Default Question Block

Introduction

The Committee on Life Insurance Mortality and Underwriting Surveys of the Society of Actuaries is undertaking a survey regarding predictive modeling in the life insurance industry.

The objective of the survey is to gather information on behalf of the industry about the degree of the use of predictive modeling and the tools and methods used by life insurance companies to optimize results. It should be noted that while predictive modeling has been utilized by the casualty industry for many years, it is now only in the initial phases of development and use in the life insurance industry. This survey intends to take a snapshot of the current status of this development. This survey includes sections on:

- Demographic Information
- Marketing
- Underwriting
- Reinsurance
- Claims
- Risk Mitigation
- Regulatory Issues
- Market Conduct

Please complete the survey for your company's US individual life and annuity business. Life insurance and annuity amounts should be on a gross basis, before reinsurance ceded.

Please note that survey responses are submitted to the Society of Actuaries and individual responses will be kept confidential.

Definition of Predictive Modeling

Predictive modeling is a process used in predictive analytics to create a statistical model of future behavior. Predictive analytics is the area of data mining concerned with forecasting probabilities and trends. A predictive model is based on a number of predictors, factors that are likely to influence or predict future behavior.
The model output is a set of factors that predict, at some confidence level, the outcome of an event. In marketing, for example, a customer's gender, age and purchase history might predict the likelihood of a future sale.

To create a predictive model, data is collected for the relevant factors, a statistical model is formulated. The model is then fitted or trained and validated on out-of-sample data. At that point, predictions can be made. The model may employ a simple linear or a more complex nonlinear relationship.

Contact Information:

Name:

Title: _____

Company:

Address: _____

City:

State:

Zip Code: _____

Phone #:

Email Address: _____

I. Demographic Information

The purpose of this section is to collect some information about your company and its market(s). Please do not complete this survey if you represent a consulting firm.

1. What is your company size, based upon new life insurance face amount issued in 2009?

   ◯ Small (less than $1 billion)

   ◯ Medium (between $1 billion and $50 billion)

   ◯ Large (more than $50 billion)

2. What type of life insurance company do you work for?

   ◯ Stock

   ◯ Mutual

   ◯ Fraternal

   ◯ Other (please describe)

   |

3. Is your company the life affiliate of a multi-line insurance group?

   ◯ Yes

   ◯ No

4. Is your company a direct writer or a reinsurer?

   ◯ Direct writer

   ◯ Reinsurer

II. Marketing

The purpose of this section is to address the predictive modeling techniques used in various distribution channels for marketing life and annuity products.

1a. Is your company currently using or considering using predictive modeling to enhance sales and marketing practices or strategies? (Check appropriate boxes)

	Currently Using	Considering Using	Not Considering
Cross-selling to current customers	○	○	○
Lead Generation	○	○	○
Level of Future Sales	○	○	○
Target Marketing	○	○	○
Up-selling to current customers	○	○	○
Other (please describe)	○	○	○

Comments:

1b. If your company is not using predictive modeling to enhance sales and marketing practices or strategies, please click here:

○ No

2. If currently using or considering using in sales and marketing, was (or will) the system (be) internally developed or purchased from outside vendor?

○ Internally developed

○ Purchased / Leased*

○ Purchased, but significantly modified

○ Other (please describe)

*From whom did you purchase/lease and what is the name of the software package?

Comments:

3. If currently using or considering using a predictive model in sales and marketing, please indicate what data was considered in developing the model: (Check all that apply)

	Currently Using	Considering Using
Age	○	○
Commercial Applications (e.g., LexisNexis)	○	○
Competitiveness of Premium	○	○
Credit Reports	○	○
Financial Data	○	○
Gender	○	○
Lifestyle Data (e.g., shopping habits)	○	○
Motor Vehicle Record (MVR)	○	○
Other (please describe)	○	○

Comments:

4. In which distribution channels have these practices been used or considered?

	Currently Using	Considering Using	Not Considering
Affiliated Agents	○	○	○
Banks / Financial Institutions	○	○	○
Credit Unions	○	○	○
Direct Mail	○	○	○
Individual Agent / Broker	○	○	○
Internet	○	○	○
Specialized Print Media	○	○	○
Telemarketing	○	○	○
TV / General Print Media	○	○	○
Other (please describe)	○	○	○

Comments:

5. Is your company currently using or considering using predictive modeling in the sale and marketing of the following plans?

	Currently Using	Considering Using	Not Considering
Annuities - Deferred	○	○	○
Annuities - Immediate / Payout	○	○	○
Final Expense	○	○	○
Fully Underwritten Life - Permanent	○	○	○
Fully Underwritten Life - Term	○	○	○
Guaranteed Issue Life	○	○	○
Simplified Issue Life	○	○	○
Other (please describe)	○	○	○

Comments:

III. Underwriting

The purpose of this section is to gather information on how companies are using predictive modeling in underwriting assessment and classification.

1a. Is your company currently using or considering using predictive modeling in underwriting the following products (fully underwritten, blood tested)?

	Currently Using	Considering Using	Not Considering
Term Life	○	○	○
Universal Life	○	○	○
Variable Life	○	○	○
Whole Life	○	○	○
Other (please describe)	○	○	○

Comments:

1b. If your company is not using predictive modeling in underwriting the above products, please click here:

○ No

2. If currently using or considering using predictive modeling in underwriting, please indicate the appropriate products and risk categories: (Check all that apply)

	Preferred Risks Only	All Non-Rated (Standard or Better) Risks	All Risks (Standard and Sub-Standard)	Other (please describe*)
Term Life	○	○	○	○
Universal Life	○	○	○	○
Variable Life	○	○	○	○
Whole Life	○	○	○	○
Other (please describe)	○	○	○	○

*Please describe Other:

Comments:

3. If currently using or considering using predictive modeling in underwriting, please indicate how the system was developed:

	Currently Using	Considering Using
Externally Purchased / Leased*	○	○
Internally Developed	○	○
Purchased, but significantly modified	○	○
Other (please describe)	○	○

*From whom did you purchase/lease and what is the name of the software package?

Comments:

4a. How is predictive modeling used in underwriting? (Check all that apply)

	Yes	No	Considering
Rating determination	○	○	○
Trigger additional underwriting information	○	○	○
Risk class selection	○	○	○
Significant data forwarded to underwriter for additional action	○	○	○
Other (please describe)	○	○	○

4b. For any of the uses chosen above, is a "score" or decision generated automatically?

Comments:

5. If currently using or considering using a predictive model in underwriting, please indicate what data was considered in developing the model: (Check all that apply)

	Currently Using	Considering Using
Build	○	○
Commercial applications (e.g., LexisNexis)	○	○
Company mortality experience	○	○
Company underwriting data	○	○
Credit reports	○	○
Demographics (e.g., age, gender, etc.)	○	○
Family history	○	○
Financial data	○	○
Industry mortality experience	○	○
Industry underwriting data (e.g., laboratory studies)	○	○
Insurance Activity Index (IAI) from MIB	○	○
Lab test results for individual applicants	○	○
Lifestyle data	○	○
Medical studies (e.g., NHANES, Framingham, Internet research, etc.)	○	○
MIB	○	○
MVR	○	○
Pharmaceutical records	○	○

Reinsurance manual	○	○
Other (please describe)	○	○

Comments:

[text box]

Please use the following definition of Simplified Issue when answering questions 6 through 9.

Simplified Issue

"Simplified Issue" can mean different things to different people. To provide the most meaningful and consistent results, we ask respondents not to provide information on products with any of the following characteristics:

Not:
- Nonmedical band of a fully underwritten product
- Routinely required paramedical examinations
- Routinely collected bodily fluids
- Agent-collected oral fluid or urine
- Guaranteed issue products
- COLI/BOLI products
- Credit insurance products
- "Group" products other than affinity groups solicited by mass marketing
- Juvenile-only products (e.g., under age 16)
- Annuity products
- Accidental death

6a. Is your company currently using or considering using predictive modeling in underwriting assessment and classification of simplified issue products?

	Currently Using	Considering Using	Not Considering
Final Expense	○	○	○
Term Life	○	○	○
Universal Life	○	○	○
Whole Life	○	○	○
Other (please describe)	○	○	○

Comments:

[text box]

6b. If your company is not using predictive modeling in underwriting assessment and classification of simplified issue products, please click here:

○ No

7. If currently using or considering using predictive modeling in underwriting simplified issue products, please indicate the appropriate products and risk categories: (Check all that apply)

	Preferred Risks Only	All Non-Rated (Standard or Better) Risks	All Risks (Standard and Sub-Standard)	Other (please describe*)
Final Expense	○	○	○	○
Term Life	○	○	○	○
Universal Life	○	○	○	○
Whole Life	○	○	○	○
Other (please describe)	○	○	○	○

*Please describe Other:

Comments:

8. If currently using or considering using predictive modeling in underwriting simplified issue products, please indicate how the system was developed:

	Currently Using	Considering Using
Externally Purchased / Leased*	○	○
Internally Developed	○	○
Purchased, but significantly modified	○	○
Other (please describe)	○	○

*From whom did you purchase/lease and what is the name of the software package?

Comments:

9. If currently using or considering using a predictive model in underwriting simplified issue products, please indicate what data was considered in developing the model: (Check all that apply)

	Currently Using	Considering Using
Build	○	○
Commercial applications (e.g., LexisNexis)	○	○
Company mortality experience	○	○
Company underwriting data	○	○
Credit reports	○	○
Demographics (e.g., age, gender, etc.)	○	○
Family history	○	○
Financial data	○	○
Industry mortality experience	○	○
Industry underwriting data (e.g., laboratory studies)	○	○
Insurance Activity Index (IAI) from MIB	○	○
Lab test results for individual applicants	○	○
Lifestyle data	○	○
Medical studies (e.g., NHANES, Framingham, Internet research, etc.)	○	○
MIB	○	○
MVR	○	○
Pharmaceutical records	○	○
Reinsurance manual	○	○
Other (please describe)	○	○

Comments:

IV. Reinsurance

The purpose of this section is to gather information about potential inputs from reinsurers regarding the use of predictive modeling. Please note there is a section for direct writers and for reinsurers.

Direct writers only

1. Has your company sought or considered reinsurance support / advice for predictive modeling?

○ Yes

○ No

If no, why not?

[ ]

2. If yes, in which areas has your company sought or considered reinsurance support / advice for predictive modeling?

	Yes	No	Considering	N / A
Claims forecasting	○	○	○	○
IBNR	○	○	○	○
Marketing (i.e., target market)	○	○	○	○
Pricing assumptions	○	○	○	○
Underwriting assessment and classification	○	○	○	○
Other (please describe)	○	○	○	○

Comments:

[ ]

3. Have the reinsurers been receptive to the application or use of predictive modeling techniques?

○ Yes

○ No

If no, what reason(s), if any, were given for the reluctance of the reinsurer(s) to embrace predictive modeling?

[ ]

Comments:

[ ]

Reinsurance providers only

4. As a reinsurer, has your company applied predictive modeling for any of the following functions? (Check all that apply)

	Yes	No	Considering	N / A
Claims forecasting	○	○	○	○
Facultative placement models	○	○	○	○
IBNR	○	○	○	○
Marketing (i.e., target market)	○	○	○	○
Pricing assumptions	○	○	○	○
Underwriting assessment and classification	○	○	○	○
Other (please describe)	○	○	○	○

Comments:

V. Claims

The purpose of this section is to elicit information regarding claims' procedures and evaluations as a result of predictive modeling.

1a. Is your company currently using or considering using predictive modeling in any of the following situations? (Check all that apply)

	Currently Using	Considering Using	Not Considering
Adjustments to expected rescission rates	○	○	○
Calculating/estimating incurred but not reported claims	○	○	○
Triggering a rescission action	○	○	○
Triggering different levels of life claims investigation	○	○	○
Other (please describe)	○	○	○

Comments:

1b. If your company is not using predictive modeling in any of the above situations, please click here:

○ No

2. If currently using or considering using predictive modeling for determining claim investigation requirements, what relevant factors have you identified which have been incorporated into your model? (Check all that apply)

	Currently Using	Considering Using	Not Considering
Age of the insured at claim time	○	○	○
Age of the insured at issue	○	○	○
Agency submitting the claim	○	○	○
Cause of death	○	○	○
Date from expiration of contestable period	○	○	○
Date from policy issue	○	○	○
Documentation submitted with original claim	○	○	○
Face amount	○	○	○
Gender	○	○	○
Post contestable issue claims to identify true fraud as opposed to material misrepresentation	○	○	○
Other (please describe)	○	○	○

Comments:

3. Has your company identified factors through the use of predictive modeling which automatically trigger a fraud investigation?

	Currently Using	Considering Using	Not Considering
Age of the insured at claim time	○	○	○
Age of the insured at issue	○	○	○
Agency submitting the claim	○	○	○
Cause of death	○	○	○
Date from expiration of contestable period	○	○	○
Date from policy issue	○	○	○
Distribution channel	○	○	○
Documentation submitted with original claim	○	○	○
Face amount	○	○	○
Gender	○	○	○
Post contestable issue claims to identify true fraud as opposed to material misrepresentation	○	○	○
Other (please describe)	○	○	○

Comments:

4. Has your company identified factors through the use of predictive modeling which might expedite a <u>claim approval</u>?

	Currently Using	Considering Using	Not Considering
Age of the insured at claim time	○	○	○
Age of the insured at issue	○	○	○
Agency submitting the claim	○	○	○
Cause of death	○	○	○
Date from expiration of contestable period	○	○	○
Date from policy issue	○	○	○
Distribution channel	○	○	○
Documentation submitted with original claim	○	○	○
Face amount	○	○	○
Gender	○	○	○
Post contestable issue claims to identify true fraud as opposed to material misrepresentation	○	○	○
Other (please describe)	○	○	○

Comments:

VI. Risk Mitigation

The purpose of this section is to obtain information regarding risk mitigation strategies that are in place or being considered to reduce the risk associated with the use of predictive modeling.

1. For your various predictive models, please indicate whether you have considered the risks associated with the use of the model and whether these risks can be mitigated. (Check all that apply)

	Have you considered the risks?			If yes, have you been able to mitigate the risks?	
	Yes	No	Not Using	Yes	No
Claims forecasting	○	○	○	○	○

Future sales	○	○	○	○	○
IBNR	○	○	○	○	○
Pricing assumptions	○	○	○	○	○
Underwriting assessment and classification	○	○	○	○	○
Other (please describe)	○	○	○	○	○

Comments:

[   ]

2. The primary risk associated with any predictive model is that the model doesn't do a good job of prediction. This may or may not have a material impact on the company, depending upon what is being modeled. Please indicate below strategies you may be using to limit your exposure to this risk. (Check all that apply)

☐ Implement stringent claim administrative procedure

☐ Include risk premium

☐ Limit coverage period

☐ Limit face amount

☐ Limit maximum issue age

☐ Perform post-issue analysis of emerging experience

☐ Use multiple predictive modeling techniques

☐ Limit products utilizing predictive modeling

☐ Limit marketing channel

☐ Operate in clearly defined markets for products using predictive modeling

☐ Vary compensation if a product uses predictive modeling

☐ Other (please describe)

Comments:

[   ]

3. If your company limits the face amount, please indicate the maximum face amount.

	< $50K	$50 - < $100K	$100 - $250K	$250 - < $500K	$500K and >
Under 40	○	○	○	○	○
40 - 59	○	○	○	○	○
60 - 70	○	○	○	○	○

Over 70	○ ○	○	○ ○

Comments:

4. If your company limits the coverage period, please indicate the maximum term.

	Yes	No	Considering
5 - 10 years	○	○	○
11 - 15 years	○	○	○
16 - 20 years	○	○	○
To age 65	○	○	○
To age 70	○	○	○
To age 75	○	○	○
To age 80	○	○	○
To age 95	○	○	○
Other (please describe)	○	○	○

Comments:

5a. Has your company modified, changed or created any internal procedures based on analysis of predictive modeling results?

○ Yes

○ No

5b. If yes, in what areas of your company have procedural changes been made? (Check all that apply)

	Yes	No	Considering
Asset Liability Management	○	○	○
Claims	○	○	○
Legal	○	○	○
Marketing	○	○	○
Pricing	○	○	○
Risk Management	○	○	○
Underwriting	○	○	○

Valuation   ○   ○   ○
Other (please describe)   ○   ○   ○

Comments:

VII. Regulatory Issues

Statutes and the interpretations of insurance regulations must always be weighed when a company is considering the use of a new tool or process that could impact pricing or valuation. The purpose of this section is to elicit information about these new tools and processes as it relates to regulatory issues.

1. Has your company explored any existing or potential regulatory issues related to the use of predictive modeling in the following areas within your company? (Check all that apply)

☐ Claims forecasting

☐ IBNR

☐ Marketing (i.e., target market)

☐ Pricing assumptions

☐ Underwriting assessment and classification

☐ Other (please describe)

Comments:

VIII. Market Conduct

The purpose of this section is to elicit information from companies regarding market conduct issues arising from the use of predictive modeling.

1. Has your company identified any market conduct issues related to the use of predictive modeling?

○ Yes

○ No

2. If yes, which models have you identified that have issues: (Check all that apply)

☐ Claims adjudication

☐ Marketing

☐ Pricing assumptions

☐ Underwriting assessment and classification

☐ Other (please describe)

Comments:

3. For the models chosen above, what market conduct issues have you considered? (e.g., legal, compliance)

4. Additional comments:

STOP!

You have reached the end of the survey. Clicking on the "Next" button will submit your answers, so please make sure you have responded to all of the questions before doing so. Thank you.