

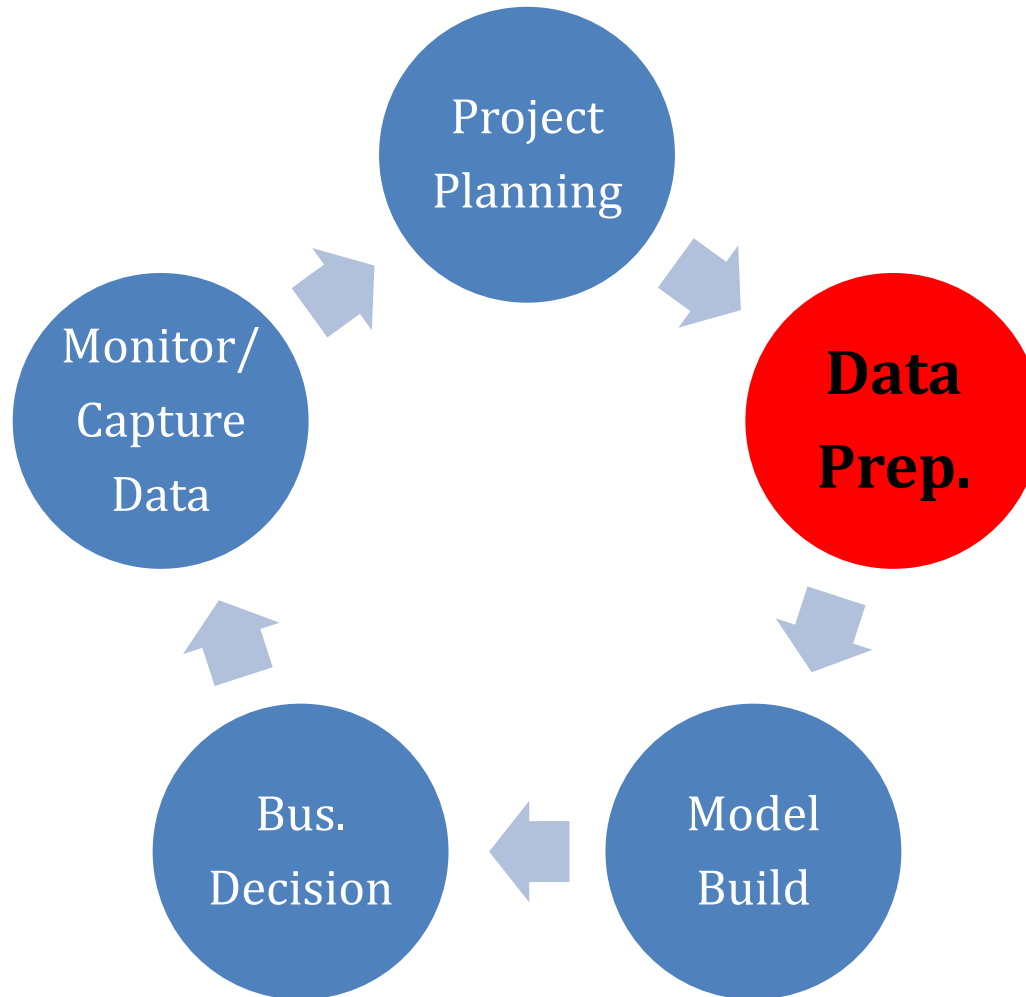
# Commercial Lines Predictive Analytics: Before & After

CAS RPM Seminar 2011

March 22, 2011

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# The Predictive Modeling Process



# Approaches to Getting More Out of Data

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- Internal Data
- Modelers: AIR, RMS, EQECAT, Baseline
- Statistical Agents: NCCI, ISO
- Insurers:
  - Commercial Auto: Progressive, Hartford
  - Medical Malpractice: The Doctors Company, Medical Protective, (also NCMIC, PICA in specialties)
  - Casualty & Package Programs: CNA, Zurich, Hartford, Farmers, Safeco, Travelers
- Data Collectors:
  - Commercial Auto: RL Polk, Central Analysis Bureau
  - Credit: Lexis-Nexis, Experien, TransUnion
  - Property: MSB,
  - Medical Malpractice: PointRight, NPDB, State Closed Claims Databases

# Combining Data

- Lawrence, H. Longley-Cook's - "We may liken our (data) to a large crumbly loaf cake, which we may cut in slices to obtain easily edible helpings. ... If we try to slice the cake more than one way at a time, we shall be left with a useless collection of crumbs"
- Increase the size of your cake
- For small Books of Businessowners (BOP) and Commercial Package (CPP/CMP), consider combining into single underwriting score model
- Small companies may also look at account based models



# Got the Data...Sort of

- Problem: Lots of data accurately captured by agents on ACORD BOP application and company supplemental application... in ink (pencil, crayon). Never gets into systems.
- Solution: Hire college kids? No.



Seek out retirees group that knows company systems and is familiar with applications. They're looking for supplemental income and a way to stay connected. You get accurate, inexpensive data input.

# Loss Control Survey Scores

Core Section	Questions	Points	# of N/A
1. Frequency and Severity Trends	3	10	0
2. Loss Prevention Direction	13	41	1
3. Substance Abuse	1	4	
4. Accident Investigation	2	6	0
5. Claims Management	3	12	0
6. Emergency Response	5	11	1
7. Regulatory Compliance	14	21	6
8. Liability	4	7	2
9. Motor Vehicle	4	14	0
10. Ergonomics	4	2	2
<b>TOTALS</b>	<b>53</b>	<b>128</b>	<b>12</b>

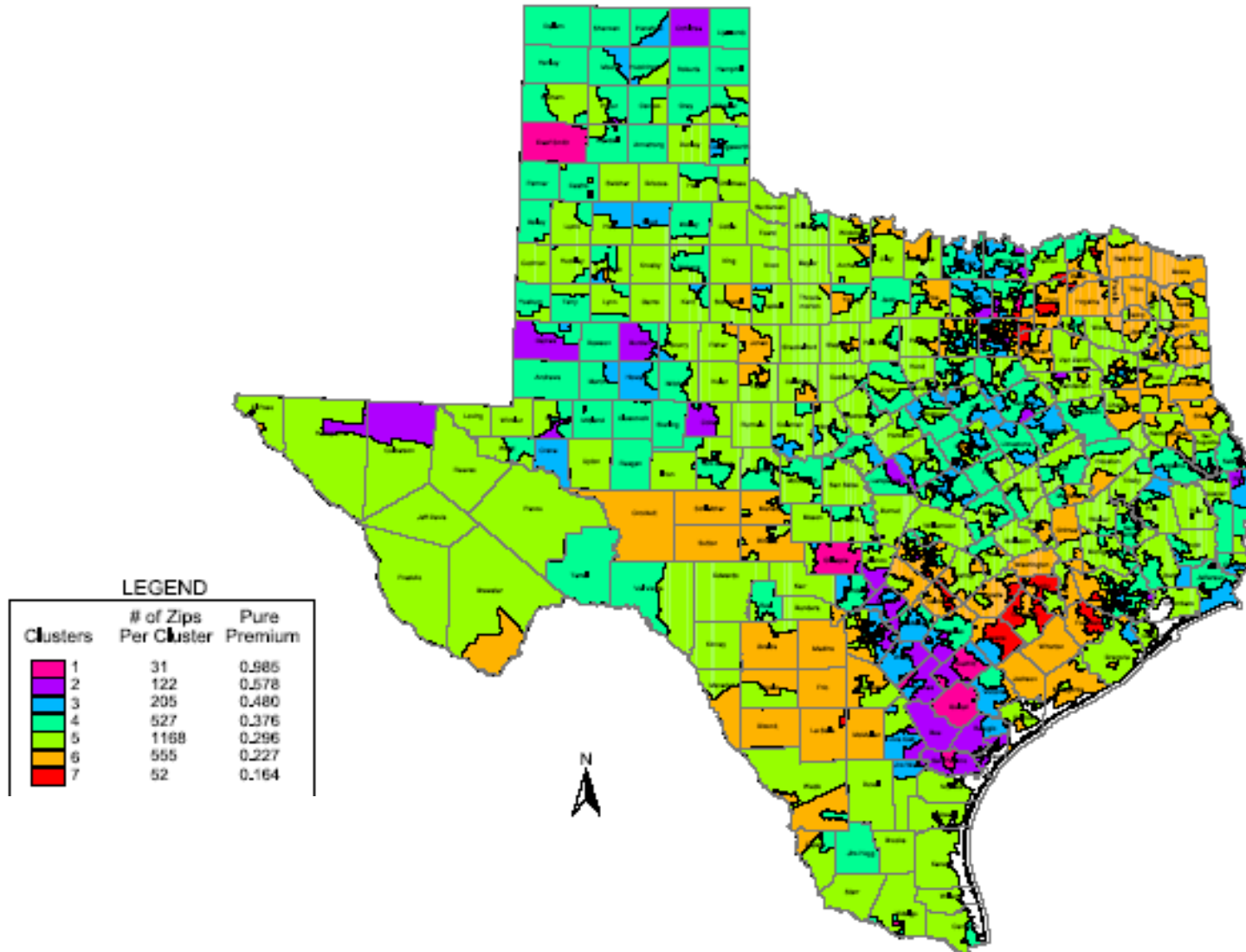
Supplemental Section	Applicable Sections	Questions	Points	# of N/A
A. Construction	<input checked="" type="checkbox"/>	20	50	5
B. Distribution	<input type="checkbox"/>	6		
C. Health Care	<input type="checkbox"/>	6		
D. Quarries	<input type="checkbox"/>	12		
E. Service Companies	<input type="checkbox"/>	4		
F. Transportation	<input type="checkbox"/>	7		
<b>TOTALS</b>		<b>20</b>	<b>50</b>	<b>5</b>

$$\left( \frac{73}{\text{Total Questions (Core \& Supplemental)}} - \frac{17}{\text{\# of N/A}} \right) \times 4 = \frac{224}{\text{Maximum Points}}$$

$$\frac{178}{\text{Total Points (Core \& Supplemental)}} \div \frac{224}{\text{Maximum Points}} = \frac{79}{\text{Final Score}} \%$$

- How does improving my score impact my renewal?
- Are insureds with low scores more likely to have losses in reinsurance/excess layer?
- Are there specific programs, devices, training, that can be offered to insureds with specific weaknesses?
- Can the cost/benefit be supported from the experience of other insureds?
- Is there a bias in my experience rating plan?

# Territory Clustering



# Constrained or Restricted Models

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- Many companies face the problem of not enough data to model all of the rating and tiering/scoring variables simultaneously
- (Wouldn't be able to file independent rates even if I could model them.)
- Solution: Constrain the rating factors in the model to AAIS, ISO, or NCCI loss costs (or a competitor) and focus on scorecard/tiering factors.

# Constrained or Restricted Model

<b>Construction Type</b>	<b>Factor</b>
Frame Construction	1.000
Joisted Masonry	0.825
Non-Combustible	0.825
Masonry Non-Combustible	0.749
Modified Fire Resistive Or Fire Resistive	0.560

<b>Public Protection (Fire) Classification</b>	<b>Factor</b>
1 - 4	1.000
5 - 6	1.063
7 - 8	1.260
8B	1.490
9 - 10	1.490

# Publicly Available Rate Filings - 1

DRVR-CLASS-FCT-TBL							
DRVR		MS	POINTS	WEIGHT	SAND	DRVR	
AGE				CLASS	GRAVEL	CLASS	
						FCT	
						LKUP	
14	...	18	M	0	H	Y	2.87
14	...	18	M	0	H	N	3.93
14	...	18	M	0	L	Y	2.51
14	...	18	M	0	L	N	2.51
14	...	18	M	0	M	Y	2.87
14	...	18	M	0	M	N	3.93
14	...	18	M	0	X	Y	2.87
14	...	18	M	0	X	N	3.93
14	...	18	M	1	H	Y	2.95
14	...	18	M	1	H	N	4.12
14	...	18	M	1	L	Y	3.55
14	...	18	M	1	L	N	3.38

## Type of Operation Multiplier x Rate for Bodily Injury, Property Damage and Medical Payments Coverage

0.95 – Grain Haulers	0.95 – Dry Freight – Truckload
1.00 – Livestock Haulers	1.15 – Intermodal
1.10 – Bulk/Tank – Chemical/Food Grade	1.10 – Dry Freight – Less Than Truckload (LTL)
1.00 – Bulk – Dry Bulk	1.20 – Auto Transporters
1.10 – Tank – Fuel, Oil, Petroleum	1.40 – Dumping Operations
0.95 – Refrigerated (Reefer)	1.25 – Drive Away Operations
1.00 – Flatbeds	1.30 – Logging Operations
1.00 – Specialized Carriers	1.40 – Mobile Home Toters

# Publicly Available Rate Filings -2

## C. TIERED RATING

1. Tier is determined at policy inception, renewal or anniversary based on the following characteristics. Number of "power units", length of time insured with company, accident history, age of driver(s), Motor Vehicle Record of driver(s), management safety ranking, and driver retention.

### Tiered Rating Multipliers

TIERED RATING MULTIPLIERS									
Tier	Multiplier	Tier	Multiplier	Tier	Multiplier	Tier	Multiplier	Tier	Multiplier
1	0.401	10	0.557	19	0.774	28	1.076	37	1.495
2	0.416	11	0.578	20	0.803	29	1.116	38	1.551
3	0.431	12	0.599	21	0.833	30	1.158	39	1.609
4	0.447	13	0.622	22	0.864	31	1.201	40	1.669
5	0.464	14	0.645	23	0.896	32	1.245	41	1.731
6	0.481	15	0.669	24	0.929	33	1.292	42	1.795
7	0.499	16	0.694	25	0.964	34	1.340	43	1.862
8	0.518	17	0.719	26	1.000	35	1.390	44	1.932
9	0.537	18	0.746	27	1.037	36	1.442	45	2.004

# CA Scorecard Example - Hartford

Company Rates applicable to Sentinel Insurance Company, LTD only: ✓

Based on the following risk characteristics:

1. MVR Information
2. Average Driver Age
3. Youthful Composition
4. Length of Credit History
5. Total Number of Trades
6. Percentage of Balance Overdue of All Trades
7. Total Balance of Regular Trades
8. Number of Public Records / Collections
9. Amount of Judgment
10. Average Number of Days Balance Overdue in the Past 3 Months
11. Number of Inquiries in the Past 9 Months
12. Years in Business (when financial information is not available)
13. Industry Classification
14. Percentage of TTT Power Units
15. Prior 3-Year Loss Frequency by Size of Risks
16. Other risk-specific characteristics that are not contemplated above

use the applicable tier factor as a final step prior to rounding to determine the final rates.

# CA Scorecard Example - Hartford

Tier	Factor		Tier	Factor		Tier	Factor
1	0.40		18	0.81		35	1.66
2	0.42		19	0.85		36	1.73
3	0.43		20	0.89		37	1.81
4	0.45		21	0.92		38	1.88
5	0.47		22	0.96		39	1.96
6	0.49		23	1.00		40	2.05
7	0.51		24	1.05		41	2.13
8	0.54		25	1.09		42	2.23
9	0.56		26	1.14		43	2.32
10	0.58		27	1.19		44	2.42
11	0.61		28	1.24		45	2.52
12	0.63		29	1.29		46	2.63
13	0.66		30	1.35		47	2.74
14	0.69		31	1.40		48	2.86
15	0.72		32	1.46		49	2.98
16	0.75		33	1.53		50	3.11
17	0.78		34	1.59			

UNINSURED/UNDERINSURED MOTORISTS Factor is 1.00.

# Physician Surcharge Program - 1

## PAYMENT HISTORY

- |  |     |
|--|-----|
| A. Two or more late payments within the last three years.                            | 100 |
| B. Two or more cancellations for non-payment of premium within the last three years. | 150 |

## OTHER

- |   |     |
|---|-----|
| A. Uncooperative in Claims Handling           | 75  |
| B. Patient Load:                              |     |
| For Surgeons, 61-99 patients per week         | 50  |
| For Surgeons, 100 or more patients per week   | 100 |
| For all others, 101-149 patients per week     | 50  |
| For all others, 150 or more patients per week | 100 |

# Physician Surcharge Program - 2

C. Advertising: If insured advertises his/her services on TV, newspapers, billboards or radio	25
D. Uses collection agency that can file suit without insured's written consent.	25
E. Previous insurance history (bare, insolvent prior insurer or nonrenewed).	100
F. Claim experience of Associates, Partners or Corporation:	
If one member with claim(s)	75
If more than one member with claim(s)	100
Favorable experience of group as a whole	-150
G. For each claim or suit in which the physician breached the standard of care:	
Mixed Reviews	50
All Negative Reviews	100
Admitted or Clear Liability	100

# Physician Surcharge Program - 3

## Ranges & Surcharges

0 to 50 points-No surcharge

131 to 170 points-40% surcharge

251 to 280 points-70% surcharge

326 to 350 points-100% surcharge

391 to 410 points-175% surcharge

451 to 470 points-250% surcharge

511 to 530 points-325% surcharge

571 to 590 points-400% surcharge

51 to 90 points-20% surcharge

171 to 210 points-50% surcharge

281 to 300 points-80% surcharge

351 to 370 points-125% surcharge

411 to 430 points-200% surcharge

471 to 490 points-275% surcharge

531 to 550 points-350% surcharge

591 or more points-Nonrenew

91 to 130 points-30% surcharge

211 to 250 points-60% surcharge

301 to 325 points-90% surcharge

371 to 390 points-150% surcharge

431 to 450 points-225% surcharge

491 to 510 points-300% surcharge

551 to 570 points-375% surcharge

# BOP Competitive Information

Eligible Occupancies	Classification Factors			
The following are the eligible classes of business. No other types of business may be insured under this program. See also the Ineligibility List in the main section of this manual.	Building Lessors	Building Occupants	Business Personal Property	Class Code
<b>Air Conditioning Equipment Dealers</b>	1.314	1.150	0.806	00072
<b>Alterations – Clothing</b>	1.278	1.333	1.512	71961
<b>Animal Cemetery</b>	NA	0.526	0.619	00056
<b>Animal Cemetery – Lessors Risk</b>	0.604	NA	0.619	00056
<b>Animal Hospital</b>	NA	0.526	0.619	00057

# BOP Competitive Information

<b>Age of Building Credit Factors:</b>		
<b>Age</b>	<b>Original Construction</b>	<b>Significantly Renovated</b>
0 -- 5	0.900	0.900
6 -- 10	0.950	0.950
11 -- 15	0.975	0.975

<b>Franchise Factor:</b>	<b>Property</b>	<b>Liability</b>
	0.950	0.975

<b>Mall Credit</b>	<b>Property</b>	<b>Liability</b>
	0.975	0.950

# Publicly Available Scorecards

Location of Business	Attached to Habitational Structure	10
	Stand-alone Building	3
	Strip Shopping Center	0
	Enclosed Mall	-3
Hours of Operation Open to Public	21-24 Hours	10
	16-20 Hours	5
	12-15 Hours	0
	Less than 12 Hours	-5
Percentage of Sales from Catering Services	Over 10%	10
	1-10%	5
	None	0
Total Percent of Sales from Liquor Sales	More than 20%	5
	1-20%	2
	None	0
Drive Thru	Yes	0
	No	0
Credit Score	All Responses	0

# Polk Vehicle Data

## Polk Commercial Trailer File

### Enables you to:

- Assess market performance
- Discover new markets
- Monitor the competition
- Identify fleet purchasing patterns

### Description

Polk's Commercial Trailer File is an online database of over 5 million new U.S. commercial trailer registrations. Updated monthly and available online, the Polk Commercial Trailer File gives you fast, easy access to valuable sales data broken down into numerous categories including:

- Geographic area
- Custom geography
- Makes
- Body styles
- Axles per trailer
- Length
- Vehicle Identification Number (VIN)
- Year model
- Fleet size
- Carrier type
- Vocations (from agriculture to wholesale)
- Trailer counts
- And much more

# Central Analysis Bureau – Part 1

<u>Entity Type:</u>	Carrier		
<u>Out of Service (Interstate Only):</u>	No	<u>Out of Service Date:</u>	None
<u>Legal Name:</u>	KA BULK TRANSPORT LLC		
<u>DBA Name:</u>	KLEMM TANK LINES		
<u>Physical Address:</u>	2204 PAMPERIN RD GREEN BAY, WI 54313-8931		
<u>Phone:</u>	(920) 434-6343		
<u>Mailing Address:</u>	P O BOX 11708 GREEN BAY, WI 54307-1798		
<u>USDOT Number:</u>	171830	<u>State Carrier ID Number:</u>	
<u>MC or MX Number:</u>	MC-147216	<u>DUNS Number:</u>	02-320-3300
<u>Power Units:</u>	547	<u>Drivers:</u>	636
<u>MCS-150 Form Date:</u>	10/14/2009	<u>MCS-150 Mileage (Year):</u>	49,073,288 (2008)

# Central Analysis Bureau – Part 2

Inspection results for 24 months prior to: [02/22/2010](#)

Total inspections: 1,105

Note: Total inspections may be less than the sum of vehicle, driver, and hazmat inspections. Go to [Inspections Help](#) for further information.

## Inspections:

	Inspection Type	Vehicle	Driver	Hazmat
Inspections		859	1095	919
Out of Service		77	3	13
Out of Service %		9%	0.3%	1.4%
Nat'l Average % (2007- 2008)		22.27%	6.60%	5.02%

Crashes reported to FMCSA by states for 24 months prior to: [02/22/2010](#)

## Crashes:

	Type	Fatal	Injury	Tow	Total
Crashes		1	20	28	49

# Personal vs. Commercial Scores

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## Personal

- **FICO Score**
- 35% Payment History
- 30% Amounts Owed
- 15% Length of Credit
- 10% New Credit
- 10% Type of Credit

## Commercial

- **Experian**
- Payment habits
- Outstanding balances
- Trends over time
- Credit utilization
- Number of trade experiences
- Public record recency, frequency and dollar amount
- Demographics \*

# Credit Data Example

## Public Filings

The following data includes both open and closed filings found in D&B's database on this company.

<b>Record Type</b>	<b>Number of Records</b>	<b>Most Recent Filing Date</b>
Bankruptcies	0	-
Judgments	0	-
Liens	0	-
Suits	0	-
UCC's	1	01/27/03

The public record items contained herein may have been paid, terminated, vacated or released prior to today's date.

## Financial Stress Score Class

**Financial Stress Score Class: 1**

(Lowest Risk:1; Highest Risk:5)

# Commercial Issues

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- How much debt is the business carrying?
- What is the structure of the company's debt?
- Strong consideration is also given to:
  - Cash flow
  - Financial resources
  - Working capital
  - Net worth
- Fiscal information is not considered in a vacuum.

# Credit Scores Include Demographics

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- Years in Business
- Standard Industrial Classification codes
- Business Size
  - Revenues
  - Capital
  - Net Worth
  - Number of Employees
- History
- Reputation
- Background of Principals
- Structure of the business

# Demographics Example

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## D&B Company Overview

**This is a headquarters location**

Branch(es) or Division(s) exist Y

Chief Executive	JOSEPH HERBERS, PRES
Year Started	2003
Employees	45 (35 Here)
Financing	SECURED
SIC	8999
Line of business	Services
NAICS	541612
History Status	CLEAR

# Indicated SIC Relativities

<b>SIC 3</b>	<b>Description</b>	<b>Exposure</b>	<b>On-Balance Relativity</b>
171X	Plumbing/HVAC	37,542	1.055
173X	Electrical Contractors	36,629	0.886
175X	Carpentry	32,404	0.969
179X	Misc. Contractors	23,829	0.982
27XX	Printing/Publishing	16,005	0.824
35XX (o/t 357)	Industrial Machinery	19,753	0.838
507X	Hardware Wholesaler	10,866	0.932
514X	Grocery Wholesaler	16,486	1.149
571X	Home Furnishings	11,795	0.918
581X	Restaurants	12,239	0.916
59XX	Misc. Retail	38,818	1.031
64XX	Insurance Agents	13,209	0.921
65XX	Real Estate	30,856	0.986
721X	Laundry/Dry Cleaning	13,341	1.373
734X	Building Services	19,012	1.145
737X	Computer Services	16,663	1.145
76XX	Misc. Repair Services	15,425	1.010
80XX	Health Services	18,607	1.068
87XX	Eng. & Mgt. Services	80,160	0.927

# A Hierarchical Approach to No-Hits

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- Use a Commercial Score First
  - High hit rate for large, more established businesses
  - Not great on small, new businesses
- New, Small Businesses often have simple ownership structure
- Use Personal Credit Information on Principal Owner
  - Close proxy to financial resolve of a small business
  - Some programs focusing exclusively on small business skip commercial score

# Medicare Data – Nursing Homes

Data.Medicare.gov

Home | Create an Account on Data.Medicare.gov

Unsaved View

Based on Medicare Rating for Senior Nursing Home

file provides star ratings data for each nursing home in categories such as Overall, Health Inspections, and Quality Measures.

37 More Views

Filter


Visualize

	Provider N	Nursing Home Name	State	Overall Star Rating	Health Inspections	Nurse Staffing St	Quality Measures	RN Only Star Rat
1	495038	MANASSAS HEALTH AND REHAB CENTER	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
2	495390	BIRMINGHAM GREEN	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
3	495388	GAINESVILLE HEALTH AND REHAB CENTER	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
4	495312	JOHNSON CNTR/FALCONS LANDING	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★		★ ★ ★ ★ ★	
5	495275	LOUDOUN NURSING AND REHAB CNTR	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
6	495261	HERITAGE HALL NRSG AND REHAB	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
7	495267	OAK SPRINGS OF WARRENTON	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
8	495233	FAUQUIER HEALTH REHABILITATION & NURSING	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
9	495179	CAMERON GLEN HEALTH & REHAB CENTER	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
10	495155	GOLDEN LIVINGCENTER-SLEEPY HOLLOW	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
11	495337	LEEWOOD HEALTHCARE CENTER	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★
12	495248	BURKE HEALTH CARE CENTER	VA	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★	★ ★ ★ ★ ★

# Nursing Home Data

## Legend

- High Risk
- ⊗ High Risk with Decline
- Decline
- RI Resident Interview
- SA Staff Assessment

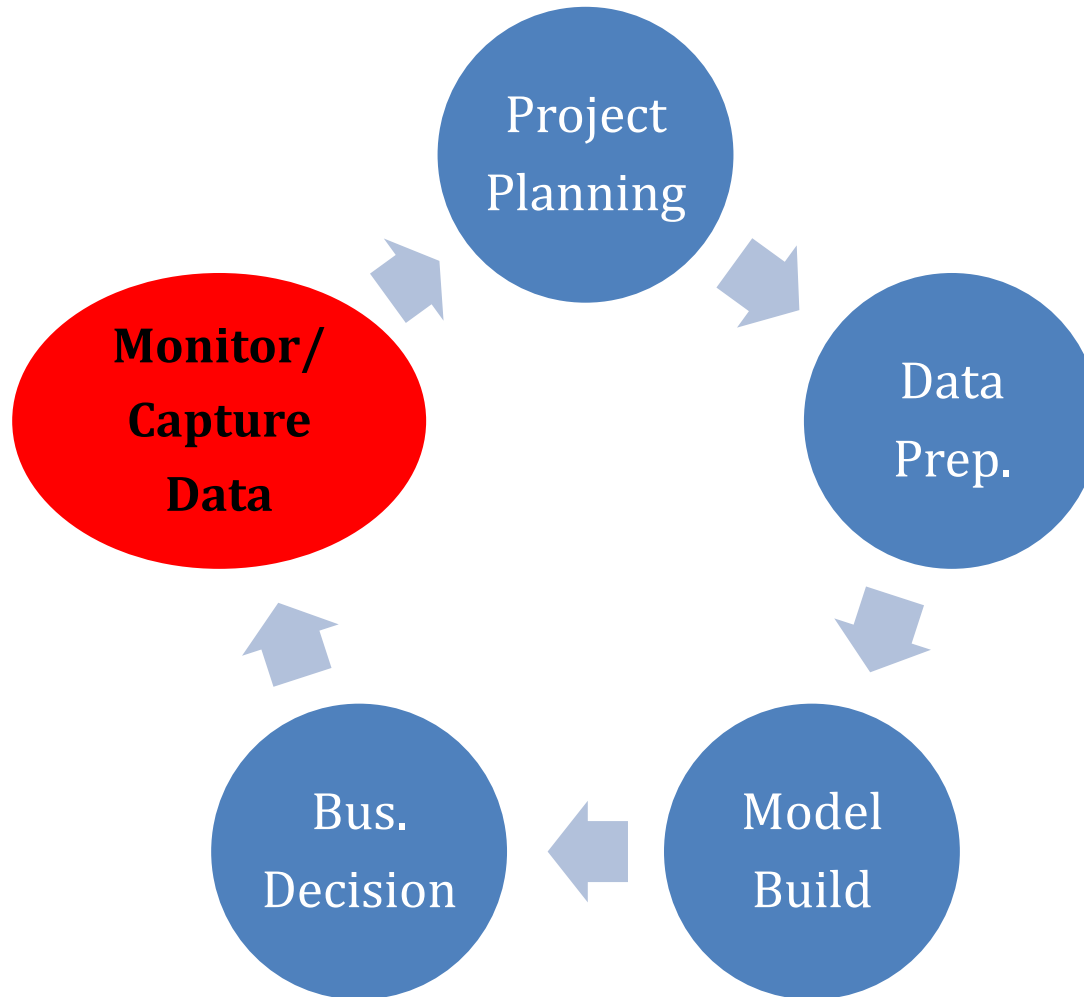
RADAR Report as of:  

## Risk Assessment Details - Active Residents

Resident	Room#	ARD	Q/M/QI	Profile Scores											
				ADL	Cognition		Delirium	Mood (PHQ-9)		Pain		Falls	Frail	Hosp	PU
					BIMS	CPS	CAM/C	RI	SA	RI	SA				
<u>A...D</u>	209	<u>5/21/2011</u>	No Data	15	7	--	0	2	--	4	--	2	6	2	3
<u>B...F</u>	208	<u>6/1/2011</u>	No Data	13	7	--	0	2	--	1	--	2	--	9	--
<u>R...T</u>	22	<u>5/25/2011</u>	No Data	10	5	--	0	20	--	0	--	2	3	9	3
<u>S...W</u>	09	<u>5/1/2011</u>	No Data	10	--	1	1	1	--	0	--	3	4	1	3
<u>B...Q</u>	09	<u>6/1/2011</u>	No Data	10	4	--	0	1	--	0	--	3	4	1	3
<u>R...M</u>	09	<u>6/1/2011</u>	No Data	10	4	--	1	1	--	0	--	3	4	1	3
<u>P...P</u>	09	<u>6/1/2011</u>	No Data	10	4	--	1	1	--	0	--	3	4	1	3
<u>D...X</u>	09	<u>5/1/2011</u>	No Data	10	4	--	1	1	--	0	--	3	4	1	3
<u>L...E</u>	09	<u>6/1/2011</u>	No Data	9	4	--	0	1	--	0	--	3	4	1	3
<u>W...K</u>	302	<u>5/21/2011</u>	No Data	9	15	--	0	2	--	2	--	1	2	1	2

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# The Predictive Modeling Process



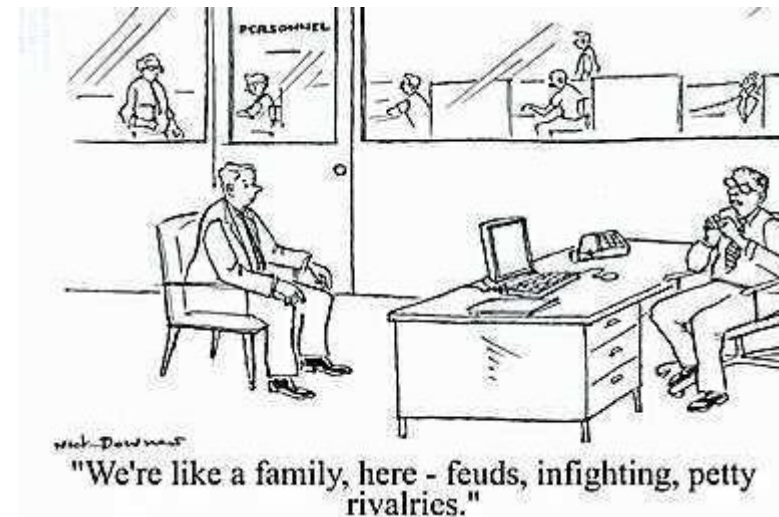
# Implementation Issues

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- Is it working?
- Is it doing what we thought it would?
- Are underwriters/agents accepting it?
- Are we getting buy-in?
- Are we avoiding turf wars?
- How are we going to do even better next time?

# Avoiding Turf Wars

- Problem: If not implemented correctly, predictive modeling often leads to turf wars.
  - The models aren't stable year to year.
  - We're not sticking to the pricing guidance.
  - It doesn't work in a soft market.
  - The models aren't right.
  - Too many exceptions.



# Achieving Buy In

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- Solutions:
  - Highly visible commitment at the C-level
  - Active involvement of all departments in modeling and product development processes
  - Testing prior to implementation
  - Reason codes/Feedback
  - **Monitoring/Keeping Score**

# Common Monitoring Metrics

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## Metrics

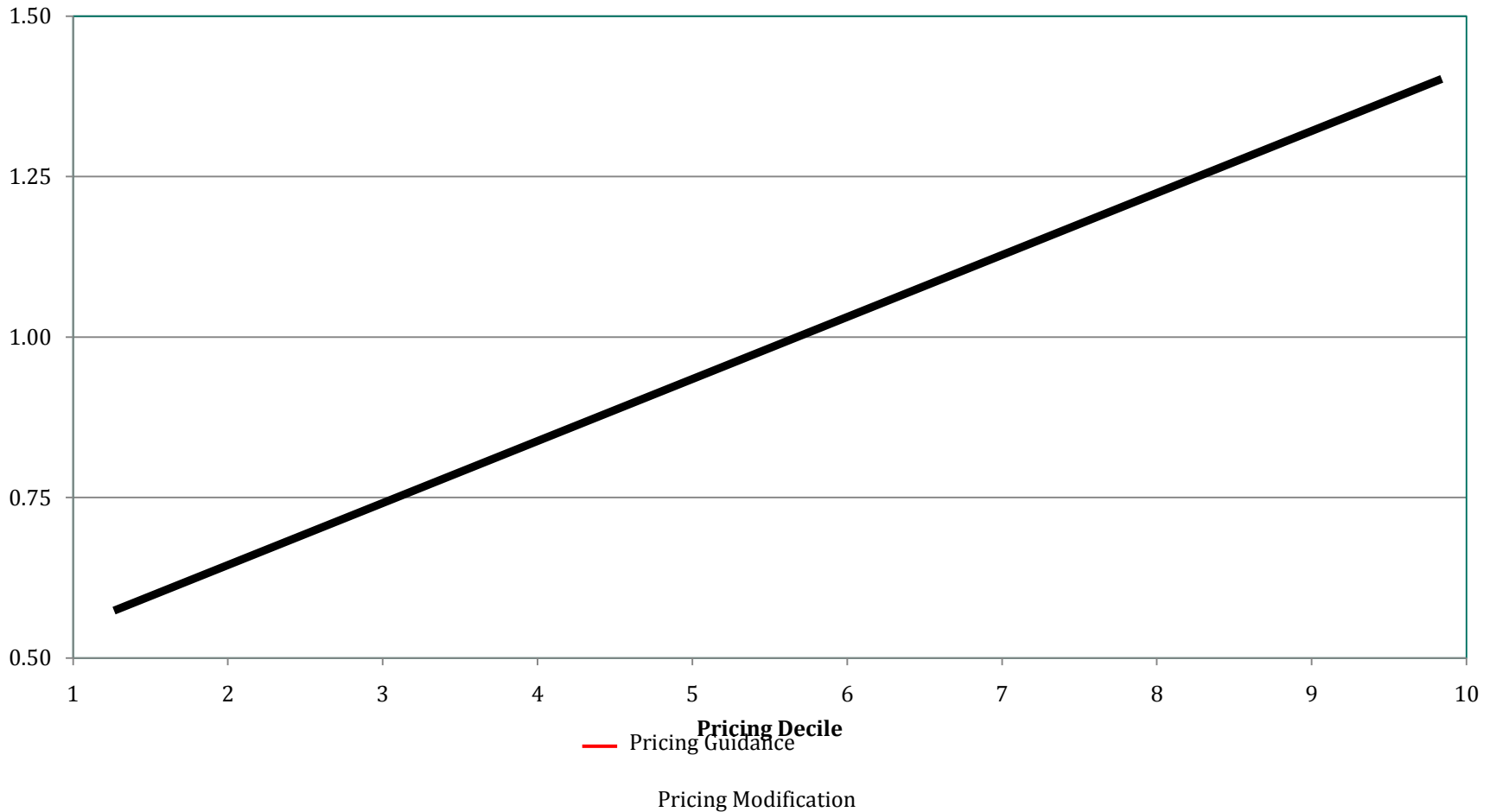
- Hit Ratios
- Retention Ratios
- Renewal Price Change
- Percent of Pricing Guidance/Manual
- Premium/Policy Mix Shifts
- Claim Frequency
- Limited Severity

## Dimensions

- Industry Segment
- State
- Pricing Guidance Bands
- Size of Account
- Agent

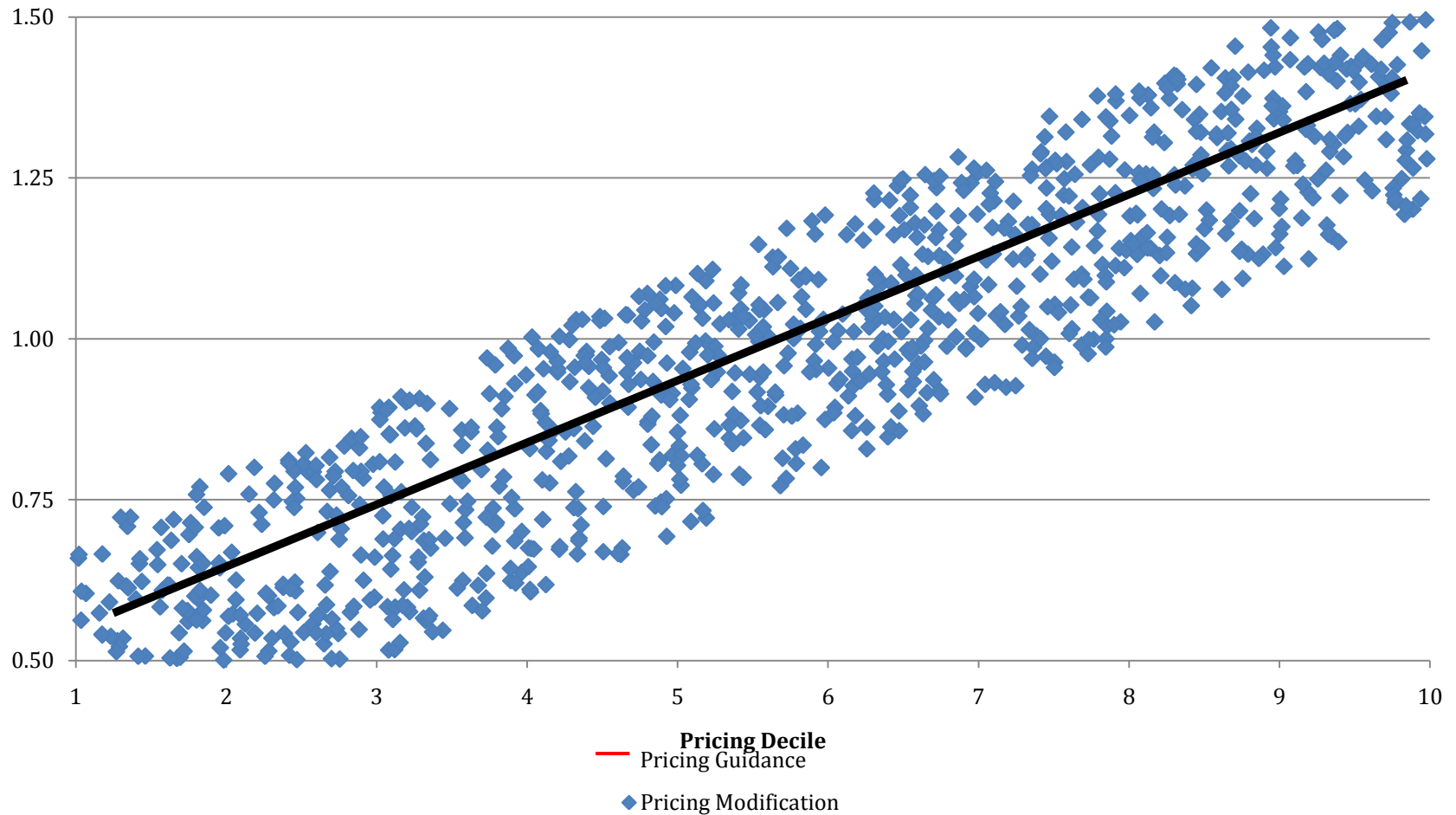
# Monitoring Indicated vs. Actual

## Pricing Modification



# What You Want to See

## Pricing Modification



# What You Sometimes Get



# Do whatever you want, I get to keep score...

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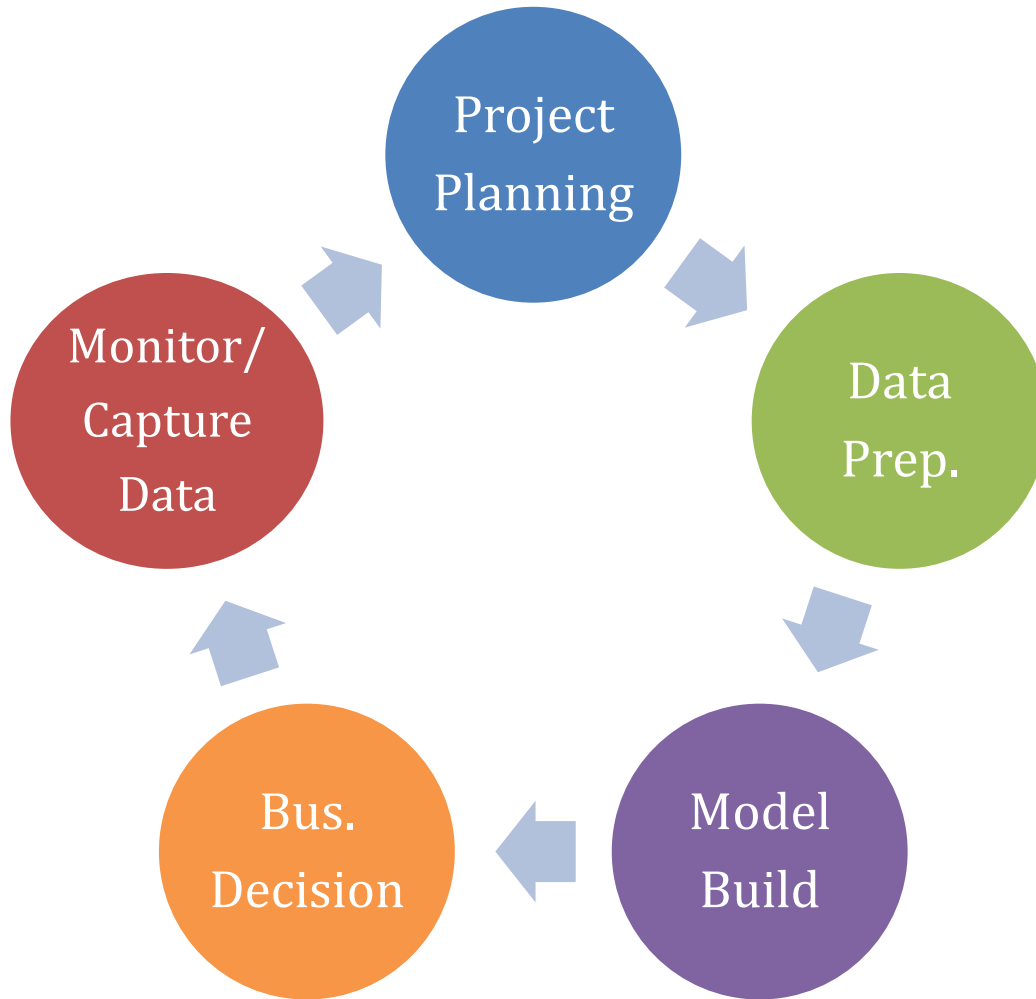
- Track Exception Accounts, Monitor Results
  - Individually or Collectively
  
- WC Combined Ratio Comparison
  - Actual Pricing 85% of Indicated or Less – 150%
  - Between 90% and 110% of Indicated – 105%
  - Greater than 115% of Indicated – 88%

# “Every New Beginning Comes From Some Other Beginning's End...”

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- We know it works, they're using it or Rob told me so, but we don't capture it.
- Solutions:
  - Commit to collecting them as a project objective – at the beginning of the project
  - Expect it as a project deliverable
  - Plan for implementing it, just like other deliverables
- Do Not:
  - Try to capture everything at once.
  - Overlook this step and still expect the data to be better in three years.

# The Predictive Modeling Process



# Thank You for Your Attention



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## Underwriting Power Tools for Small Business Insurance

By Robert J. Walling, III, FCAS, MAAA

Commercial lines insurers are moving faster than ever to develop sophisticated underwriting tools for their small business insurance programs.

One of the most popular innovations is an underwriting scorecard that quantifies the impact of a variety of factors into the rating process. By providing greater pricing accuracy, scorecards offer advantages including more accurate risk pricing, better

tier almost five-and-a-half times the low before mo



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## Improving Commercial Casualty Claims Handling with Predictive Analytics

By Robert J. Walling, III, FCAS, MAAA

Insurance companies are constantly seeking competitive advantages that will result in superior underwriting results. Over the last decade and more, many insurers have looked to predictive analytics to develop sophisticated pricing tools. As predictive modeling moves from an underwriting best practice to an industry standard, claims data mining applications are becoming a

variables such as the likelihood of fraud, attorney involvement, or a verdict for the plaintiff.

Target variables related to loss severity are particularly interesting and include useful measures to triage newly reported claims such as the:

- Likelihood of severity more than twice the average for a given injury type

September 2007

## Commercial Auto Predictive Modeling: The Time Is Now

By Robert J. Walling, III, FCAS, MAAA

The time has come for commercial auto insurance to benefit from the same predictive modeling techniques and strategies that have been a boon to personal lines insurance products.

between 25% and 40% of personal auto rates when it compared commercial auto rates for private passenger-type vehicles to personal auto rates for similar drivers and vehicles. The

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