

## Predictive modeling comes to life

SEAC – Fall Meeting 2010  
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**ERNST & YOUNG**  
*Quality In Everything We Do*

## Agenda

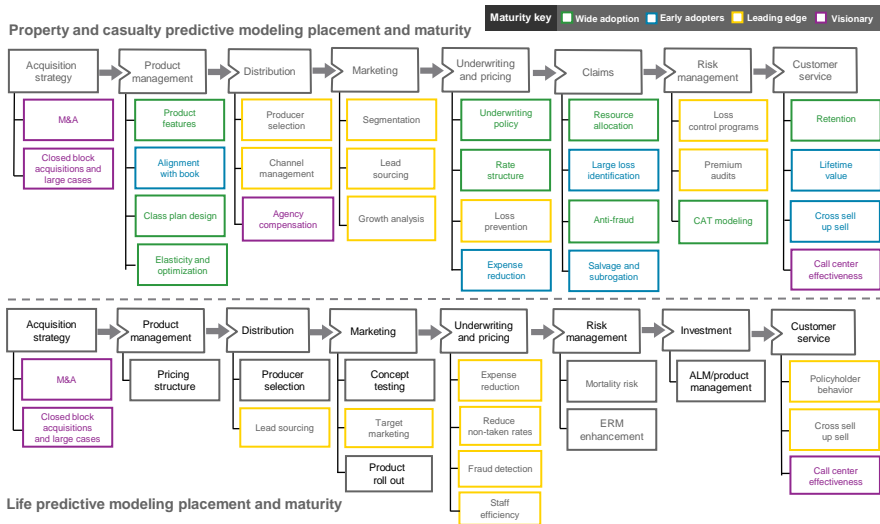
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- ▶ Predictive modeling impact to growth and profit agendas in the P&C and life insurance industry
- ▶ Applications of predictive modeling in life insurance underwriting
- ▶ Applications of predictive modeling in life insurance target marketing
- ▶ Summary

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Page 1 Predictive modeling comes to life

## Predictive modeling is used at varying levels across P&C and life insurance value chains



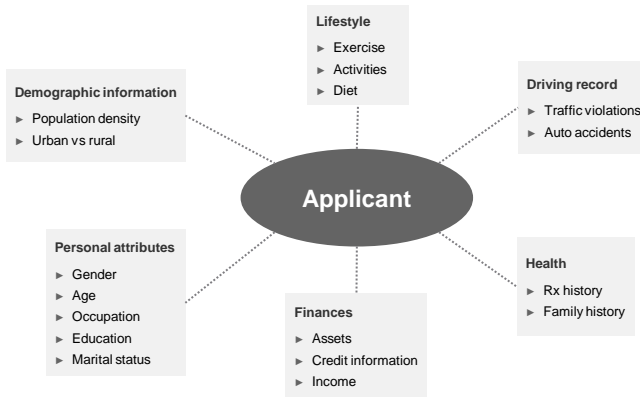
## Value of predictive modeling in the life insurance underwriting process

<b>Traditional underwriting</b>	<ul style="list-style-type: none"> <li>▶ Involves tests for life insurance applicants based on factors such as age and insurance amount</li> <li>▶ Tests lead to higher non-taken rates and higher costs because they are invasive, time-consuming and expensive</li> </ul>
<b>Automated underwriting</b>	<ul style="list-style-type: none"> <li>▶ System interfaces utilizing straight-through processing reduces the need to enter data manually</li> <li>▶ Traditional underwriting processes are assisted by workflow tools, automated task assignment and load balancing - "right case to the right underwriter at the right time"</li> <li>▶ Rules-based approaches further streamline the underwriting process through application questionnaires with drill-down capabilities linked to automated decisioning and test ordering</li> </ul>
<b>Predictive modeling</b>	<ul style="list-style-type: none"> <li>▶ Predictive modeling is used to improve efficiencies with rules-based approaches</li> <li>▶ When leveraged with existing data sources, predictive modeling better targets underwriting tests to applicants who benefit from the additional risk assessment. Tests that do not typically result in a better underwriting decision for the applicant are eliminated.</li> <li>▶ When additional data sources are utilized, predictive modeling can further enhance underwriting rules to utilize data that is less expensive and more readily available than traditional underwriting tests. With the right infrastructure, many applicants can receive an underwriting decision that can be measured in minutes and hours instead of days and weeks.</li> </ul>

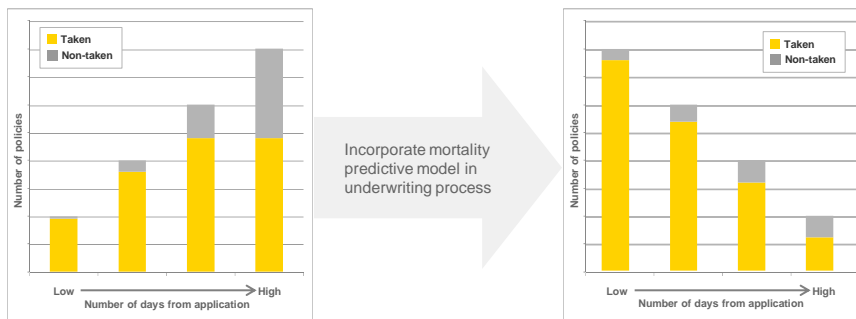
**There has been a concentrated push in the life insurance industry to produce more immediate underwriting decisions for as many policies as possible, while maintaining a competitive product offering. Companies that utilize automated underwriting and predictive modeling techniques have realized a competitive advantage relative to their peers resulting from a faster underwriting decision for more applicants at a lower cost.**

# Predictive modeling reduces the need for physical tests

## Efficiency benefit



# Predictive modeling can increase sales



- ▶ Non-taken rate is materially higher when the underwriting process is lengthy
- ▶ Predictive modeling can provide a structured and efficient underwriting process to:
  - ▶ Process more applications earlier
  - ▶ Reduce non-taken rates

## Predictive modeling can increase profit

### Efficiency benefit

Illustrative example:

	Traditional approach	Predictive modeling approach
Number of new policies	100,000	100,000
Average premium/policy	\$ 800	\$ 800
*Average medical underwriting costs/policy	\$ 150	\$ 90
Non-taken rate	8%	5%
Expense savings		\$ 6,000,000
Profit on additional policies		\$ 620,000
<b>Total potential benefit</b>		<b>\$ 6,620,000</b>
<b>Benefit as a percentage of original premium</b>		<b>8%</b>

\*Includes predictive modeling data costs

The more applicants that predictive modeling techniques and alternative data sources can achieve an underwriting decision without the use of medical underwriting tests, the greater the cost savings that can be achieved.

## Value of predictive modeling in life insurance target marketing

- ▶ Predictive modeling can be used in life insurance target marketing through lead sourcing programs that better identify potential policyholders that are more likely to purchase
- ▶ Redacted version of underwriting predictive model can be used to develop a lead sourcing program that identifies potential policyholders that are either better risks, or of greater lifetime value to the insurance organization
- ▶ Advantages of using predictive modeling in life insurance target marketing:
  - ▶ More efficient allocation of marketing budget to more proven lead sourcing programs
  - ▶ Proper customer alignment between marketing and underwriting optimizes the acceptance rate
  - ▶ More efficient and timely identification of geographic regions with greater sales opportunities and potentially profitable policyholders

## Exemplar target marketing list based on predictive model results

Score	Nearest Agent	Name	Address	City	Zip	Phone
0.178	AGENT 6	VICTOR YAW AGADZI	3400 N BROAD ST	MILTON	19428-1567	555-243-6361
0.210	AGENT 1	DEBORAH A DONI ON	440 S PACIFIC AVE	PHILADELPHIA	17110-3670	555-981-1041
0.236	AGENT 2	ROMAN J SAI	14 LANCASTER AVE	FOUNTAIN HILL	15232-1521	555-648-5466
0.245	AGENT 1	JACKSON L STRAUB	200 LOthrop, ST CRO	PITTSBURGH	19139-2718	555-707-0341
0.247	AGENT 9	TED J SON	1601 P NN AVE AP	FOUNTAIN HILL	16505-2248	555-456-8668
0.251	AGENT 3	MICHELLE CHEA HAM	140 S PACIFIC AVE	PHILADELPHIA	17110-3670	555-981-1041
0.255	AGENT 1	JOSE E SERRA	301 S 7TH AVE STE 245	PHILADELPHIA	15853-1204	555-391-1722
0.255	AGENT 10	EDWIN N LEE	551 LAFAYETTE RD	MECHANICSBURG	17853-0016	555-493-6654
...						
0.568	AGENT 1	TERRI LAURALYN ASHMEADE	529 WATERFRONT DR E	FOUNTAIN HILL	17403-3634	555-456-3638
0.582	AGENT 7	ANTONIA EUGENIA RUCK	3000 2095	HERSCHEY	19130-3010	555-590-3142
0.587	AGENT 2	HEMANT DESAI	302 FIELDS ONE CT	PHILADELPHIA	19087-1462	555-662-6250
0.592	AGENT 8	RAPHAEL KRUMHOLTZ	BALAFZITE 402	PITTSBURGH	18337-7671	555-853-5733
0.593	AGENT 10	EARL JEFFREY COLEMAN	10 SOUTH ST STE 206	PHILADELPHIA	16801-2737	555-272-2460
0.596	AGENT 4	JORGE LEONARDO PEREZ	325 WILMINGTON RD	PITTSBURGH	17821-8438	555-453-1614
0.597	AGENT 6	MARTIN ANTHONY GARCIA	423 SERVICE DR	LEBANON	19380-6901	555-757-3765
0.599	AGENT 8	ARIN HOWARD NEWMAN	122 EVERGREEN CIR	GLENSHAW	19144-4310	555-843-9501
...						
0.899	AGENT 7	ENOS PEREZ	320 LINDMAN DR	HAVERFORD	19047-5736	555-763-1233
0.899	AGENT 7	VIRGIL ENRIQUE SKLANSKY	218 S WILMINGTON RD	PHILADELPHIA	15136-4006	555-456-2062
0.904	AGENT 7	IAN COREY BOYKIN	309 CAY ST	PITTSBURGH	19446-5338	555-648-1575
0.906	AGENT 1	JULIAN ARNOLD KYRIAKOS	22 EVERGREEN CT	GLENSHAW	19144-4310	555-843-9501
0.906	AGENT 1	AUGUSTIN J SCHWARTZ III	4 ANCASTER AVE	PHILADELPHIA	15232-1521	555-648-5466
0.917	AGENT 8	JACK ANDRU ROSS	250 KING OF PRUSSIA RD	NORTHUMBERLAND	17033-0850	555-649-3683
0.918	AGENT 7	GREGORY K SLOAN	1251 S CEDAR CREST BLVD	BRYN MAWR	19063-5136	555-946-4257
0.922	AGENT 8	BOBBI DARLEEN BAKER	1 GUTHRIE SQ	WILKES BARRE	19096-1212	555-635-6543

## Summary

### ▶ Leading Company Initiatives

- ▶ Better understanding of the value chain components driving the company's profit and growth agenda
- ▶ Brainstorming sessions to identify predictive modeling initiatives that have the greatest potential value to the organization
- ▶ Feasibility studies to evaluate the business case for predictive modeling initiatives
- ▶ Transformation of business operations to include predictive modeling applications in areas with a proven business case