Automated Underwriting: Threat or Opportunity?

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Introduction
The pace of change

Ever feel overwhelmed by the pace of change?

<table>
<thead>
<tr>
<th></th>
<th>1997 High End Desktop</th>
<th>2012 Smartphone</th>
<th>Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>266 MHz</td>
<td>1.5 GHz</td>
<td>10x faster</td>
</tr>
<tr>
<td>Memory</td>
<td>32 MB</td>
<td>1.5 GB</td>
<td>48x more</td>
</tr>
<tr>
<td>Storage</td>
<td>4.3 GB</td>
<td>32 GB</td>
<td>8x more</td>
</tr>
<tr>
<td>Cost</td>
<td>$2,800</td>
<td>$600</td>
<td>Fifth of price</td>
</tr>
<tr>
<td>Weight</td>
<td>25-30 pounds</td>
<td>5 ounces</td>
<td>1% of weight</td>
</tr>
</tbody>
</table>

iPad adoption hit 20 million devices in just 15 months.
Automated Underwriting

A long and winding road!

- **80's / 90's**: First systems implemented
- **Late 1990's**: Internet changes everything!
- **Early 2000's**: Emergence of tele-underwriting
- **Mid 2000's**: Direct internet sales
- **2013**: Automation now a ticket to the game!
- **2010 onwards**: First deployments on mobile devices

Limit success and lack of ROI
How will automation affect me?

"Is my job in danger with potentially less cases requiring underwriting?"

"In addition to everything else do I now have to become IT expert?"

"Is my company going to be able to keep pace with these changes?"
The market perspective
Simplifying the process

- The move to simplified underwriting and the increased focus on the middle market is driving the adoption of automated underwriting.

- In a recent survey referenced 18% of companies say they are considering developing a direct internet channel in the next 5 years (31% for large companies).

Source: Simplified Issue Survey 2012, Hank George Inc
Underwriting can now take place across a range of environments:

- **Direct Internet**
- **Mobile**
- **Paper / Head Office**
- **Agent / Broker**
- **Branch**

**Tele-underwriting**
The global perspective

- In the UK, South Africa, Asia & Australia, around 50% - 80% of all life insurance is assessed automatically.

- While some companies have reduced underwriting staff, the largest firms still have large underwriting teams.

- The role of the underwriter has changed and those that have rule engine experience are highly sought after.

*Underwriting engines: the new strategic imperative in life and disability business*
...And the picture in Continental Europe

The Company I currently work for is...
1. Not considering an automated UW Engine
2. Currently considering an automated UW Engine
3. Currently implementing an automated UW Engine
4. Already has an automated UW Engine in place
5. None of the above
A similar story in North America

Does your company currently use a rules-based underwriting engine to process and interpret at least some data traditionally reviewed by underwriters?

- **Yes**: 16.3%
- **No, but we are considering or in the process of acquiring/implementing**: 40.4%
- **No, we used an engine at one time but stopped using it**: 1.0%
- **No, we considered using an engine but decided not to do so**: 7.7%
- **No, we have not considered this as yet**: 34.6%

Source: Automated Life Underwriting: Phase 2 Study of Automated Life Insurance Underwriting 2010 Society of Actuaries,
The "new" underwriter
Underwriter objections to automation

Some common reasons underwriters have negative perceptions about engine-based underwriting

- Fear of the impact on job security
- Pushback from some advisers
- Not being comfortable defending engine decisions
- Underwriting is a science and an art (no longer true?)
So, how might the role of underwriter change?

Today
- Case Assessment: 70%
- Research/Standards: 15%
- Product Development: 10%
- Application Design: 5%

Future
- Case Assessment: 50%
- Rule Development: 20%
- Analytics: 20%
- Application Design: 10%
Rule development – the old way!

//SMITH1 JOB 1,LEO,MSGCLASS=X // EXEC PGM=IEFBR14 //NEWDS DD DSN=SMITH.LIB.CNTL,DISP=(NEW,CATLG),VOL=SER=WORK02, // UNIT=3390,SPACE=(CYL,(3,1,25) //OLDDS DD

//ADDPROC1 JOB 1,SMCHUGH,MSGCLASS=X // EXEC PGM=IEBUPDTE //SYSPRINT DD SYSOUT=* //SYSUT1 DD DISP=OLD,DSN=MY.PROCLIB //SYSUT2 DD DISP=OLD,DSN=MY.PROCLIB //SYSIN DD DATA ./ ADD LIST=ALL,NAME=MYJOB1 //STEP1 EXEC=SUZNX1 //PRINT DD SYSOUT=A // (more JCL for MYJOB1) //SYSUDUMP DD SYSOUT=* (last JCL for MYJOB1) ./ REPL LIST=ALL,NAME=LASTJOB //LIST EXEC PGM=SUZNLIST // (more JCL for this procedure) /* LAST JCL STATEMENT FOR LASTJOB ./ ENDUP /*SN=SMITH.OLD.DATA,DISP=(OLD,DELETE)

//SMITH2 JOB 1,GEOFF,MSGCLASS=X // EXEC PGM=IEBGENER //SYSIN DD DUMMY //SYSPRINT DD SYSOUT=X //SYSUT1 DD DISP=SHR,DSN=SMITH.SEQ.DATA //SYSUT2 DD DISP=(NEW,CATLG),DSN=SMITH.COPY.DATA,UNIT=3390, // VOL=SER=WORK02,SPACE=(TRK,3,3))
Rule development – the new way!

The days of hand written code are over!

Increasingly these tools are using visual development with simple drag-and-drop capabilities to give non-technical business users rule building ability. This eliminates the need for IT resources.
Analytics

Which of our salespeople are encouraging the clients to non-disclose and submit fraudulent applications?

What are the best questions on the application form for gathering disclosures. Which questions add little value?

How much of our medical budget is spent on cases that never complete?

How do different underwriting approaches compare e.g. tele-uw, direct internet, traditional?

How reliable is client disclosed information versus medical evidence for any given impairment?

We may have opinions on these questions but what are they based on?
The rise of business intelligence

Management Excellence: The Next Competitive Edge

There is a strong trend towards the use of management reporting to drive performance in two areas:

- Operational (transactional) excellence
- Management (strategic) excellence

Disclosure patterns and system effectiveness

Understanding the most frequently disclosure and how effectively they are assessed through the system

Top Impairments

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Total</th>
<th>% Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>mental_illness_major</td>
<td>54</td>
<td>68.5</td>
</tr>
<tr>
<td>back_disorders</td>
<td>39</td>
<td>97.4</td>
</tr>
<tr>
<td>hypertension</td>
<td>38</td>
<td>7.9</td>
</tr>
<tr>
<td>treatment_refer_major</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>asthma</td>
<td>35</td>
<td>97.1</td>
</tr>
<tr>
<td>growths_cysts_lumps_etc</td>
<td>24</td>
<td>41.7</td>
</tr>
<tr>
<td>lipids_raised</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>arthritis</td>
<td>15</td>
<td>80</td>
</tr>
<tr>
<td>dyspepsia</td>
<td>14</td>
<td>71.4</td>
</tr>
<tr>
<td>standard_for_all_contracts_respiratory_1</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>thyroid_gland_problem</td>
<td>12</td>
<td>58.3</td>
</tr>
<tr>
<td>fractures_breaks</td>
<td>11</td>
<td>100</td>
</tr>
<tr>
<td>epilepsy</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>hypertension_temporary</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>irritable_bowel_syndrome</td>
<td>9</td>
<td>77.8</td>
</tr>
</tbody>
</table>
## The reliability of client disclosed information

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
<th>Number of Applicants</th>
<th>% of Applicants</th>
<th>Completion rate</th>
<th>% Std</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you been admitted to hospital within the last 2 years with this condition?</td>
<td>No</td>
<td>15,606</td>
<td>98.7</td>
<td>64.1</td>
<td>87.4</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>213</td>
<td>1.3</td>
<td>57.3</td>
<td>55.0</td>
</tr>
<tr>
<td>Have you taken oral steroids in the last two years for this condition?</td>
<td>No</td>
<td>10,092</td>
<td>87.8</td>
<td>73.3</td>
<td>88.4</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1,403</td>
<td>12.2</td>
<td>68.1</td>
<td>77.5</td>
</tr>
<tr>
<td>Have you taken steroid tablets such as prednisolone in the last two years for this condition? (Please ignore inhaled steroids)</td>
<td>No</td>
<td>4,085</td>
<td>94.5</td>
<td>41.4</td>
<td>87.7</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>239</td>
<td>5.5</td>
<td>61.8</td>
<td>60.5</td>
</tr>
<tr>
<td>How many attacks have you had in the last two years?</td>
<td>0</td>
<td>8,823</td>
<td>82.9</td>
<td>60.8</td>
<td>88.2</td>
</tr>
<tr>
<td></td>
<td>1-3</td>
<td>1,606</td>
<td>15.1</td>
<td>55.7</td>
<td>78.9</td>
</tr>
<tr>
<td></td>
<td>4-10</td>
<td>159</td>
<td>1.5</td>
<td>52.2</td>
<td>81.9</td>
</tr>
<tr>
<td></td>
<td>over 10</td>
<td>59</td>
<td>0.6</td>
<td>52.5</td>
<td>77.4</td>
</tr>
</tbody>
</table>
Using data to reduce non-disclosure

Companies are looking to use the data captured through these systems to monitor agent behavior in terms of the quantity and quality of underwriting information

<table>
<thead>
<tr>
<th>Agent Number</th>
<th>Standard Rates (%)</th>
<th>Number of Lives</th>
<th>Average Age</th>
<th>Smoking Disclosure (%)</th>
<th>Impairment Disclosures (%)</th>
<th>Family History Disclosures (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent 420</td>
<td>62.5</td>
<td>128</td>
<td>29.24</td>
<td>22.66</td>
<td>43.75</td>
<td>16.41</td>
</tr>
<tr>
<td>Agent 421</td>
<td>42.68</td>
<td>82</td>
<td>37.52</td>
<td>15.85</td>
<td>67.07</td>
<td>32.93</td>
</tr>
<tr>
<td>Agent 422</td>
<td>45.45</td>
<td>33</td>
<td>32.21</td>
<td>9.09</td>
<td>60.61</td>
<td>9.09</td>
</tr>
<tr>
<td>Agent 423</td>
<td>59.09</td>
<td>44</td>
<td>30.93</td>
<td>25</td>
<td>43.18</td>
<td>18.18</td>
</tr>
<tr>
<td>Agent 424</td>
<td>46.15</td>
<td>39</td>
<td>29.21</td>
<td>15.38</td>
<td>41.03</td>
<td>15.38</td>
</tr>
<tr>
<td>Agent 425</td>
<td>58.62</td>
<td>29</td>
<td>33.28</td>
<td>20.69</td>
<td>37.93</td>
<td>6.9</td>
</tr>
<tr>
<td>Agent 426</td>
<td>47.69</td>
<td>65</td>
<td>33.35</td>
<td>9.23</td>
<td>64.62</td>
<td>12.31</td>
</tr>
<tr>
<td>Agent 427</td>
<td><strong>93.44</strong></td>
<td><strong>122</strong></td>
<td><strong>33.03</strong></td>
<td><strong>9.01</strong></td>
<td><strong>1.64</strong></td>
<td>0</td>
</tr>
<tr>
<td>Agent 428</td>
<td>73.08</td>
<td>52</td>
<td>28.79</td>
<td>11.54</td>
<td>17.31</td>
<td>5.77</td>
</tr>
<tr>
<td>Agent 429</td>
<td>42.11</td>
<td>38</td>
<td>36.5</td>
<td>18.42</td>
<td>42.11</td>
<td>7.89</td>
</tr>
<tr>
<td>Agent 430</td>
<td>57.14</td>
<td>28</td>
<td>29.07</td>
<td>10.71</td>
<td>60.71</td>
<td>21.43</td>
</tr>
</tbody>
</table>
Case Study

Disclosure rate changes following implementation of salesperson monitoring

- Data highlighted significant agent involvement in non-disclosure
- Remedial action taken including disciplinary in some cases
- Over the course of 12 month period a 13% increase in disclosure was observed
Application Form Design

Competing Pressures

Reduce Price
Increase quality of disclosure to enable more accurate risk segmentation & lower price

Simplify Process
Reduce application form questions & simplify process

<table>
<thead>
<tr>
<th>Question Wording</th>
<th>Yes</th>
<th>No</th>
<th>% Yes</th>
<th>% only disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest pain for which you have been referred to, or attended a hospital</td>
<td>898</td>
<td>33,894</td>
<td>2.6%</td>
<td>31.4%</td>
</tr>
<tr>
<td>Within the last month, have you started any new course of drug treatment or counselling?</td>
<td>507</td>
<td>25,434</td>
<td>2.0%</td>
<td>25.6%</td>
</tr>
</tbody>
</table>
Comparing underwriting process and/or distribution

Using data to understand and predict the experience for new underwriting approaches and how these will likely vary from traditional underwriting models

Tele-UW vs Traditional UW

Difference in disclosure levels does lead to higher ratings
Summary

- Technology advances are having a major impact on the underwriting process
- The pace of change is increasing
- The role of the underwriter is vital but will be potentially quite different in the future
- Keys to adapting to the future
  - Remain open and interested in new developments
  - Encourage your company to embrace technology that puts the business (rather than the IT department) in control, and the customer at the center
  - Get involved & enjoy the journey!
Do you have any questions?
Thank you
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