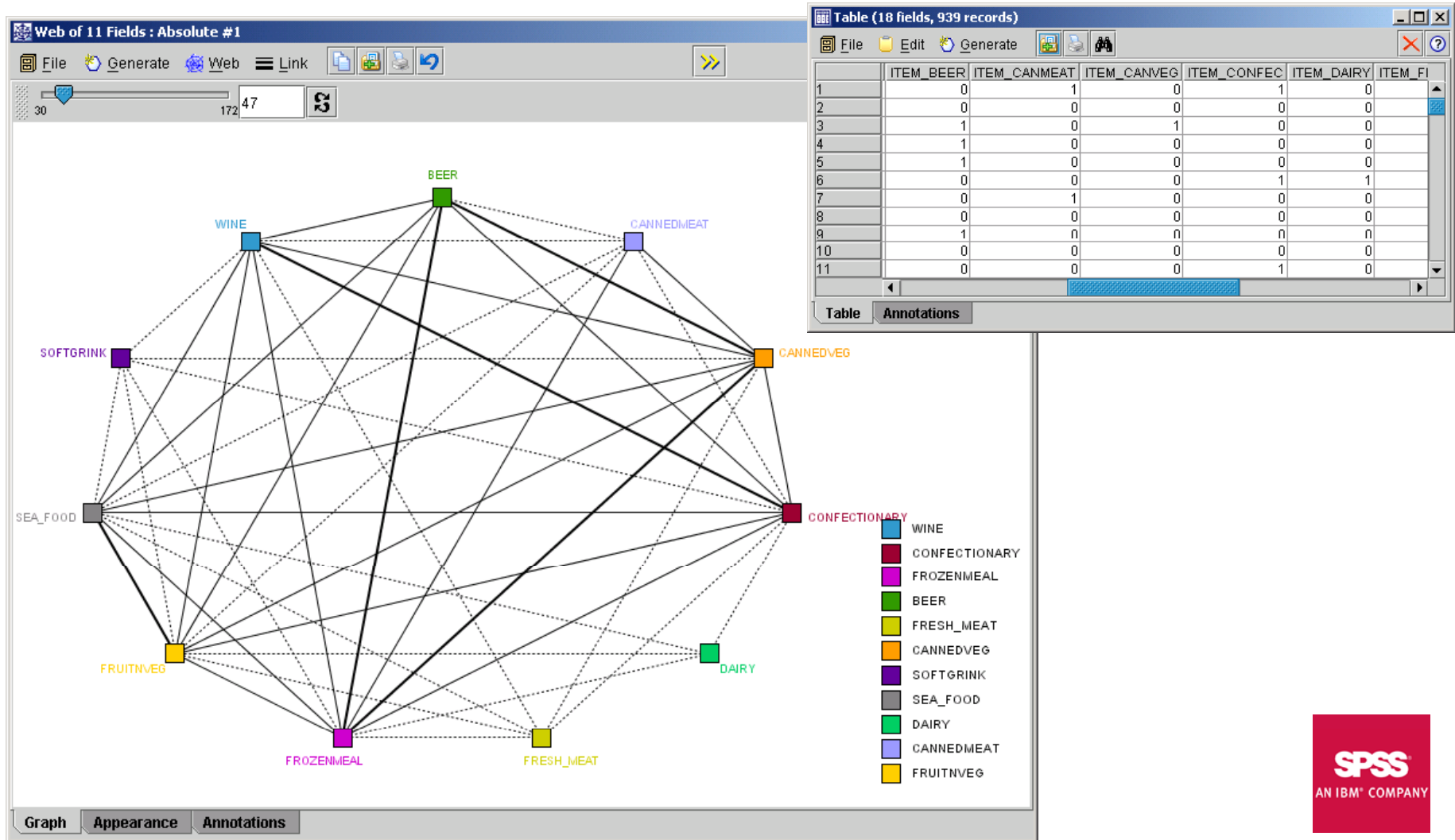
Probabilities are Predictions

1	id	credit card	savings ac	current account	isa	life_insurance	customer_time	age	sex	income	married	children	PREDICTION	LIKELIHOOD
2	ID12101	NO	NO	NO	NO	YES	c. 5 to 10 years	48	FEMALE	17546	NO	1	YES	0.87
3	ID12102	YES	NO	YES	YES	NO	d. More than 10 years	40	MALE	30085.1	YES	3	NO	0.09
4	ID12103	YES	YES	YES	NO	NO	c. 5 to 10 years	51	FEMALE	16575.4	YES	0	NO	0.11
5	ID12104	NO	NO	YES	NO	NO	d. More than 10 years	23	FEMALE	20375.4	YES	3	NO	0.33
6	ID12105	NO	YES	NO	NO	NO	b. 2 to 5 years	57	FEMALE	50576.3	YES	0	NO	0.11
7	ID12106	NO	YES	YES	NO	YES	d. More than 10 years	57	FEMALE	37869.6	YES	2	YES	0.94
8	ID12107	NO	NO	YES	NO	YES	b. 2 to 5 years	22	MALE	8877.07	NO	0	YES	0.90
9	ID12108	YES	YES	YES	NO	NO	d. More than 10 years	58	MALE	24946.6	YES	0	NO	0.11
10	ID12109	YES	NO	NO	NO	NO	a. Less than 2 years	37	FEMALE	25304.3	YES	2	NO	0.08
11	ID12110	YES	YES	YES	NO	NO	d. More than 10 years	54	MALE	24212.1	YES	2	NO	0.46
12	ID12111	NO	YES	YES	NO	NO	d. More than 10 years	66	FEMALE	59803.9	YES	0	NO	0.11
13	ID12112	YES	YES	YES	YES	NO	c. 5 to 10 years	52	FEMALE	26658.8	NO	0	NO	0.07
14	ID12113	NO	YES	YES	YES	YES	d. More than 10 years	44	FEMALE	15735.8	YES	1	YES	0.87
15	ID12114	YES	YES	YES	YES	YES	d. More than 10 years	66	FEMALE	55204.7	YES	1	YES	0.94
16	ID12115	NO	YES	YES	YES	NO	b. 2 to 5 years	36	MALE	19474.6	YES	0	NO	0.17
17	ID12116	YES	YES	YES	YES	NO	c. 5 to 10 years	38	FEMALE	22342.1	YES	0	NO	0.17
18	ID12117	NO	NO	NO	YES	NO	d. More than 10 years	37	FEMALE	17729.8	YES	2	NO	0.30
19	ID12118	NO	YES	NO	YES	NO	a. Less than 2 years	46	FEMALE	41016	YES	0	NO	0.17
20	ID12119	NO	YES	NO	NO	YES	c. 5 to 10 years	62	FEMALE	26909.2	YES	0	NO	0.11
21	ID12120	YES	YES	YES	NO	NO	d. More than 10 years	31	MALE	22522.8	YES	0	NO	0.11
22	ID12121	NO	YES	NO	NO	YES	c. 5 to 10 years	61	MALE	57880.7	YES	2	YES	0.94
23	ID12122	NO	YES	YES	NO	NO	d. More than 10 years	50	MALE	16497.3	YES	2	NO	0.08
24	ID12123	NO	YES	YES	NO	NO	c. 5 to 10 years	54	MALE	38446.6	YES	0	NO	0.11
25	ID12124	YES	YES	YES	YES	NO	d. More than 10 years	27	FEMALE	15538.8	NO	0	NO	0.44
26	ID12125	YES	YES	YES	NO	NO	c. 5 to 10 years	22	MALE	12640.3	NO	2	NO	0.36
27	ID12126	YES	YES	YES	YES	NO	c. 5 to 10 years	56	MALE	41034	YES	0	NO	0.17
28	ID12127	NO	YES	YES	YES	NO	c. 5 to 10 years	45	MALE	20809.7	YES	0	NO	0.17
29	ID12128	NO	NO	YES	NO	YES	d. More than 10 years	39	FEMALE	20114	YES	1	YES	0.87
30	ID12129	YES	NO	YES	YES	NO	c. 5 to 10 years	39	FEMALE	29359.1	NO	3	NO	0.09
31	ID12130	NO	NO	YES	NO	YES	b. 2 to 5 years	61	MALE	24270.1	YES	1	YES	0.87
32	ID12131	NO	YES	YES	NO	NO	b. 2 to 5 years	61	FEMALE	22942.9	YES	2	NO	0.08
33	ID12132	NO	YES	NO	NO	NO	d. More than 10 years	20	FEMALE	16325.8	YES	2	NO	0.08

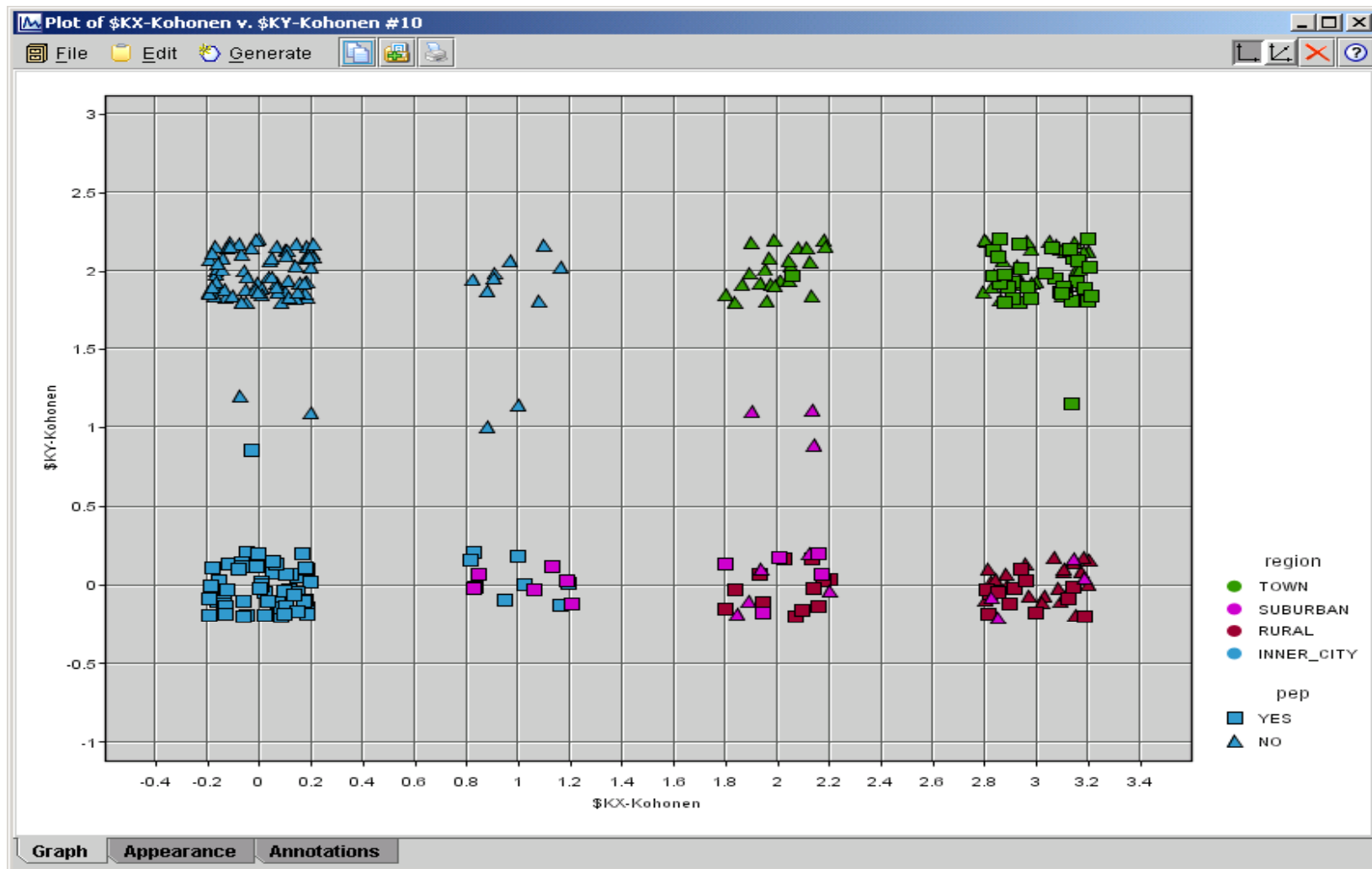
Advanced Visualization



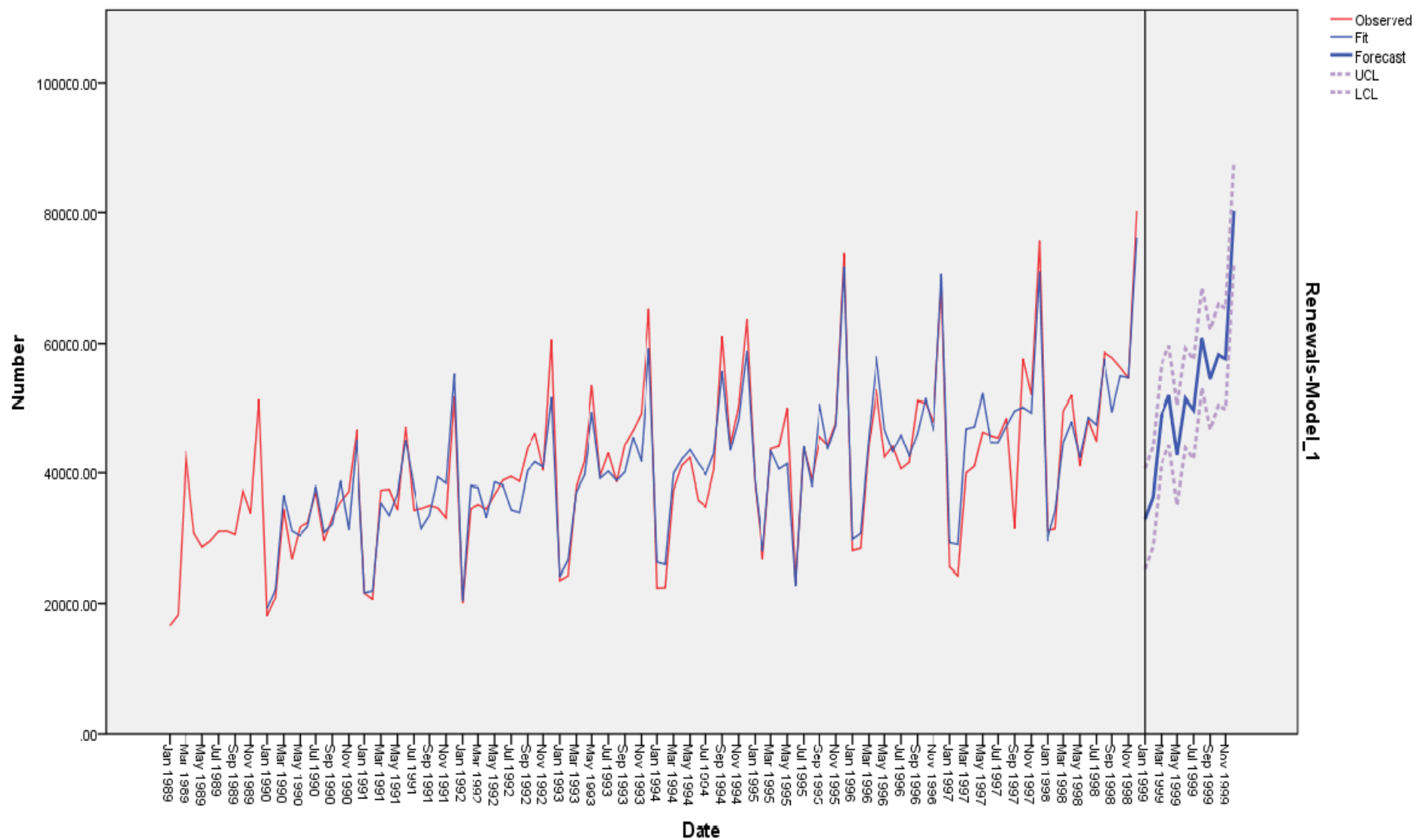
Advanced Visualization



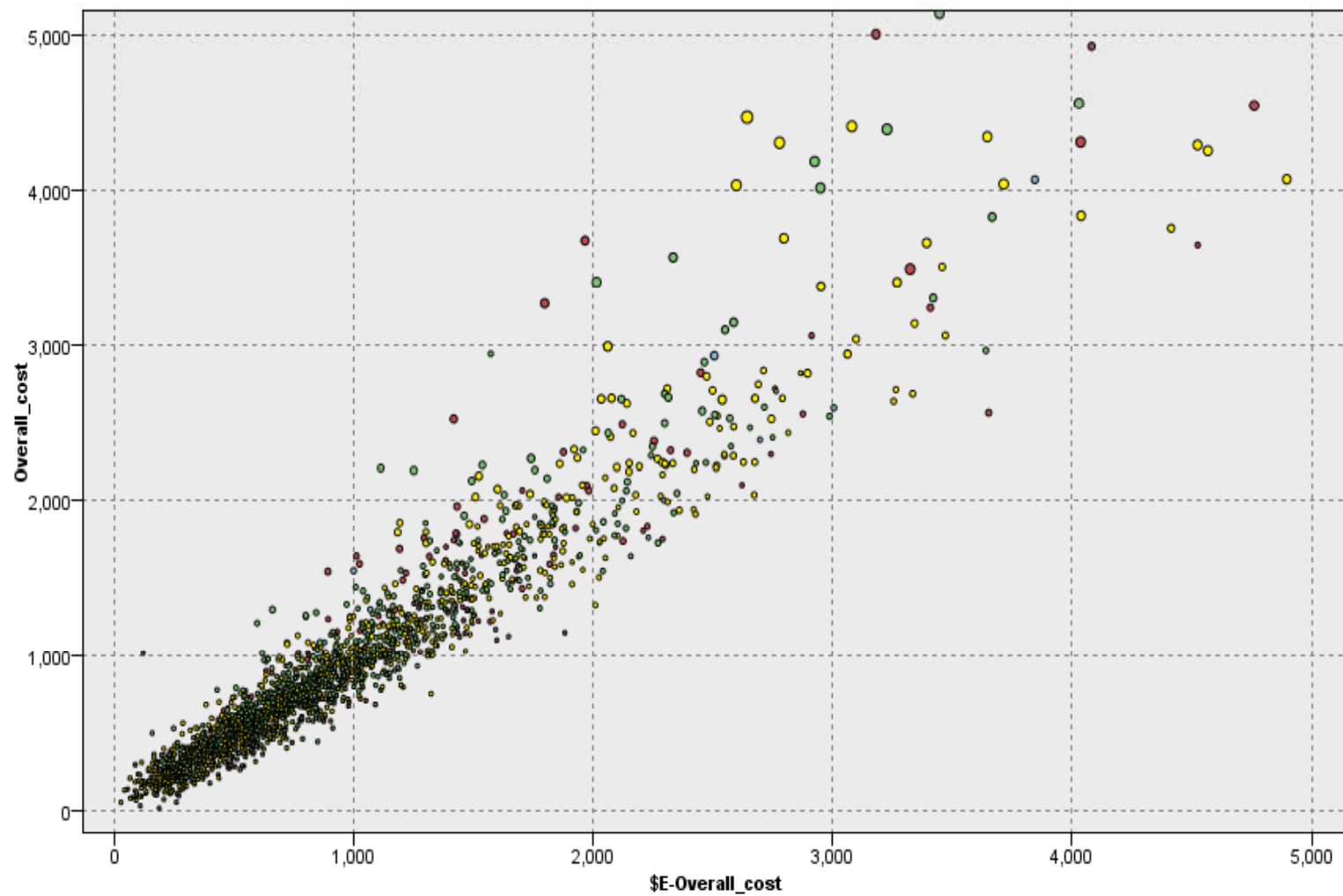
Finding Customer Segments



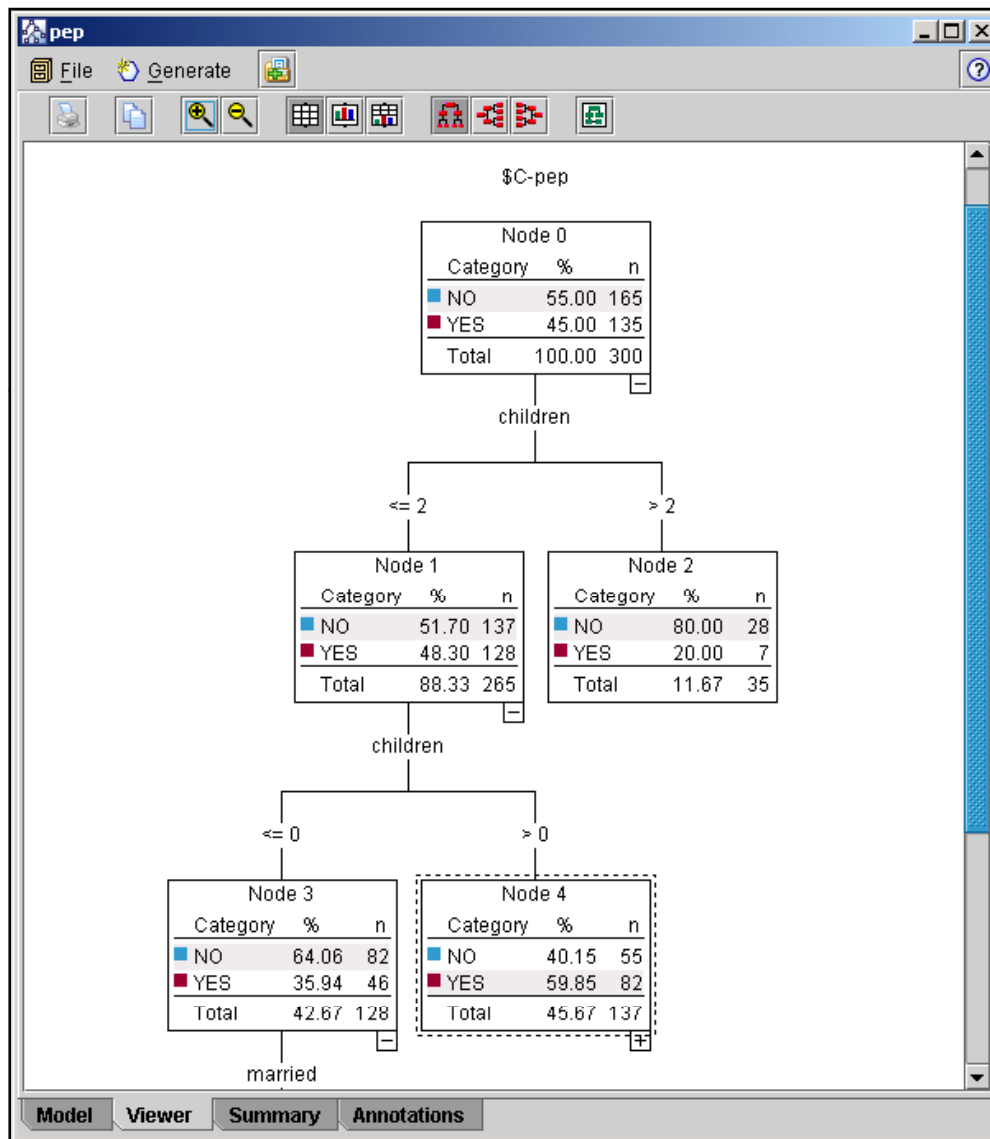
Forecasting Values



Estimating Costs



Profiling and Prediction



Association Rules

7 fields

File Generate

Sort by: Confidence %

104 of 104

Consequent	Antecedent	Instances	Support %	Confidence %
	life_insurance married	69	23.0	71.014
married	current account gender	121	40.333	71.074
married	isa gender	52	17.333	71.154
savings account	current account married	161	53.667	71.429
savings account	credit card current account	114	38.0	71.93
savings account	current account gender married	86	28.667	72.093
married	savings account gender	current account = YES and gender = MALE and married = YES 4.667		72.115
savings account	credit card gender	79	26.333	72.152
savings account	credit card current account life_insurance	52	17.333	73.077
married	credit card savings account current account	82	27.333	73.171
savings account	credit card married	94	31.333	73.404
married	savings account			

Model Summary Annotations

OK

Text Mining

- **Deeper Insight**
- **Better Modelling**
- **Classifying Comments**
- **Uncovering Hidden Patterns**



Text Mining

Interactive Workbench - Q4carcomments

File Edit View Generate Categories Tools Help

Build Extend Score Display

Category Descriptors Docs

Category	Descriptors	Docs
All Documents	-	200
Uncategorized	-	48
No concepts extracted	-	1
Pos: General Satisfaction	26	63
Pos: Product: Functioning	16	45
Neg: Product: Functioning	15	28
Neg: Service: Accessibility	38	15
Neg: Product: Design/Features	3	12
Other: Don't Know	14	11
Pos: Pricing and Billing	3	8
Neg: Product: Availability/Variety/Size	12	6
Neg: General Dissatisfaction	14	6
Cont: Pricing and Billing	5	6
Cont: Company: Public Image/Reputation	3	6

Extract Map Display

380 concepts

Concept	In	Global	Docs	Type
car	fx	106 (14%)	93 (47%)	<Products>
good	fx	57 (7%)	47 (24%)	<Positive>
clean	fx	37 (5%)	37 (19%)	<PositiveFeeling>
excellent	fx	19 (2%)	18 (9%)	<Positive>
well	fx	12 (2%)	12 (6%)	<Positive>
dirty	fx	10 (1%)	10 (5%)	<NegativeFeeling>
like	fx	9 (1%)	9 (5%)	<Positive>
dislike	fx	9 (1%)	9 (5%)	<Negative>
small	fx	8 (1%)	8 (4%)	<Contextual>
bad	fx	8 (1%)	8 (4%)	<Negative>
no problem	fx	7 (1%)	7 (4%)	<Positive>
satisfied	fx	6 (1%)	6 (3%)	<Positive>
price	fx	6 (1%)	6 (3%)	<Budget>
fun	fx	6 (1%)	6 (3%)	<Positive>
brand new	fx	6 (1%)	6 (3%)	<Positive>

Category Bar Category Web Category Web Table

Category	Bar	Selection %	Docs
Pos: General Satisf...		53.8	
Pos: Product: Functi...		38.5	
Neg: Product: Functi...		23.9	
Neg: Service: Acces...		6.0	
Other: Don't Know		4.3	
Neg: Product: Desig...		3.4	
Cont: Company: Pu...		3.4	
Pos: Pricing and Billi...		2.6	
Neg: General Dissat...		2.6	
Cont: Pricing and Bi...		2.6	
Pos: Service: Attitude		1.7	
Pos: Product: Usabil...		1.7	
Neg: Product: Availa...		1.7	
Pos: Service: General		0.9	
Neg: Pricing and Bill...		0.9	
Pos: Service: Acces...		0.9	

Q4carcomments (117)

Doc	Text	Categories
4	Car was clean and low on miles.	Pos: Product: Functioning
5	Car was clean but the windows were very dirty on the inside.	Neg: Product: Design/Feat... Neg: Service: Accessibility Pos: Product: Functioning
6	Car was clean. It would be helpful if car contained a quick instruction sheet illustrating where things are (i.e. gas cap, trunk release) as well as how to operate the security keychain.	Pos: Product: Functioning Pos: Product: Information Pos: Service: Knowledge
7	Car was economy. Awful car. Gave us trouble. We had to change it.	Neg: Product: Functioning
8	Car was great. Air conditioning worked, it was clean, and drove really well.	Pos: Product: Functioning Pos: General Satisfaction
9	Car was ok, but it had an odor from a smoker or something	Pos: General Satisfaction

Text Mining

Interactive Workbench - Q4carcomments

File Edit View Generate Categories Tools Help

Text Link Analysis

Extract 66 patterns Display

Global	In	Type1	Type2
1		<CustomerSupport>	<Negative>
1	fx	<Documentation>	<Negative>
1	fx	<Budget>	<NegativeBudget>
1	fx	<Unknown>	<NegativeBudget>
7	fx	<Products>	<NegativeFeeling>
5	fx	<Products>	<NegativeFunctioni
2	fx	<Unknown>	<NegativeFunctioni
1	fx	<Characteristics>	<NegativeFunctioni
59		<Products>	<Positive>
26		<Unknown>	<Positive>
4	fx	<Characteristics>	<Positive>
3	fx	<Budget>	<Positive>
2		<Performance>	<Positive>
1		<Location>	<Positive>
1	fx	<Documentation>	<Positive>
1		<Product>	<Positive>

Extract Selected: 31 patterns Display

Global	Docs	In	Concept1	Concept2
3	3		condition	good
1	1	fx	speakers	blown
1	1	fx	windshield wiper	not working
1	1	fx	red car	fading
1	1	fx	air conditioning	not working
1	1	fx	speedometer	not working
1	1	fx	paint	fading
1	1	fx	mid-range sedan	disconnected
1	1		warning	light
1	1		map	light
1	1		suv	well maintained
1	1		aspects	satisfied
1	1		idea to rent a	excellent
1	1		drive	good
1	1		ford taurus	roomy
1	1		vacation	fun

Concept Web Type Web

Grid Layout

To populate data pane:
Make a selection in a table and click Display

Text Mining

	LongDistance	International	Local	Dropped	Paymethod	LocalBilltype	LongDistanceBilltype	Age	Sex
1	26.130	0.000	32.880	1	CC	Budget	Standard	84.710	M
2	26.130	0.000	32.880	1	CC	Budget	Standard	84.710	M
3	26.130	0.000	32.880	1	CC	Budget	Standard	84.710	M
4	26.130	0.000	32.880	1	CC	Budget	Standard	84.710	M
5	26.130	0.000	32.880	1	CC	Budget	Standard	84.710	M
6	28.260	0.000	38.950	0	CC	FreeLocal	Standard	39.170	F
7	28.260	0.000	38.950	0	CC	FreeLocal	Standard	39.170	F
8	28.260	0.000	38.950	0	CC	FreeLocal	Standard	39.170	F
9	28.260	0.000	38.950	0	CC	FreeLocal	Standard	39.170	F

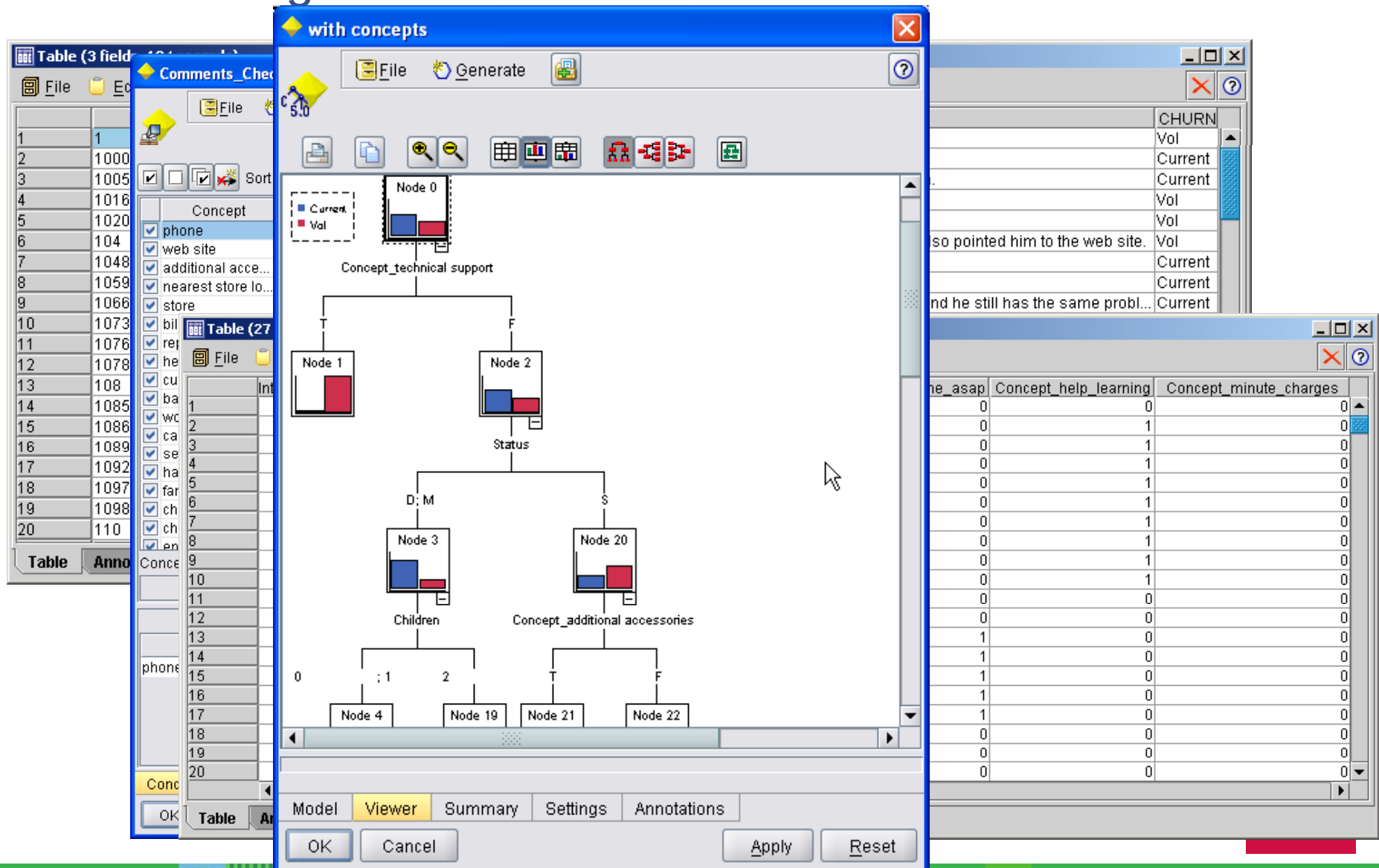
Volumes of structured, well-organized behavioral and transactional data



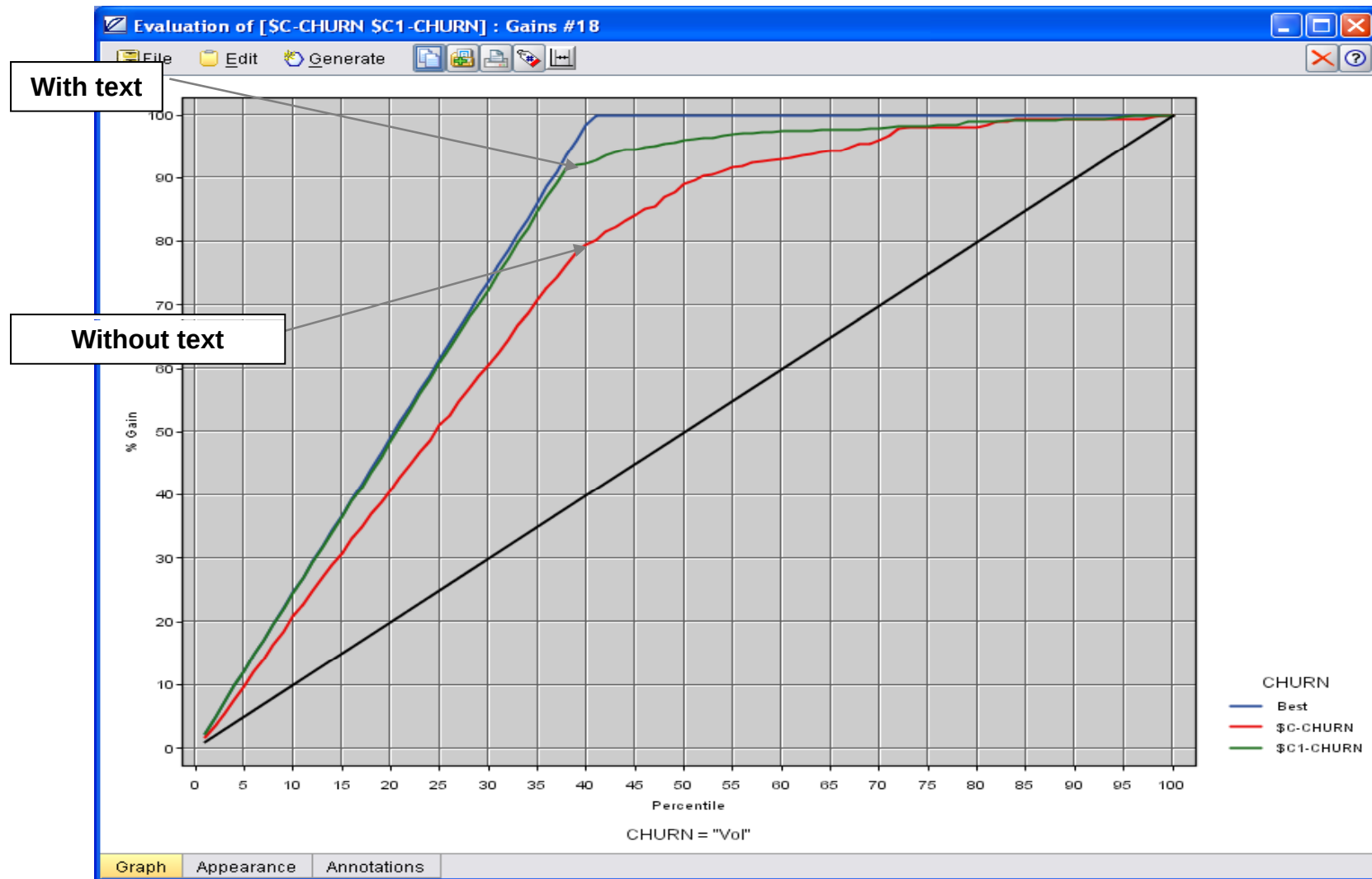
	ID	
4	3818	He claims his bill always seemed to have calls he did not make.
5	124	He lost his phone and called to cancel service. I told him we would suspend until we hear back from him. He will c
6	484	Really is unhappy with the website. Claims the self service stuff does not work.
7	731	Can't believe he was stupid enough to sign a year contract. He thinks that we provide the worst service he has ever
8	3406	Needs help learning how to use the phone. I suggested he go back to the store and have the rep teach him.
9	2240	Wants to change rate plans to get family all on same bill. I transferred him to customer care.
10	647	Claims he never received his bill. Was really unhappy that I asked him for his cc. Wanted me to turn on his phone.
11	726	He loves the phone when it works. The problem is that the phone hardly ever works. He thinks the battery is lame.

Volumes of unorganized, unstructured data

Text Mining

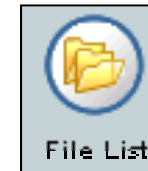


Text Mining

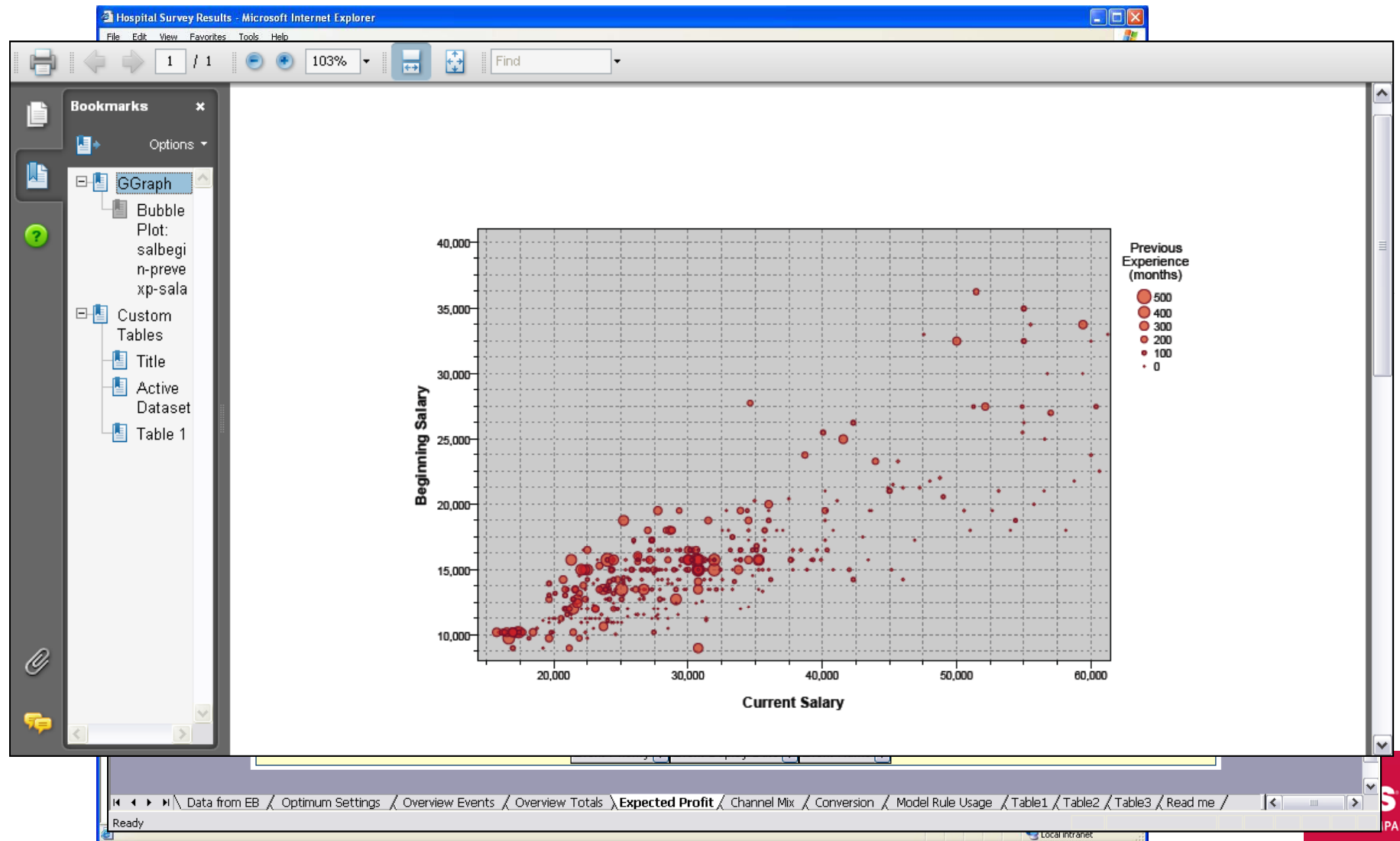


Plus...

- Mine multiple text documents (.txt, .pdf, .doc etc)
- Blogs and RSS feeds
- Language Translation



Deployment: What is the end goal?



SPSS IBM Modeler

- **Brings prediction to BI reporting**
- **Predict, Classify, Forecast and Segment**
- **Think Deployment First**
- **Build a priority list of applications**
- **Use each application as a foundation for the next**
- **Deploy deep into existing business functions**



- IBM SPSS Modeler 13
- **Operating system:**
 - Microsoft Windows Vista® (Business and Enterprise) x32 or x64 Edition
 - Microsoft Windows XP Professional® with Service Pack 2 x32 or x64 Edition
 - Windows Server 2003® (Terminal Services).
- **Hardware:**
 - Processor: Intel Pentium® or Pentium-class processor or higher (for 32-bit Windows); x64 (AMD 64 and EM64T) processor family (for 64-bit Windows)
 - Monitor: A monitor with 1024x768 resolution or higher
 - A CD-ROM drive is also required if you are installing from a CD-ROM
- **Minimum free disk space: 1 GB of available hard-disk space**
- **Minimum RAM: 1 GB of RAM minimum; 2 GB or more recommended**
- **Software: Microsoft Internet Explorer® 6.0 or higher for online help**
- **Virtual Environment: Windows 2003® Terminal Services or Citrix Presentation Server 4.5**



- **IBM SPSS Modeler 13 Server**
- **Operating system:**
 - Windows Server 2003® (Standard and Enterprise) x32 or x64 Editions
 - Windows Server 2003® (Standard and Enterprise) x32 or x64 Edition, Red Hat® Enterprise Linux® ES4 AND 5 (32-bit and 64-bit processors)
 - Sun Solaris (TM) 9 or 10 (for SPARC 64-bit machines)
 - HP-UX 11i V2 64-bit version, HP-UX 11.23 and HP-UX 11.i V3 64-bit version, or HP-UX 11.31
 - IBM AIX® 5L 64-bit, versions 5.3 and 6.1
 - Red Hat Enterprise Linux, ES4 and 5 (32-bit and 64-bit processors)
 - VMware ESX 3.0
- **Hardware:**
 - Intel Pentium® or Pentium-class processor or higher (for 32-bit Windows); x64 (AMD 64 and EM64T) processor family (for 64-bit Windows), running at 1GHz or faster
 - A CD-ROM drive
 - A network adapter running the TCP/IP network protocol
- Minimum free disk space: 1GB recommended
- Minimum RAM: 4GB recommended

