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ASIA

Life Score Health Model Concept Test Report

Feb 25, 2022

Agenda

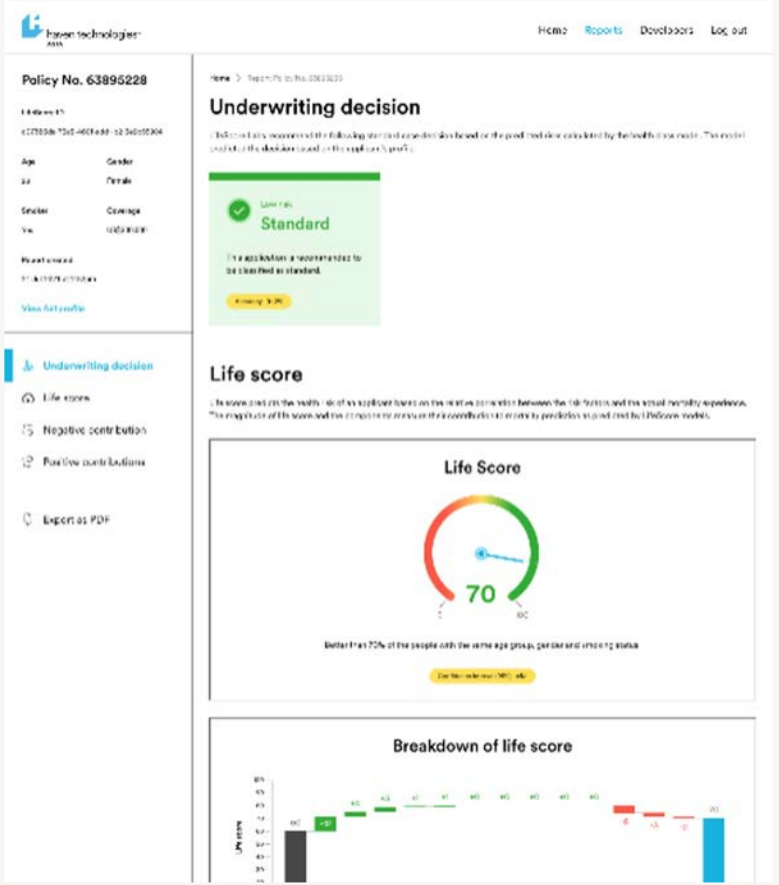
1. **Research objective(s)**
2. Research method(s)
3. Participants
4. Results & findings
5. Next steps

Research objectives

To validate whether the following items of the health model (POC):

- ★ Perceived values of the use cases (outputs) for individual applicants
- ★ Perceived values of the use cases (outputs) for the portfolio
- ★ Use of business metrics for impact evaluation
- ~~★ Use of performance metrics for model evaluation~~
- ~~★ Usability of the individual reports and the performance evaluation reports~~

Meet our users' requirements for further development (alpha).



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Research method

Concept testing in a 1-on-1 online interview

- Concept testing:
  a research method that involves asking customers questions about your concepts and ideas for a product or service before actually launching it
- Semi-structured interviews:
  Scripted interview with room for follow-up questions
- 60-90 minutes per session
- Online Zoom meeting
- Recorded in both video and audio (Access the recordings here)

Tested concepts

Evaluation by

Likelihood to adopt (Rating)

Very unlikely — Very likely

1 2 3 4 5

Reason(s) & Consideration

Suggestion

On the following concepts

Portfolio level

1. STP use case

Overall

- Health model as a solution

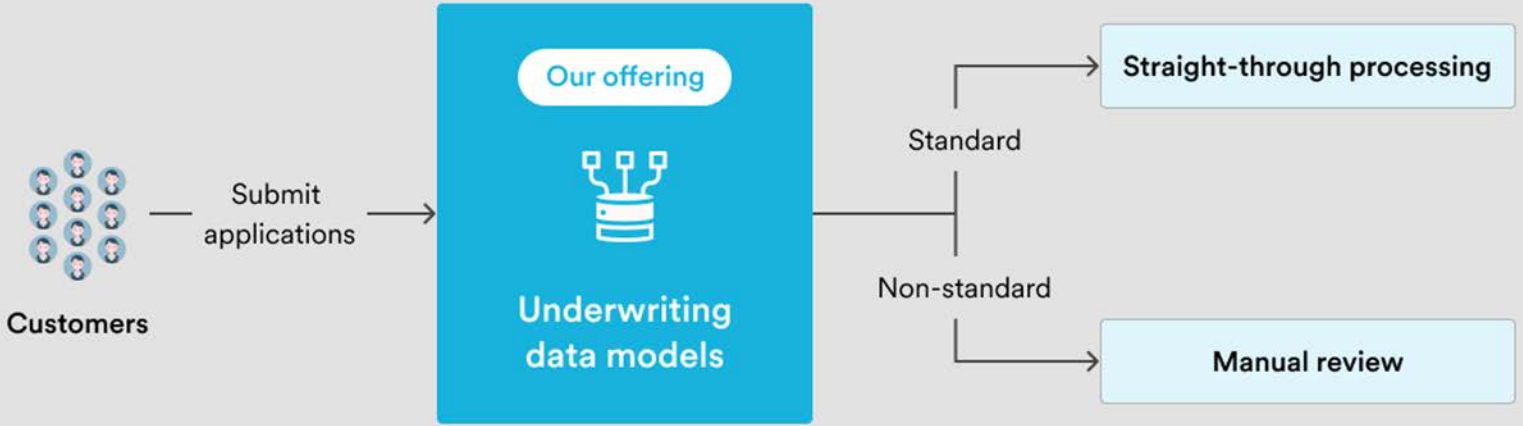
Individual level

1. Underwriting decision (Standard / Non-standard)
2. Underwriting decision (Class)
3. Excluded conditions for the exclusion class
4. Loading amount for the loading class
5. Loss ratio
6. Claim amount
7. New chronic conditions

Portfolio level

Use case - STP

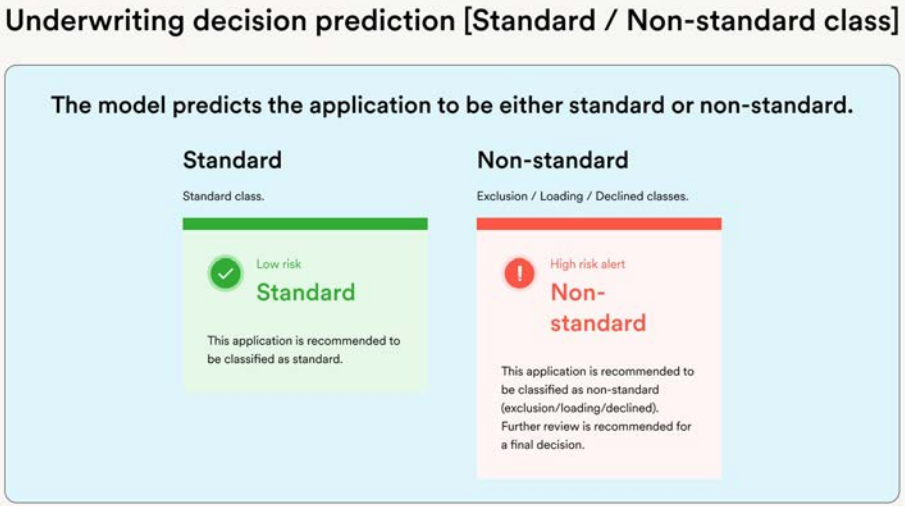
The model predicts the underwriting decisions in a batch and straight-through processed standard cases.



Individual level

Output 1 - Underwriting decision (Standard / Non-standard)

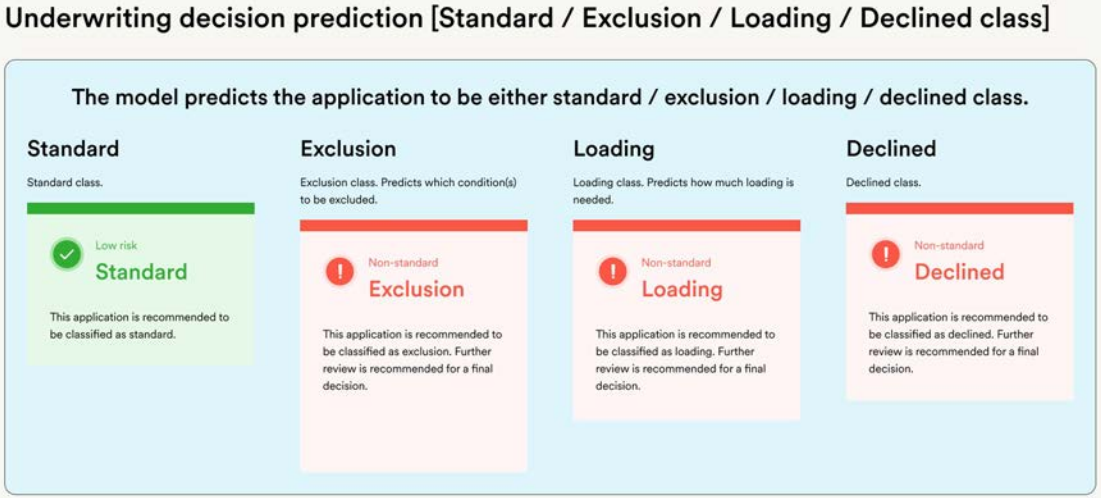
- Underwriting decision
  - Standard class
  - Non-standard class
- No further classification



Individual level

Output 2 - Underwriting decision (Class)

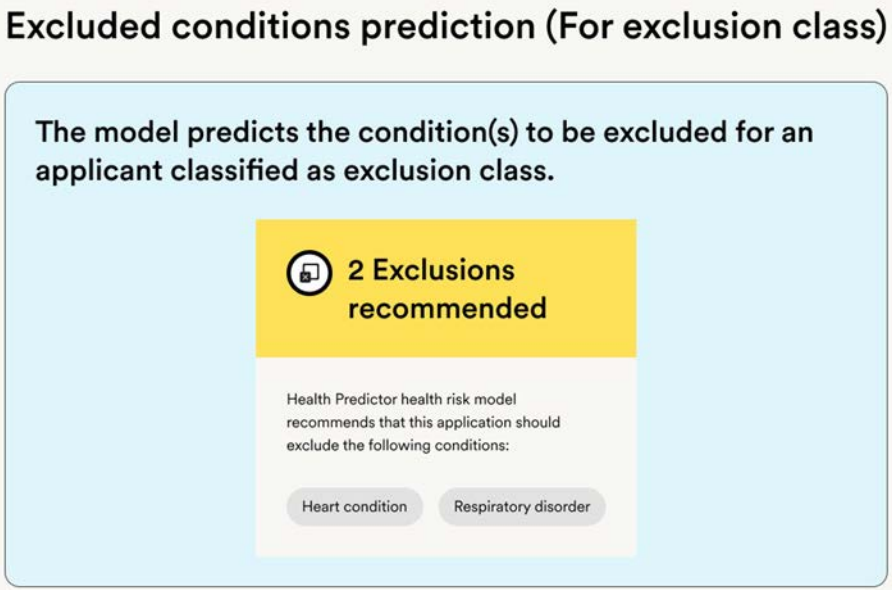
- Underwriting decision
  - Standard class
  - Exclusion class
  - Loading class
  - Declined class



Individual level

Output 3 - Excluded condition(s) for Exclusion Class

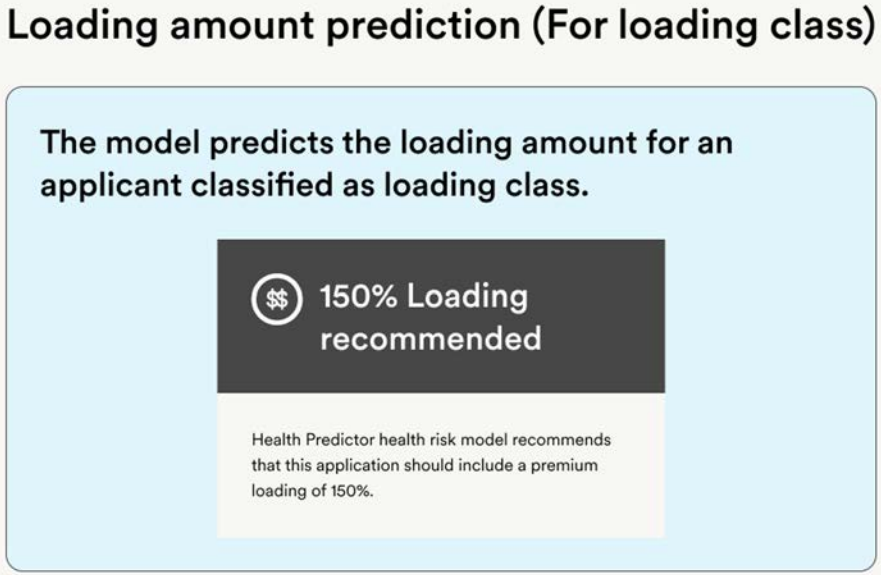
- Specific conditions to be excluded from coverage



Individual level

Output 4 - Loading for Loading Class

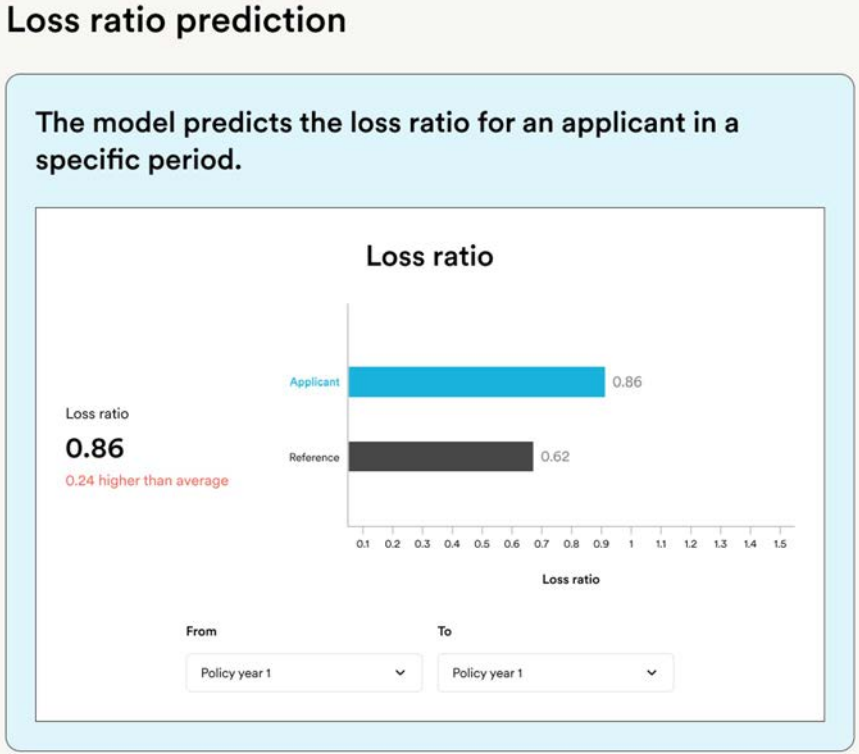
- Amount of loading for applicants classified loading class



Individual level

Output 5 - Loss ratio

- Predicted loss ratio of applicants in a selected period of time and its comparison with the reference value of the same cohort



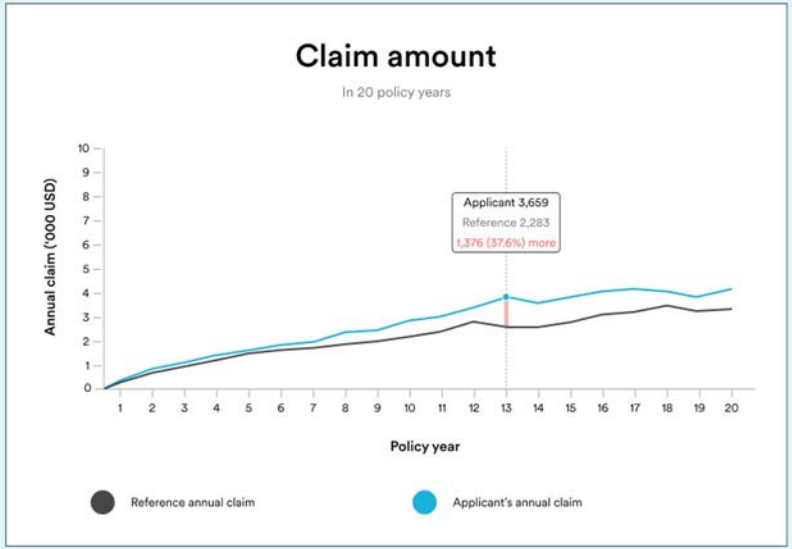
Individual level

Output 6 - Claim amount

- Predicted annual claim amount of applicants in a selected period of time and its comparison with the reference value of the same cohort

Claim amount prediction

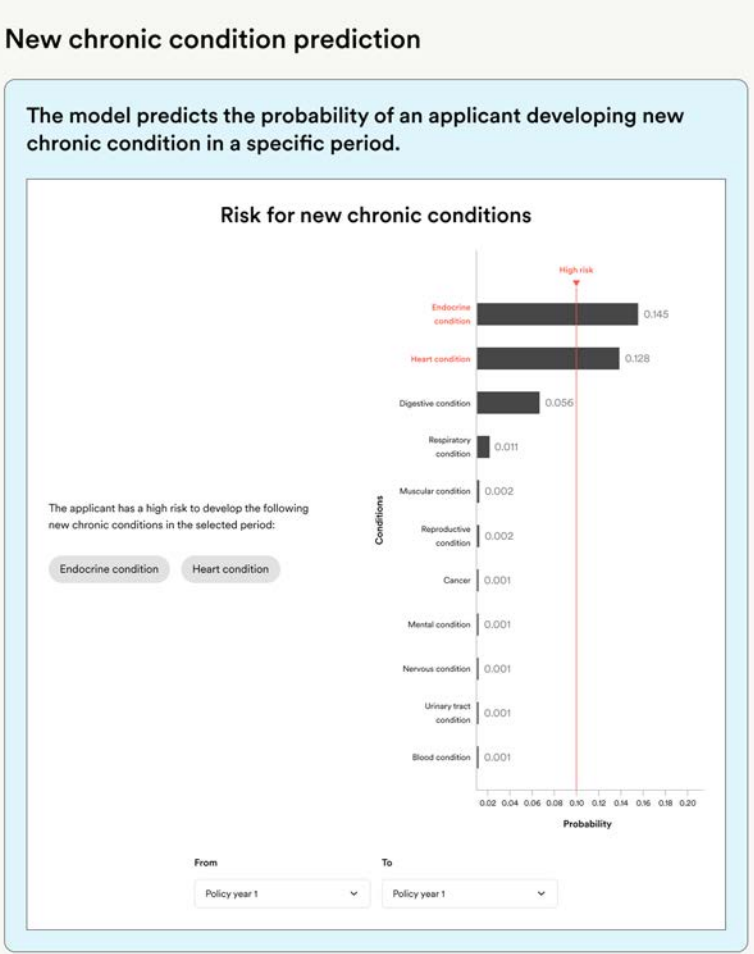
The model predicts the loss amount for an applicant in a specific period.



Individual level

Output 7 - New chronic conditions

- Predicted probability of applicants developing a specific chronic conditions (e.g. endocrine condition, cancer) in a selected period of time



Agenda

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3 Actuaries and 3 underwriters as participants#

Actuaries

R & K

Undisclosed

Head of Regional Partnership / Deputy Head of South Asia

15+ yrs of experience

Mr. T

Undisclosed

Chief Actuary

15 yrs of experience

Mr. H

Undisclosed

Actuarial Senior Manager

10 yrs of experience

Underwriters

C

Undisclosed

Underwriting senior manager

10 yrs of experience

Ms. S

Undisclosed

Senior Underwriting Manager

10 yrs of experience

Mr. K

Undisclosed

Senior Manager Life Underwriting

10 yrs of experience

On request from the participants, the companies involved should not be disclosed to any external clients or parties.

Agenda

1. Research objective(s)
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How likely are underwriters / actuaries to use the current health model solution?

Actuaries

2.50 /5

Why this score?

Add no extra value to a rule engine if the data source is the same
Require **reinsurers (RI)' approval** for use in pricing
Focus on unfavorable risks instead of favorable risks
Lack **explainability** for unfavorable UW decisions to agents and customers

Underwriters

3.83 /5

Why this score?

Industry trend to adopt AI solutions if **RIs endorse** this
Could be used as references for marginal cases
Lack the depth and width for complex cases
Lack **explainability** for unfavorable UW decisions to agents and customers

Overall

3.30 /5

What are holding Actuaries back?

Key considerations for Actuaries to adopt the solution

RIs' initiative to adopt

- Pricing and product design need to be approved by RIs
- Flexibility to try if RIs are not involved (less dependence than UW)

> *If reinsurers accept this, we will just adopt.*

> *The target should be reinsurers, not insurers.*

2 out of 3 actuaries mentioned this.

Accuracy of prediction

- Accuracy as to current UW decisions
- Compliance with current RIs' manuals

All actuaries mentioned this.

Differentiation from rule engines

- Data source and alternative data
- How to perform better than rule engines

2 out of 3 actuaries mentioned this.

Applicability to different insurers / products

- Could the model applies to different insurers and products
- Key considerations: insurers' risk appetite, claim experience, product design

2 out of 3 actuaries mentioned this.

Complexity in pricing and benefits

2 out of 3 actuaries mentioned this.

Data size

2 out of 3 actuaries mentioned this.

What did Actuaries suggest for improvement?

Actuaries gave a score of **2.50** /5

How to improve?

- Incorporate alternative data for to differentiate from a rule engine
  (All 3 actuaries mentioned this)
- Work with RIs for use in pricing, underwriting and other aspects
  (All 3 actuaries mentioned this)
- Improve on prediction granularity for pricing
  (2 out of 3 actuaries mentioned this)

New use case(s)

- Predict a **preferred risk class**
  (All 3 actuaries mentioned this)
- **Increase insurability** by identifying the less risky / marginal candidates among the non-standard
  (2 out of 3 actuaries mentioned this)
- Predict unfavorable risk for in-force management programs
  (2 out of 3 actuaries mentioned this)
- Simplify underwriting questions
  (2 out of 3 actuaries mentioned this)

What are holding Underwriters back?

Key considerations for Underwriters to adopt the solution

RIs' initiative to adopt

- Work process and standards could not be changed without RIs' approval
- This applies to all insurers using RIs

> *If you work with reinsurers to design this, then we would just follow.*

All underwriters mentioned this.

Accuracy of prediction

- Accuracy as to current UW decisions
- Compliance with current RIs' manuals

All underwriters mentioned this.

Explainability of UW decisions

- Provide sound reasons for UW decisions
- Important for explaining the UW decisions to agents and customers

All underwriters mentioned this.

Applicability to different insurers / products

- Could the model applies to different insurers and products
- Key considerations: insurers' risk appetite, claim experience, product design

2 out of 3 underwriters mentioned this.

Input data quality

2 out of 3 underwriters mentioned this.

Handling complex cases

2 out of 3 underwriters mentioned this.

What did Underwriters suggest for improvement?

Underwriters gave a score of **3.83** /5

How to improve?

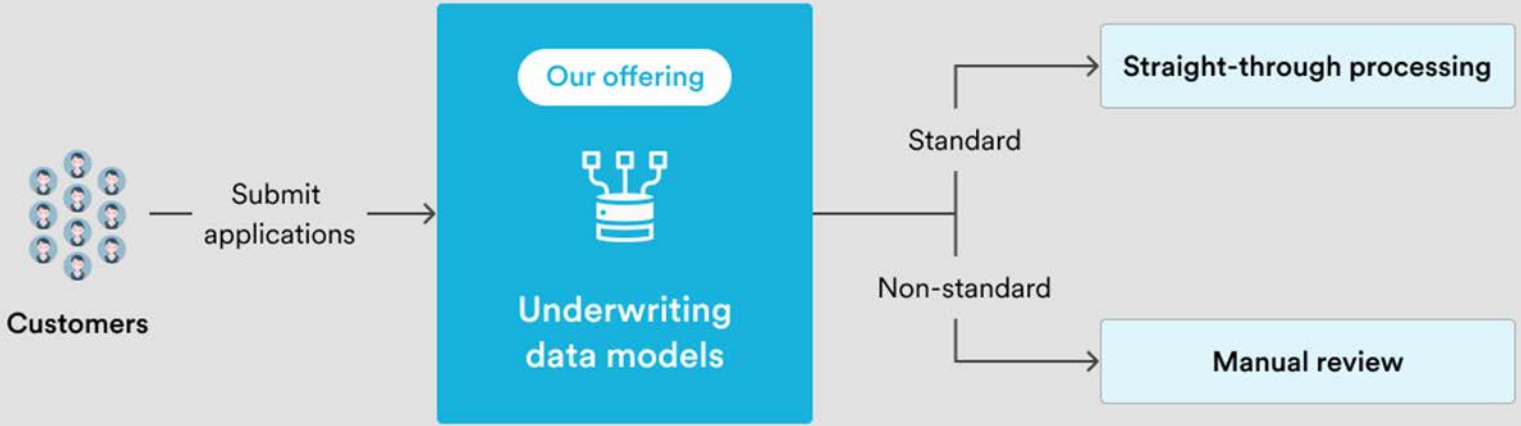
- ⭐⭐⭐ Gets **RIs' endorsement** ⭐⭐⭐
  (All underwriters mentioned this)
- Improves on explainability
  (All underwriters mentioned this)
- Considers use of **alternative data**
  (2 out of 3 underwriters mentioned this)
- Automates simple health impairment cases
  (2 out of 3 underwriters mentioned this)
- Runs parallel with rule engine for trial
  (2 out of 3 underwriters mentioned this)
- Handles more complex cases
  (2 out of 3 underwriters mentioned this)

New use case(s)

- Predict a **preferred risk class**
  (2 out of 3 underwriters mentioned this)
- **Increase insurability** by identifying the less risky / marginal candidates among the non-standard
  (2 out of 3 underwriters mentioned this)
- Pre-UW in sales process
  (2 out of 3 underwriters mentioned this)
- Predicts early claims
  (2 out of 3 underwriters mentioned this)

Is our STP use case attractive enough for adoption?

The model predicts the underwriting decisions in a batch and straight-through processed standard cases.



STP use case

	Why this score?	Key consideration(s)	How to meet the bar?
Actuaries **2.75** /5 *"This will only be useful if it could do more than a rule engine."*	No differences from a rule engine for the current version	• Accuracy as compared to current UW decisions • Additional data source	• Incorporate alternative data (2 out of 3 actuaries mentioned this)
Underwriters **4.33** /5 *"AI underwriting is the trend in the market now."*	AI is the future of underwriting Improve customer experience Improve operational efficiency Limited usage for clean cases	• Accuracy • Automation of all UW processes, not just medical UW • RIs' endorsement and guidelines • Input data quality	• Integrate with rule engines (2 out of 3 underwriters mentioned this) • Handle more cases (non-standard, lab tests) (All underwriters mentioned this) • Parallel run with rule engine (2 underwriters and 1 actuary mentioned this)

Individual outputs ranked

By actuaries

1	Loss ratio	**3.83** /5
2	New chronic conditions	**3.67** /5
3	Loading amount	**3.33** /5
4	Claim amount	**2.83** /5
5	UW decision (Standard/Non-standard)	**2.67** /5
5	UW decision (Class)	**2.67** /5
7	Excluded condition	**2.33** /5

By underwriters

1	UW decision (Standard/Non-standard)	**4** /5
2	Excluded condition	**3.33** /5
2	Loading amount	**3.33** /5
4	New chronic conditions	**2.83** /5
5	UW decision (Class)	**2.67** /5
6	Loss ratio	**1.50** /5
7	Claim amount	**1.33** /5

Overall

1	UW decision (Standard/Non-standard)	**3.33** /5
1	Loading amount	**3.33** /5
3	New chronic conditions	**3.25** /5
4	Excluded conditions	**2.83** /5
5	UW decision (Class)	**2.67** /5
5	Loss ratio	**2.67** /5
7	Claim amount	**2.08** /5

Recommended decisions on individual outputs

To keep

1. Underwriting decision (Standard / Non-standard)

To modify

2. Underwriting decision (Class)
5. Loss ratio

To drop

3. Excluded conditions
4. Loading amount
6. Claim amount

To further evaluate

7. New chronic conditions

Individual outputs - Suggested TO KEEP

	Rating & Comments		Suggested decision & How to meet the bar?
	Actuaries	**Underwriters**	
1 Underwriting decision (Standard / Non-standard)	2.67/5 **No extra value** compared to rule engines given the same input data sources are used.	3.83/5 Highly desirable but requires **RIs' initiative** to adopt.	**TO KEEP** • Work with RIs or Get RIs' buy-ins for adoption in UW • Incorporate alternative data for product differentiation

Individual outputs - Suggested TO MODIFY

	Rating & Comments		Suggested decision & How to meet the bar?
	Actuaries	**Underwriters**	

2 Underwriting decision (Class)	2.67/5
	Not useful due to:
	1. Lack of explainability for **unfavorable** classes
	2. **Interchangeability** between exclusion and loading classes
	3. **Inconsistent decisions** across insurers
		2.67/5
		Not useful due to:
		1. Interchangeability between exclusion and loading classes
		2. Inconsistent decisions across insurers
		3. UW reviews could not be skipped
			TO MODIFY
			• Predict
			  ○ Preferred (need RIs' approval for use in pricing)
			  ○ Standard
			  ○ Review (Exclusion + loading)
			  ○ Declined
			• For promotion and discount campaigns (may not need RIs' approval)

5 Loss ratio	3.83/5 Useful for product pricing, class segmentation, loading and discounts. Useful for portfolio management (with health management program)	1.5/5 Not useful in UW as this is not a part of UW guidelines.	**TO MODIFY** • Predict loss ratios by cohort not individual • Predict preferred classes and discount amount • Identify factors for loss ratio change • (Even better) Use in in force management • (Even better) Predict by claim types and breakdown

Individual outputs - Suggested TO FURTHER EVALUATE

	Rating & Comments		Suggested decision & How to meet the bar?
	Actuaries	**Underwriters**	
7 New chronic conditions	3.67/5 Potentially useful for identifying good risks for discounts and bad risks for health management; But could not be used for unfavorable decisions.	2.83/5 Not useful in UW as this could not be used for decision making.	**TO FURTHER EVALUATE** • Serve as a proof for preferred risk class prediction • Predict the need for health management not identified in declaration

Individual outputs - Suggested TO DROP

	Rating & Comments		Suggested decision & How to meet the bar?
	Actuaries	**Underwriters**	
3 Excluded conditions	2.33/5 Not useful due to: 1. **Lack of explainability** for unfavorable classes 2. **Interchangeability** between exclusion and loading classes 3. **Inconsistent decisions** across insurers / manuals	3.33/5 Useful for automation ONLY if the predictions follow the current UW guidelines. However, this is unlikely as: 1. **Interchangeability** 2. Lack of **explainability** 3. Only as reference in UW	**TO DROP** • Very impossible to meet the bar unless there is a standard guideline • Should be handled by rule engines with reasons provided
4 Loading amount	3.33/5 Useful for product pricing if based on historical claims. But not useful for the reasons as 3. Excluded conditions if based on historical decisions.	3.33/5 Not useful in UW for the same reasons of 3. Excluded conditions; unless it could be used for pricing as approved by RIs.	**TO DROP** • Work with RIs or Get RIs' buy-ins for adoption in pricing and UW • Predict based on historical claims, not decisions • Predict discount loading amount as an initial use case

Individual outputs - Suggested TO DROP

	Rating & Comments		Suggested decision & How to meet the bar?
	Actuaries	**Underwriters**	
6 Claim amount	2.83/5 Not useful given that loss ratio could do better.	1.33/5 Not useful in UW and could not be used to explain to agents and customers.	**TO DROP** • Not worth the method to develop given loss ratio is already predicted

New use cases suggested by

Actuaries

Underwriters

Preferred risk class

Increased insurability for marginal cases

In force health / disease management

Early claim prediction

Simplified UW questions

Pre-UW

New use case: Preferred risk class

Prediction of a risk class with lower health risks based on their predicted claim ratio.

Suggested by **All** actuaries | **2** underwriters

Rated **4.25** /5 by 3 actuaries (no rating available for underwriters)

Why actuaries and underwriters like this?

- **Unique selling point**
- Not supported by existing UW guidelines or pricing tactics in HK due to lack of data
- More granular prediction of unfavorable risks do not add value as this is not welcomed by the sales side (explainability)
- Favorable risks could be used for promotion campaign (discount) and improvement of portfolio risk
- Use of **alternative data** could be used for favorable risk classes

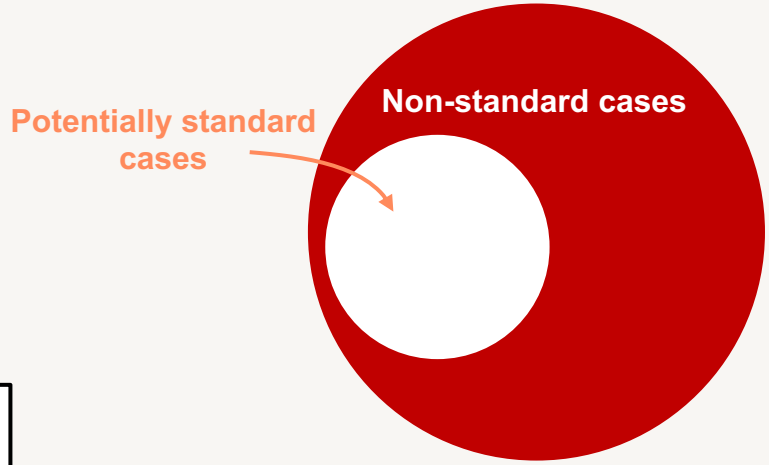
Key concern(s)

- Work with RIs for adoption in UW
- How to verify the risks are lower (e.g. loss ratio)
- Application to different health products (benefit types / limits)

New use case: Increased insurability for marginal cases

Prediction of a insurable class in current non-standard cases to increase sales at controlled risks.

Suggested by **2** actuaries **2** underwriters



Why actuaries and underwriters like this?

- Useful for underwriters to identify lower risk cases (mild impairment) for making favorable UW decisions among the non-standard classes
- Provide rationale for the UW decisions for marginal and appeal cases
- Used as an additional source of information (along with medical reports, academic research) for making UW decisions

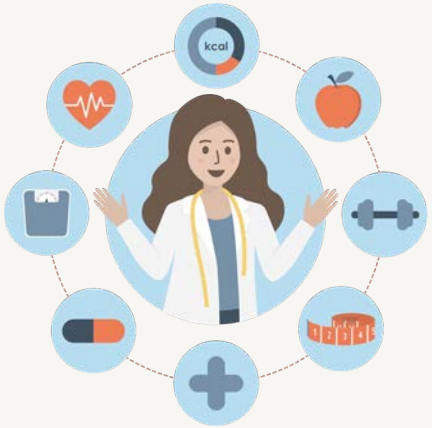
Key concern(s)

- The tool is more a reference for underwriters unless it's a part of automation
- Supplementary but not key decision factor
- Detailed reason for prediction is needed

New use case: In force health / disease management

For identifying customers to participate in health and disease management programs.

Suggested by **All** actuaries



Why actuaries like this?

- Identifying risky customers at underwriting and in force stages for health and disease management
- The goal is to improve the risk of the portfolio by converting bad risks to good risks (e.g. diabetes control, Vitality)

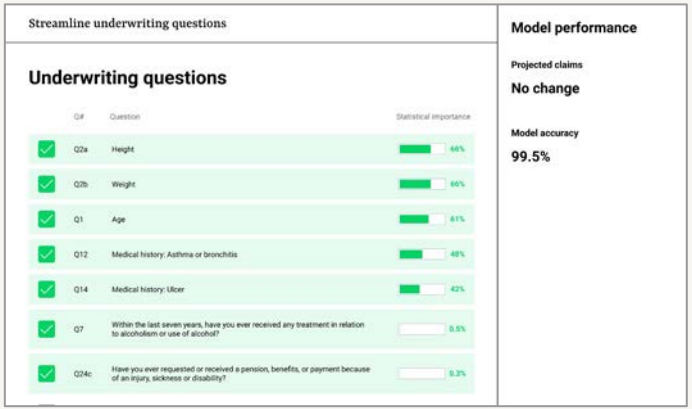
Key concern(s)

- Additional data sources (e.g. wearable data) are needed
- Regular inputs of data instead of only data at applications

New use case: Simplified UW questions

Simplify UW questions by identifying UW questions with limited predictability.

Suggested by **All** actuaries



Why actuaries like this?

- Reduce the number of questions without sacrificing accuracy
- As proven in previous research - Rated 4.3 /5 in Mortality Model Concept Test conducted in Jun 2021

Key concern(s)

- Work with RIs for adoption
- Large database to prove the simplification does not affect the accuracy

New use case: Early claim prediction

Predict the incidence of early claim in UW.

Suggested by **2** underwriters

Claim
In 3 months

Why underwriters like this?

- Identify “fraud” in terms of early claim to prevent risks not detected by current UW guidelines
- Early claim definition: 3 months for non-accidental and 1 year for CI (To be confirmed)
- Insurers could follow up with medical checks or claim investigation

Key concern(s)

- Hard to explain to agents and customers why medical checkups are needed
- Claim adjudication could be an alternative

New use case: Pre-UW

Used by brokers or online distribution channels in the sales process to pre-underwrite the customers.

Suggested by **2** underwriters

Why underwriters like this?

- Save time for underwriters if the pre-underwriting process could identify medical data needs
- Potentially facilitate more automation if medical data could be collected at application

P.S. Particularly favorable for brokers to get the best offers for their customers

Key concern(s)

- Need integration with POS system
- Might not be welcomed by agents and customers if receiving unfavorable offers

Recommendations on new use cases

	Use case	Rationale
✔ Consider for V2	**Preferred risk class**	Highly desirable by both underwriters and actuaries; and could take leverage on current models.
🔍 Further evaluate	**Early claim prediction**	A new model on claim incidence is required; desirability to be further explored.
	Simplified UW questions	High desirability as proven in multiple studies; RI's approval and further testing required.
	Pre-UW	A complete new use case for the distribution channel (brokers); desirability to be further explored.
	In force health / disease management	High dependence on a health and disease management product; very likely to involve other data.
🤔 Less likely	**Increased insurability for marginal cases**	Limited use case with high investment. Could explore the acceptance of mild impairment case but needs further proof though.

Evaluating the models

Top criterion

Accuracy

- For existing outputs (e.g. UW decisions), backtest with past UW decisions
  [Current UW decisions give underwriters confidence to use but this could not differentiate our products from rule engines]
- For new outputs (e.g. preferred risk class), backtest with historical claim and work with RIs in long run to prove accuracy
- Compliance with RIs' manual is a must

Other criteria

STP rate

- Increase of cases going through STP including non-standard cases
- Coverage of as many cases as possible
- Not a key value if integrated with rule engines

Operational efficiency

- Measure of time spent on each case
- Given that the report could save underwriters' time on review

Claim experience

- Improvement of loss ratio by portfolio / cohort
- Relevant to actuaries but not underwriters

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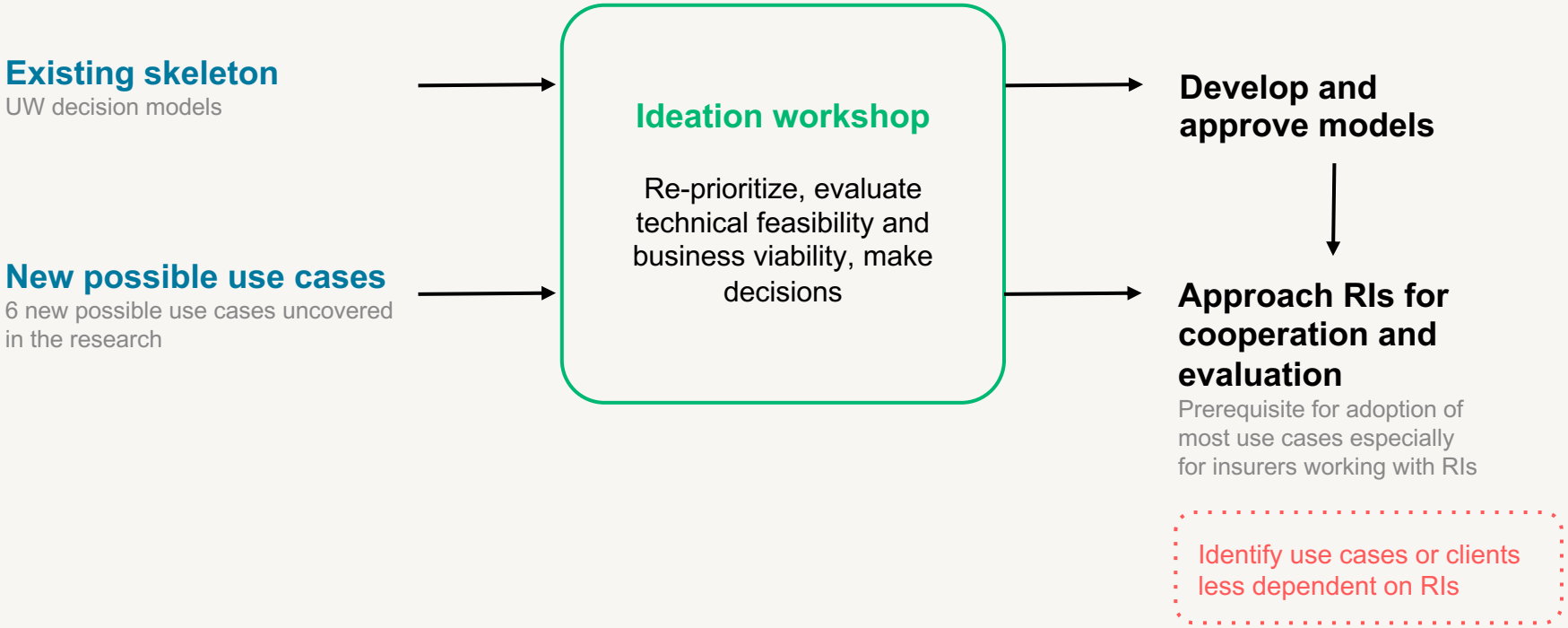
What's next?


Existing skeleton
UW decision models
New possible use cases
6 new possible use cases uncovered in the research
Ideation workshop
Re-prioritize, evaluate technical feasibility and business viability, make decisions
Develop and approve models
Approach RIs for cooperation and evaluation
Prerequisite for adoption of most use cases especially for insurers working with RIs
Identify use cases or clients less dependent on RIs

Appendix

Detailed findings on each individual output

Output 1: UW decision (Standard/Non-standard)

Actuaries

2.67 /5

"So what's the difference between this and the existing process?"

Why this score?

Rule engines could well determine standard and non-standard decisions
For non-standard cases, the report could serve to reduce the time for manual review by underwriters, but manual review is still required
No recommendations for exact action items

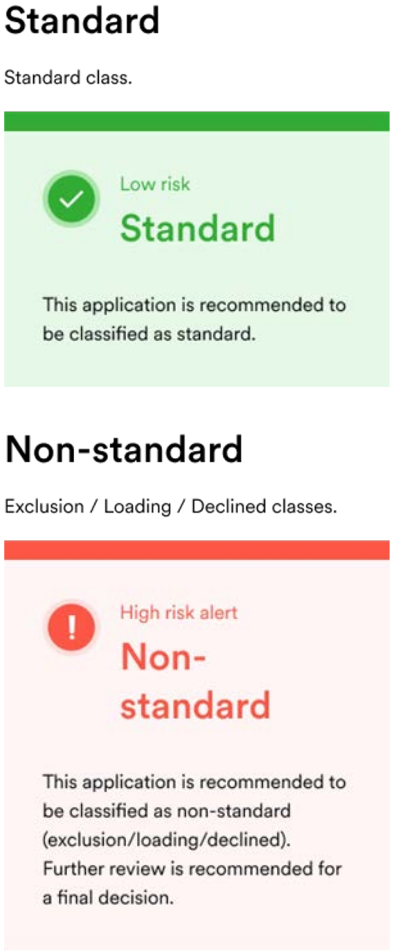
Underwriters

4 /5

"AI underwriting is the trend in the market now."

Why this score?

AI is the future of underwriting
Save time especially if minor conditions could also go through STP
Could be useful for marginal cases
Self-declaration does not generate more accurate outcomes



Output 1: UW decision (Standard/Non-standard)

Actuaries **2.67** /5

Key consideration(s)

- Accuracy of the model as compared to current UW decisions
- Data size and source

Suggestions

- Incorporates of alternative data for more accurate risks prediction
  (2 out of 3 actuaries mentioned this)

Underwriters **4** /5

Key consideration(s)

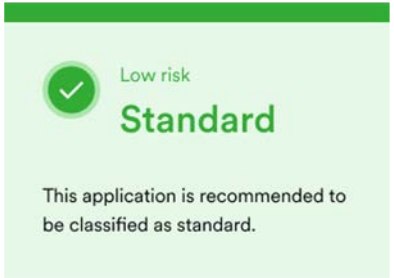
- Strict non-deviation from manuals
- Compatibility with different insurers and products
- Data collection and question design
- Incorporation of medical exam and past claim data

Suggestions

- Incorporates of more data (e.g. medical exam, historical claim)
  (2 out of 3 underwriters mentioned this)

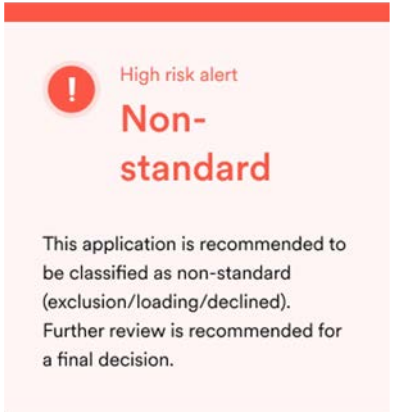
Standard

Standard class.



Non-standard

Exclusion / Loading / Declined classes.



Output 2: UW decision (Class)

Actuaries

2.67 /5

“This is not useful at all. How could you explain this decision to the customers?”

Why this score?

AI could not explain to customers why a specific class is assigned
Current UW guidelines allows for interchangeability between exclusion and loading classes
Inconsistency in decisions across different insurers
UW reviews are still required

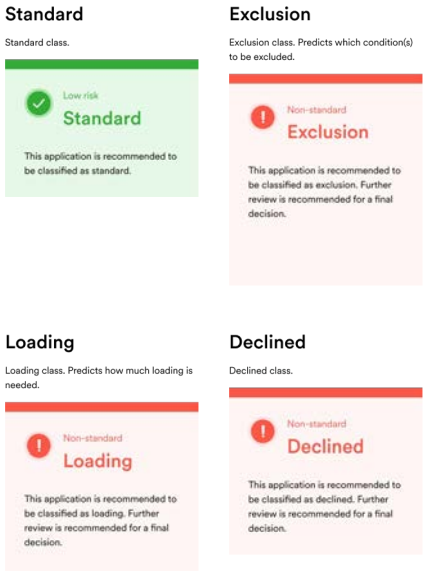
Underwriters

2.67 /5

“Exclusion and loading are a bit tricky. It’s not easy to just decide a class.”

Why this score?

Current UW guidelines allows for interchangeability between exclusion and loading classes
Inconsistency in decisions across different insurers
UW reviews are still required



Output 2: UW decision (Class)

Actuaries **2.67** /5

Key consideration(s)

- Accuracy of the decisions as compared to current UW decisions
- How to handle cases in appeal
- Explainability of the decisions to agents and customers

Suggestions

- Predicts preferred risk classes
  (All actuaries mentioned this)
- Predicts declined class and combine loading and exclusion
  (1 actuary and 1 underwriter mentioned this)

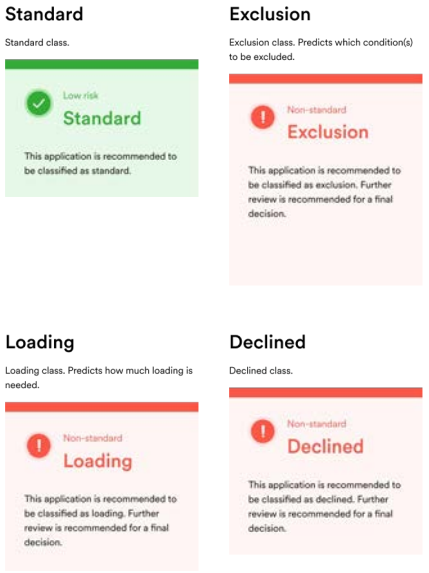
Underwriters **2.67** /5

Key consideration(s)

- Non-deviation from manuals
- How to handle cases in appeal
- Explainability of the decisions to agents and customers
- Adjustment of classes by insurers' preferences

Suggestions

- Predicts preferred risk classes
  (2 out of 3 underwriters mentioned this)
- Predicts declined class and combine loading and exclusion
  (1 actuary and 1 underwriter mentioned this)
- Incorporates more data and provide support for decisions
  (2 out 3 underwriters mentioned this)



Output 3: Excluded conditions

Actuaries

2.33 /5

"What is the reason for this to be excluded? This could only be a reference."

Why this score?

Slightly improves UW efficiency
No differences from tradition UW
Current UW guidelines allows for interchangeability between exclusion and loading classes
Could not explain the reason

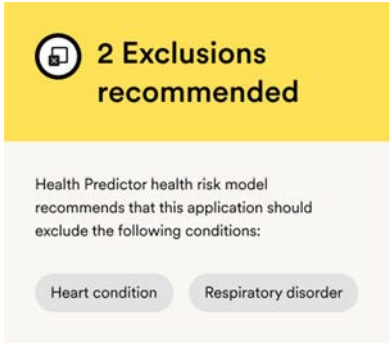
Underwriters

3.33 /5

"This is the ideal STP flow but different insurers do it differently. So more like a reminder."

Why this score?

Automates simple cases
Reference for underwriters only
Complex cases
Current UW guidelines allows for interchangeability between exclusion and loading classes
Inconsistency in decisions across different insurers
Could not explain the reason



Output 3: Excluded conditions

Actuaries **2.33** /5

Key consideration(s)

- How to handle cases in appeal
- Explainability of the decisions to agents and customers
- RI and insurers' guidelines
- Alternative data source

Suggestions

- Detailed explanation for the predicted decisions
  (All actuaries and 1 underwriter mentioned this)
- Incorporates alternative data
  (2 out of 3 actuaries mentioned this)

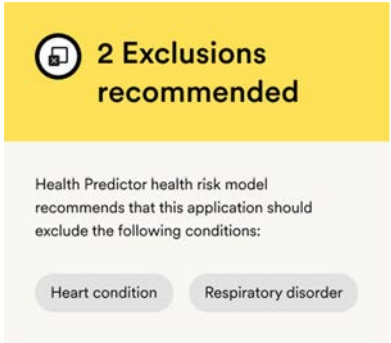
Underwriters **3.33** /5

Key consideration(s)

- How to handle complex cases with multiple conditions
- Explainability of the decisions to agents and customers
- How to handle cases in appeal
- RI and insurers' guidelines

Suggestions

- Detailed explanation for the predicted decisions
  (All actuaries and 1 underwriter mentioned this)



Output 4: Loading amount

Actuaries

3.33 /5

"More useful than exclusion especially if it's based on historical claims."

Why this score?

Slightly improves UW efficiency
Could be useful for pricing and loading decisions if it was based on historical claims
No differences from tradition UW
Current UW guidelines allows for interchangeability between exclusion and loading classes
Could not explain the reason

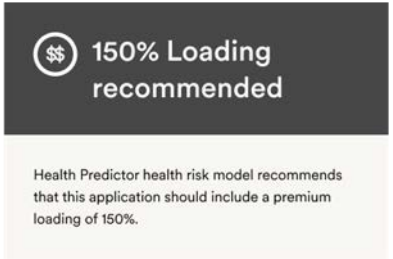
Underwriters

3.33 /5

"This is similar to exclusion."

Why this score?

Automates simple cases
For reference only
Complex factors contributing to loading amount
Current UW guidelines allows for interchangeability between exclusion and loading classes
Inconsistency in decisions across different insurers
Could not explain the reason



Output 4: Loading amount

Actuaries **3.33** /5

Key consideration(s)

- Explainability of the decisions to agents and customers
- RI and insurers' guidelines

Suggestions

- Basis for loading reduction (discount)
  (2 out of 3 actuaries mentioned this)
- Predict based on claims instead of decisions
  (1 actuary and 1 underwriter mentioned this)

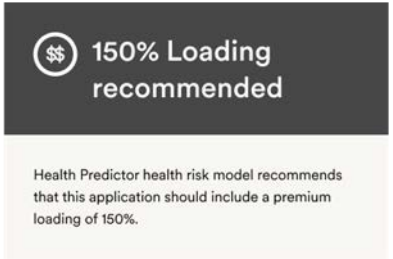
Underwriters **3.33** /5

Key consideration(s)

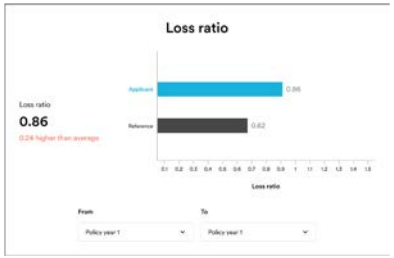
- How to handle complex cases with multiple conditions
- Explainability and breakdown of the decisions to agents and customers
- RI and insurers' guidelines

Suggestions

- Detailed explanation and breakdown, loading calculator for the predicted decisions
  (All underwriters and 1 actuary mentioned this)



Output 5: Loss ratio



Actuaries

3.83 /5

"This is useful for pricing and portfolio management."

Why this score?

Could be used for determining product pricing, class segmentation, loading and discounts
Potentially for portfolio management if in-force management is in place
Useful for cohort level rather than individual level

Underwriters

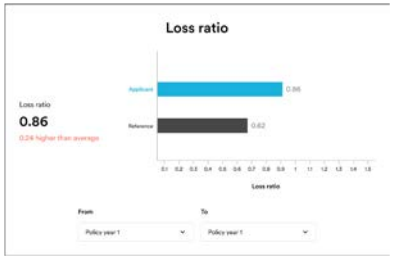
1.50 /5

"Underwriters would not consider loss ratio when underwriting a case."

Why this score?

Might only be useful as references for deciding marginal cases
Underwriters do not consider loss ratio at all
Could not be used for explaining to agents and customers

Output 5: Loss ratio



Actuaries 3.83 /5

Key consideration(s)

- Data size and credibility
- Accuracy at cohort level
- Adjustment for medical inflation
- Paid amount instead of incurred amount
- Duration < 5 years due to quick changing tech and conditions

Suggestions

- Basis for preferred class and loading reduction (discount)
  (All actuaries mentioned this)
- Identifies contributors for loss ratio deterioration (2 out of 3 actuaries mentioned this)
- Use in in force management for risk improvement (2 out 3 actuaries mentioned this)
- Predicts in granular (e.g. claim types, disease) (2 out of 3 actuaries mentioned this)

Underwriters 1.50 /5

Key consideration(s)

- How to explain to agents and customers, especially unfavorable conditions

Suggestions

- N/A

Output 6: Claim amount

Actuaries

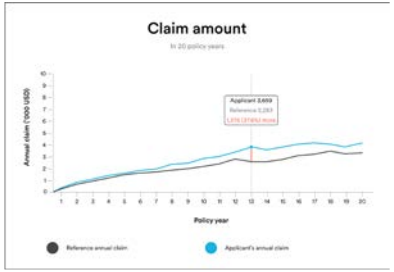
2.83 /5

"This might be useful for experience study for pricing."

Underwriters

1.33 /5

"This is even less useful than loss ratio."



Why this score?

Useful for experience study for more accurate product pricing
No differences from loss ratio
No use for underwriters

Why this score?

Underwriters do not consider claim amount and loss ratio at all
Could not be used for explaining to agents and customers

Output 6: Claim amount

Actuaries **2.83** /5

Key consideration(s)

- Data size and credibility
- RIs' guidelines
- Accuracy at cohort level
- Adjustment for medical inflation
- Paid amount instead of incurred amount
- Duration < 5 years due to quick changing tech and conditions

Suggestions

- Use in in force management for risk improvement (2 out of 3 actuaries mentioned this)
- Predicts in granular (e.g. claim types, disease) (2 out of 3 actuaries mentioned this)

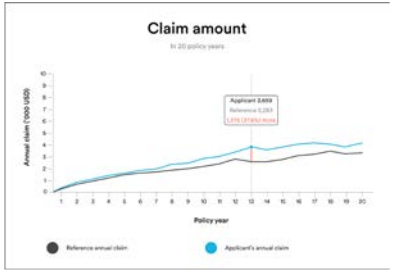
Underwriters **1.33** /5

Key consideration(s)

- How to explain to agents and customers, especially unfavorable conditions

Suggestions

- N/A



Output 7: New chronic conditions

Actuaries

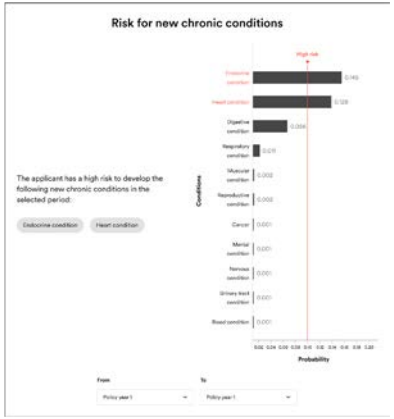
3.67 /5

“Could be used for discounts but definitely not unfavorable decisions.”

Underwriters

2.83 /5

“This could not be used as we could not explain this to the customers.”



Why this score?

Could be used for identifying preferred risk classes for discount
Could be used for identifying less risky groups in non-standard classes
Could be used for in force management
Could not be used for unfavorable decisions

Why this score?

Might only be useful as references for deciding marginal cases
Could not be used in the decision making process given its unfavorable nature
Could not be used for more favorable decisions

Output 7: New chronic conditions

Actuaries **3.67** /5

Key consideration(s)

- Accuracy
- What disease to predict (more common vs difficult to measure)

Suggestions

- Used for identifying preferred risk class with predicted future risks
  (All actuaries mentioned this)
- Used for identifying conditions for in force health management
  (2 out of 3 actuaries mentioned this)
- Suggests action item
  (1 out of 3 actuaries mentioned this)

Underwriters **2.83** /5

Key consideration(s)

- Granularity of prediction
- What disease to predict (more common vs difficult to measure)
- Prediction in 5-10 years

Suggestions

- More granular predictions (e.g. prediction of a single disease instead of a group)