



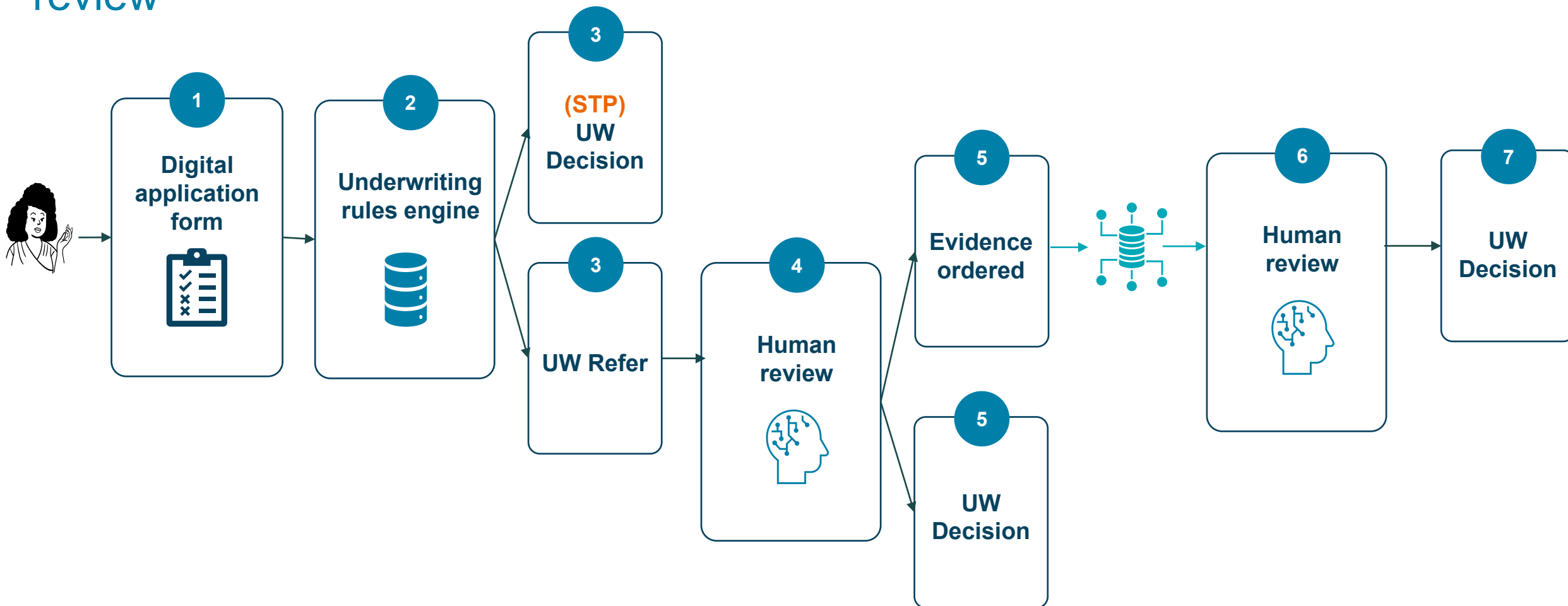
Transforming Life & Health underwriting and claims with generative AI

Antoine Ly, Chief Data Science Officer, SCOR

Current underwriting process

Underwriting journey

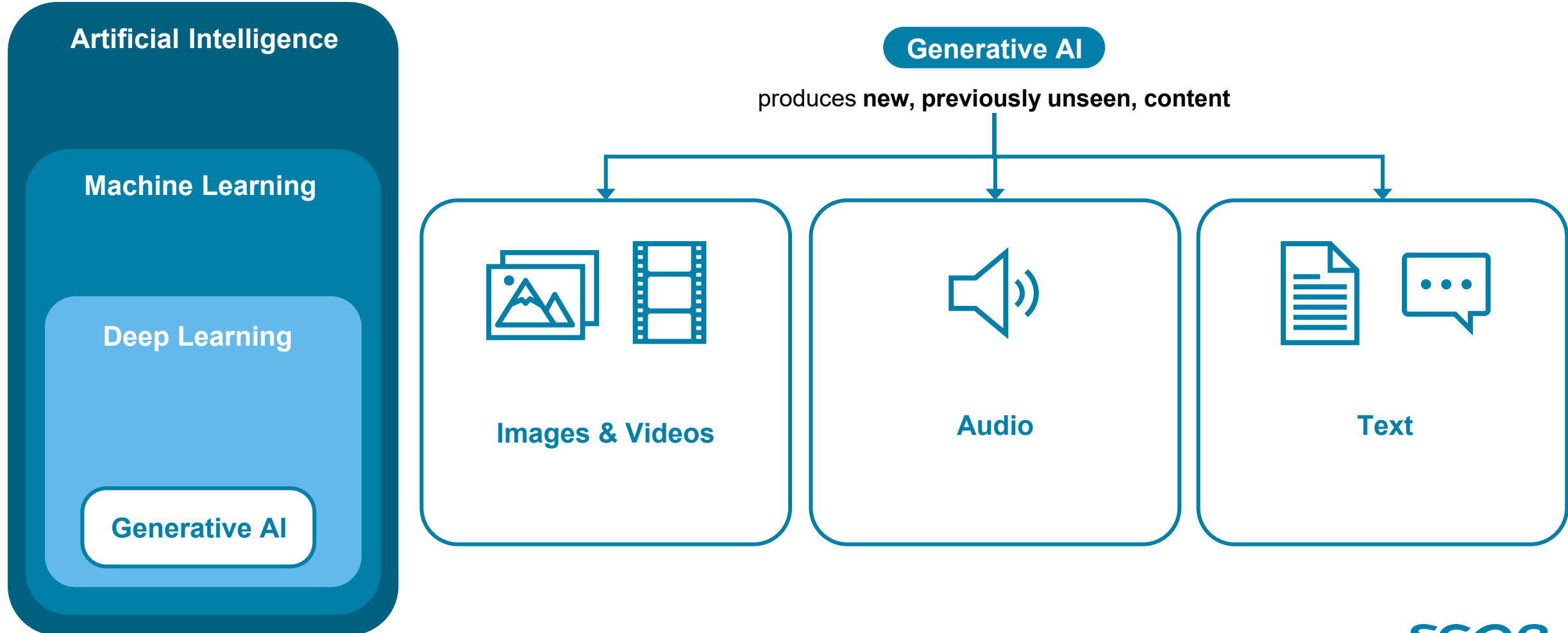
Majority of applicants are straight-through processed but ~30% need human review



What is Generative AI (Gen AI)?

Context

The launch of Open AI's Chat GPT in November 2022 has highlighted the huge potential of Gen AI across a wide range of tasks

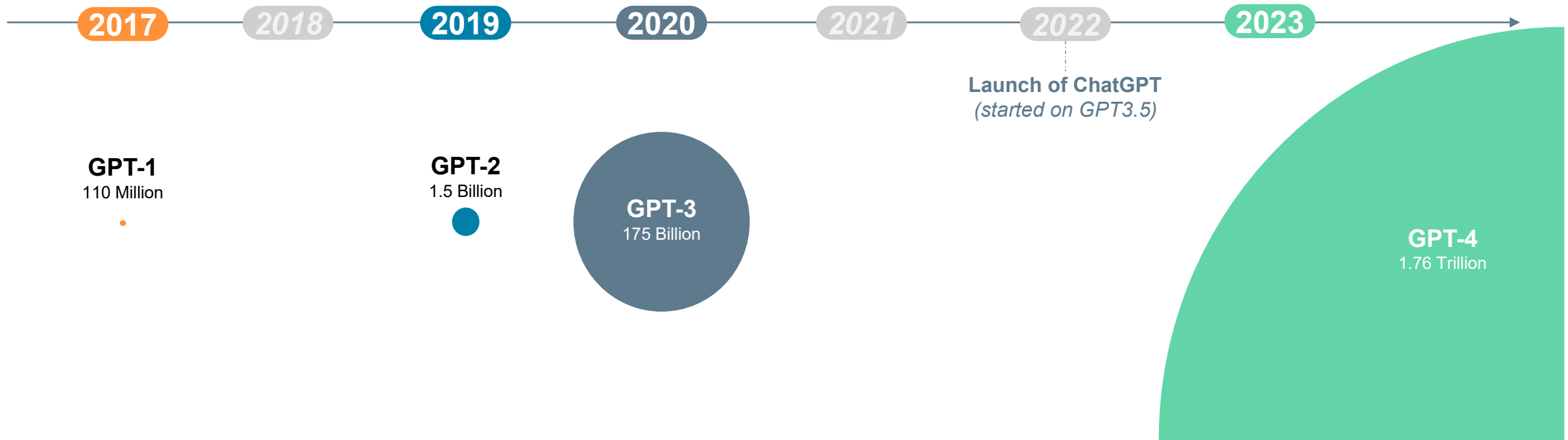


Context

Text is one of the main use cases today, propelled by ever-growing computing power and large language models (LLMs)

The models are not new – but the tech is now mature enough to turn them into truly powerful solutions, based on a wide range of parameters

Number of parameters of Open AI's GPT models



Context

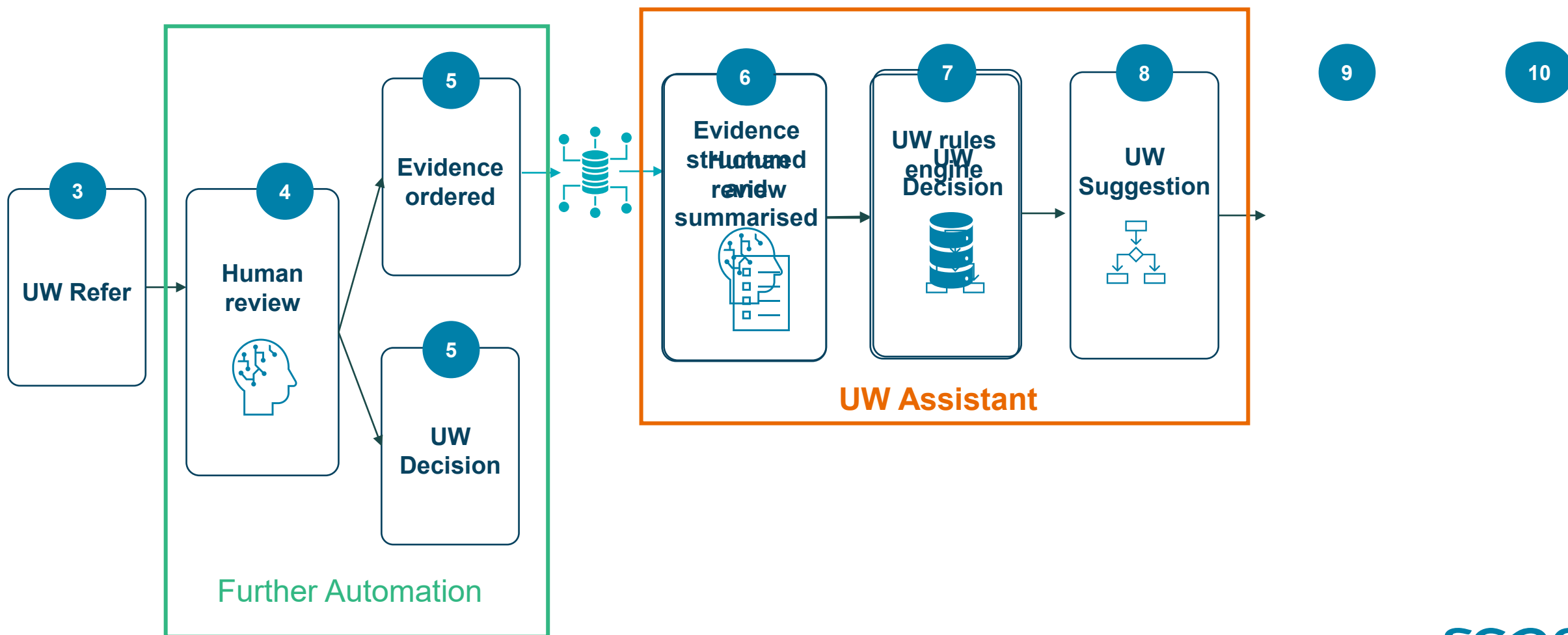
Gen AI has the potential to power several use cases in the life & health (re)insurance industry, across the whole customer journey



**How can generative AI help
underwriting and claims
processes?**

New Underwriting journey

The review of structured and unstructured evidence can be considerably quicker and *recommended* UW decisions returned for human review




Summary

Details

 Search summary...

Gender/occupation/citizenship

Gender	Female
Occupation	Accountant
 Citizenship	Information not specified in provided documents
Travel	No foreign travel vaccination discussion noted

Vitals

Height	175 cm
Weight	93 kg
BMI	30.4

Blood pressure readings

Reading 1	145 / 90	06/01/2023
-----------	----------	------------

Tobacco use history/status

Tobacco use	Current smoker, 20 cigarettes per day
-------------	---------------------------------------

Personal medical history

Heart and blood pressure issues	Hypertensive disease	06/01/2020
Cancer	Family history of breast cancer in sister	12/01/2020
Respiratory disorders	Asthma	06/01/2020
Musculoskeletal Issues	ACL, discussed surgery but proceeded only with physio	23/02/2020
Surgery/Medical Procedures	ACL, discussed surgery but proceeded only with physio	06/01/2020
Recent prescribed Medication	Amlodipine 5mg Tab 1 tab per day, Micardis 80mg - 25mg 1 tab per day	12/01/2020

Application_Richie.PDF

Page 1 of 57

Application_Richie.P... 

PATIENT:
DATE OF BIRTH: 11/14/1962
DATE: 08/18/2023
VISIT TYPE: Office Visit
PROVIDER:

This 60 year old female presents for hypertension, anxiety and insomnia. Established patient

Assessment/Plan

#	Detail Type	Description
1.	Assessment	Essential (primary) hypertension (I10).
	Impression	stable on meds.
	Patient Plan	Advised to maintain a low-fat, low-cholesterol diet. Counseled on reducing risk factors to reduce chance of heart attack/stroke. Reviewed lab results in detail. Counseled regarding importance of weight loss. Maintain a low-sodium diet (less than 2 grams per day).
	Plan Orders	CMP to be performed and Lipid Panel - LIPID to be performed. Today's instructions / counseling include(s) Follow a low sodium diet and increase activity. follow-up visit -Routine.
2.	Assessment	Mixed hyperlipidemia (E78.2).
	Impression	check labs..
3.	Assessment	Anxiety disorder, unspecified (F41.9).
	Impression	continue meds..
4.	Assessment	Insomnia, unspecified type (G47.00).
	Impression	stable on meds..
5.	Assessment	Hyperlipidemia LDL goal <100 (E78.5).
	Impression	as above..
6.	Assessment	Radicular pain in left arm (M79.2).
	Plan Orders	Physical Therapy in 4 Weeks. Clinical information/comments: Axis, neck pt cervicall ddd. .
7.	Assessment	Encounter for screening mammogram for malignant neoplasm of breast (Z12.31).
8.	Assessment	Hyperglycemia (R73.9).
	Plan Orders	HEMOGLOBIN A1C to be performed Today.
9.	Assessment	Body mass index (BMI) 30.0-30.9, adult (Z68.30).

Provider Plan Diagnosis code placed for administrative purposes.

History of Present Illness

1. hypertension

It is currently stable. Risk factors include African American race, age over age 60, depression, high salt intake, inactive lifestyle, male gender and obesity. Pertinent negatives include chest pain, dyspnea and headache.

Summary

Details

 Search details...

Pages of classifications

Cover sheet	1-3
Exams, Labs	5-10
ECG	16
GP reports	17-20
Misc. (handwritten etc.)	21-50








Personal information

Edit values

Name	Richie Williams
Date of birth	11/14/1962
Marital status	Married
 Policy number	Information not specified in provided documents

Impairments

Edit values

Heart and blood pressure issues	Hypertensive disease
 Mental health issues	Information not specified in provided documents
Cancer	Family history of breast cancer in sister
 Endocrine disorders	Information not specified in provided documents
Respiratory disorders	Asthma
 Gastrointestinal disorders	Information not specified in provided documents
 Marfan Syndrome disorders	Not implemented yet, please review Open chat
 Brain or Nervous System Disorders	Information not specified in provided documents
 ENT issues	Information not specified in provided documents
 ENT issues	Information not specified in provided documents

Application_Richie.PDF

Page 1 of 57

Application_Richie.P...

 PATIENT:
 DATE OF BIRTH: 11/14/1962
 DATE: 08/18/2023
 VISIT TYPE: Office Visit
 PROVIDER:

This 60 year old female presents for hypertension, anxiety and insomnia. Established patient

#	Detail Type	Description
1.	Assessment	Essential (primary) hypertension (I10).
	Impression	stable on meds.
	Patient Plan	Advised to maintain a low-fat, low-cholesterol diet. Counseled on reducing risk factors to reduce chance of heart attack/stroke. Reviewed lab results in detail. Counseled regarding importance of weight loss. Maintain a low-sodium diet (less than 2 grams per day).
	Plan Orders	CMP to be performed. Counseling include: -Routine.
2.	Assessment	Mixed hyperlipidemia
	Impression	check labs..
3.	Assessment	Anxiety disorder, unspecified
	Impression	continue meds..
4.	Assessment	Insomnia, unspecified
	Impression	stable on meds..
5.	Assessment	Hyperlipidemia LDL cholesterol as above..
6.	Assessment	Radicular pain in left
	Plan Orders	Physical Therapy in ddd. .
7.	Assessment	Encounter for screening
8.	Assessment	Hyperglycemia (R73)
	Plan Orders	HEMOGLOBIN A1C test
9.	Assessment	Body mass index (BMI)

Provider Plan Diagnosis code placed t

History of Present Illness

 1. **hypertension**
 It is currently stable. Risk factors include high salt intake, inactive lifestyle, male, pain, dyspnea and headache.

Chat with Aassistant

Hello, I am an Artificial Intelligence based assistant. How can I help you?

Could you please search for any Marfan syndrome Disorders?

 Sure, I haven't been fine tuned to accurately find this. However, based on the reading of the document, I did find some Marfan syndrome information you might want to check in page [16,17](#) and [50](#).

Ask a question



Benefits

Used in underwriting, claims or as a post-issue tool



Reduces human error and improves consistency

Enables quicker manual underwriting or claims processing

Underwriters and claims assessors able to focus more on high-value tasks

Benefits

The business case centres around the savings in operational costs without impacting the risk profile

Example (medium-sized insurer with high STP rate)	Without UW assistant tool	With UW assistant tool - Scenario 1	With UW assistant tool - Scenario 2
Applications with additional medical evidence (per year)	12,000		
Human underwriter – cost per hour	£50		
Human underwriter – time per case	1 hour	30 mins	10 mins
Total human underwriting cost (per year)	£600k	£300k	£100k
Potential annual savings		£300k	£500k

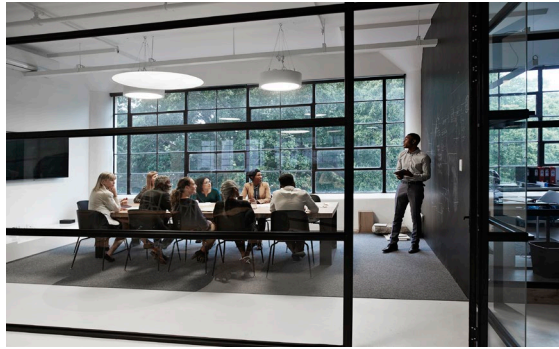
What are the challenges in building a Gen AI tool for underwriting and claims?

Challenges

The promise of Generative AI is high, but it is moving quickly and needs considered adoption into business processes



Fast-moving environment



Management buy-in



Insurance specificities



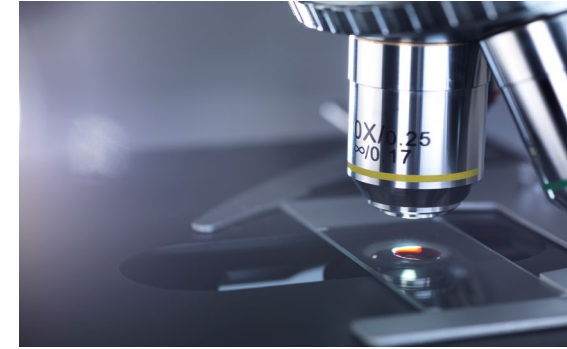
Benefits > Costs?



Security



Guardrails



Testing

**Why do we need underwriting
and claims expertise to help
build a solution?**

A tool needs to be more than an LLM

Underwriting and claims expertise is important in prompt engineering and post-processing

Date	Height	Weight	BMI
1 Jan 2022	1.70 cm	90.2 kg	31.2
30 May 2022	1.69 cm	88.3 kg	30.9
18 Nov 2022	1.70 cm	86.2 kg	29.8
1 May 2023	1.69 cm	80.1 kg	28.0

What BMI will the underwriter want to see?

Date	Height	Weight	BMI
1 Jan 2022	1.70 cm	90.2 kg	31.2
30 May 2022	1.69 cm	58.3 kg	20.4
18 Nov 2022	1.70 cm	86.2 kg	29.8
1 May 2023	1.69 cm	80.1 kg	28.0

How will we spot data errors?

Electronic Health Record	
Date	BMI
1 Jan 2022	31.2

Which data source do we trust when they tell us different things?

Blood Test Report	
Date	BMI
12 June 2022	33.0

Application Form	
Date	BMI
1 June 2022	30.9

Impairment	UW Decision
'Mild' Asthma + no smoking	Standard rates
'Mild' Asthma + smoking	+50%
...	
'Severe' Asthma + no smoking	+250%

How do we ensure we extract sufficient and relevant information for each impairment?

Summarisation is good but full integration is the gold standard

The real value comes when underwriting summaries can be structured to feed underwriting rules engines...but still with human review

Underwriting
summary for
human
underwriters to
review

+ Integration into
underwriting
workbenches and
admin systems

+ Link to
underwriting
manual to return
suggested
underwriting
decision

**When will it fully replace human
underwriters?**

Never ?

Risks and mitigations

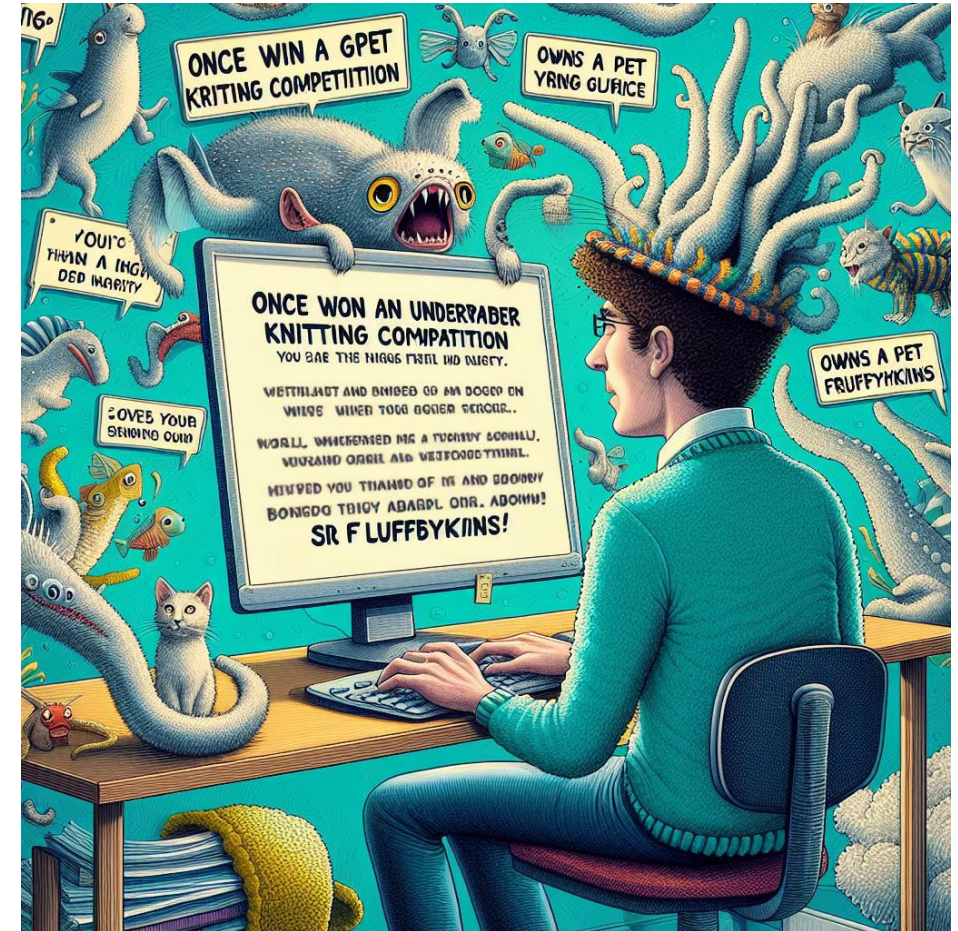
All AI carries risk, but generative AI has additional risk

Risks

- Hallucinations – incorrect conclusions
 - Decisions too harsh
 - Decisions too lenient
- Inability to act on misrepresentation at claim stage
- Legal – the right to request human decisions
- Legal – use of impermissible data
- Data/systems may evolve

Mitigations

- Human review of every case used in UW/claims
- Regular testing





Thank You!