

Allianz SE

TRENDS & EINSATZ VON KI IN DER VERSICHERUNG

Einsatzmöglichkeiten und
ethische Aspekte

Wolfgang Hauner / 19. November 2020



01

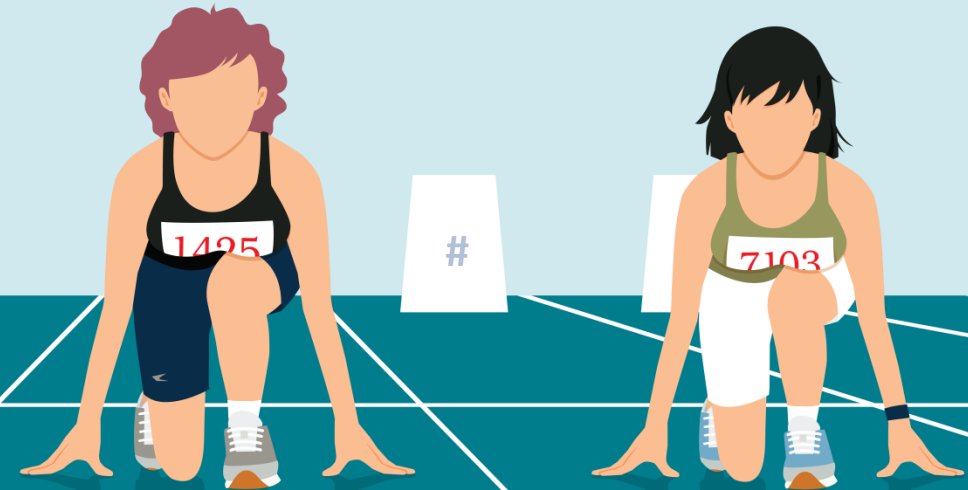
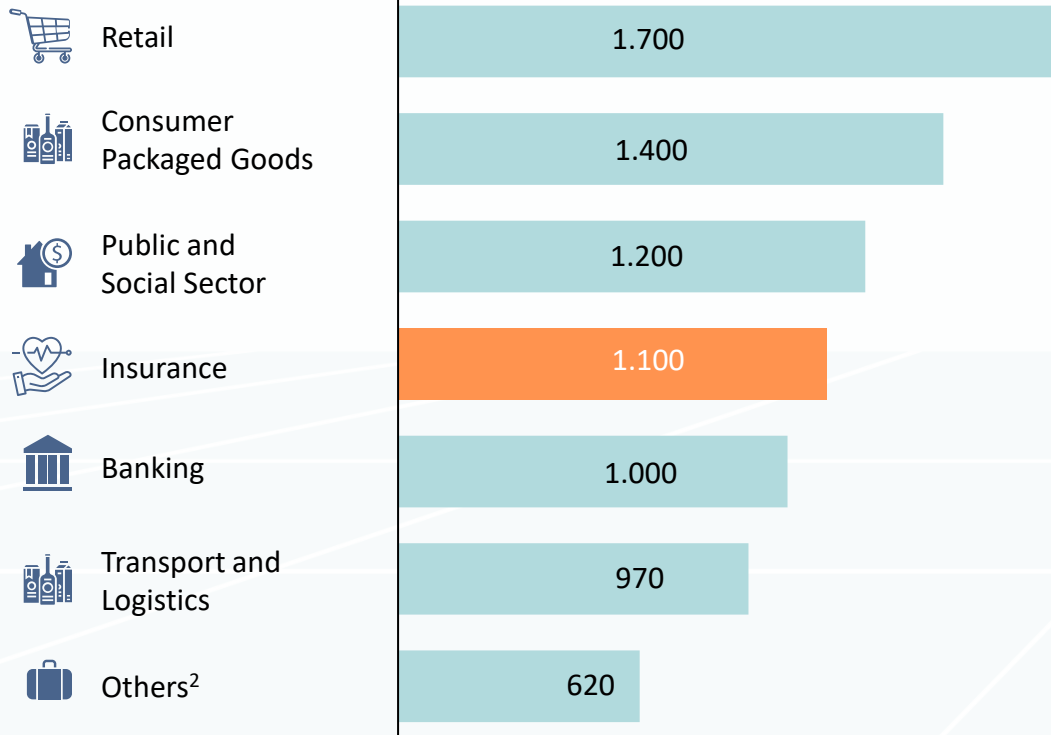
ARTIFICIAL INTELLIGENCE IN INSURANCE: POTENTIAL AND TRENDS



DA/AI PROMISE TO ADD ENORMOUS VALUE

Global DA/AI potential¹: USD 9.5tn – USD 15.4tn

Insurance is among the industries with highest potential
(in USD bn)



1. Data based on McKinsey analysis from 2016 covering more than 400 use cases and 19 industries. Annual potential is based on cumulated annual value potential of each use case applying AI across the entire global economy.
2. Average AI potential of 13 other industries.

SOURCE: McKinsey: Notes from the AI Frontier insights from hundreds of use cases

THE PROMISE: INSURANCE IN 2030

Seismic shift from DA/AI will impact all aspects of the insurance industry

MARKETING & SALES

- **Highly dynamic, usage-based insurance (UBI) products dominate the market** as these are tailored to customer needs and preferences.
- **Insurance product purchase in a matter of minutes** (e.g. auto, commercial, or life policy) due to better risk assessment with AI.
- **Agents' role will shift to more value-adding activities:** role shift to process facilitators and product educators.

RISK & UNDERWRITING

- **Underwriting will be augmented, sometimes automated, with AI** for most personal and small-business products across life and P&C
- **Automation reduces the process of underwriting to a few seconds**
- **Real-time pricing** based on usage and a dynamic, data-rich assessment of risk

CLAIMS

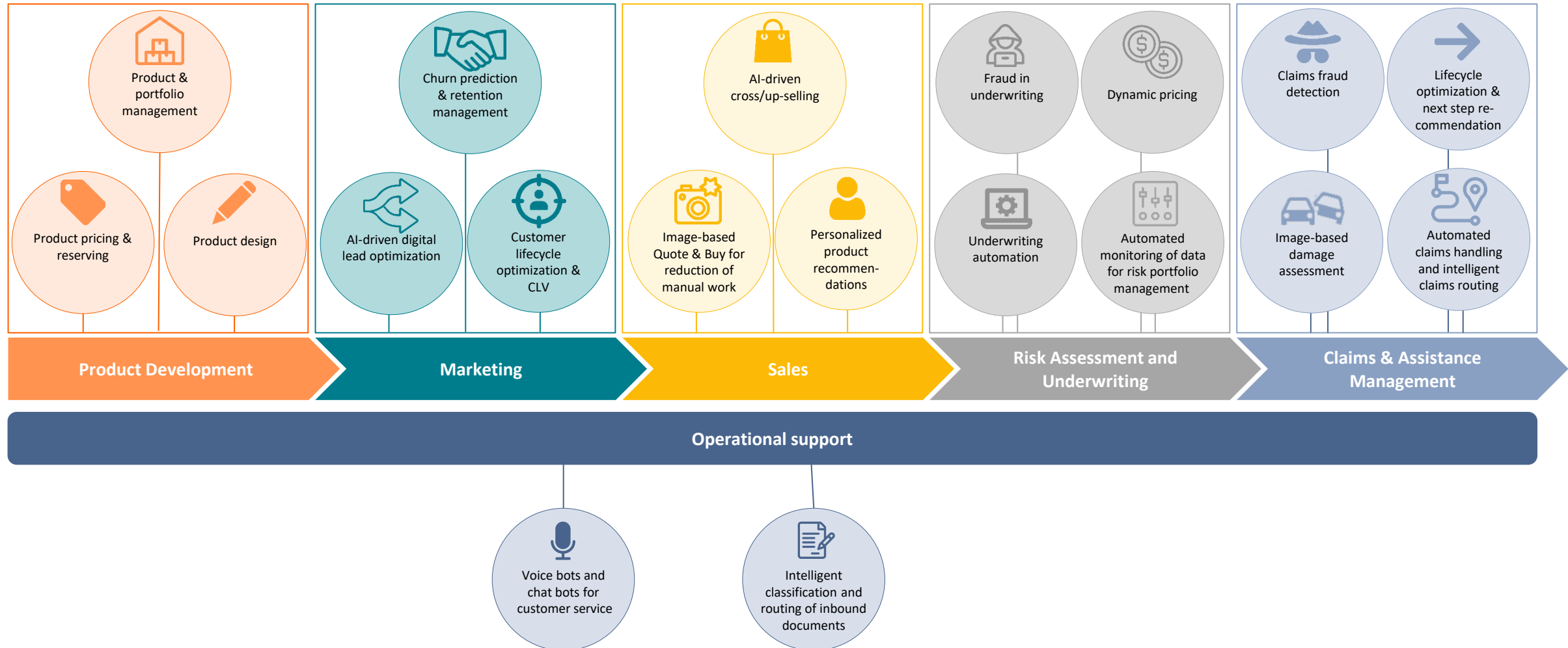
- **Claims processing times reduced to hours/minutes** through intelligent claim routing and automated processes
- **Manual claims handling efforts will be reduced;** claims handlers focus on serving customers with empathy and complex cases
- **Risk monitoring, prevention and mitigation** through IoT devices that proactively screen and intervene

02

ARTIFICIAL INTELLIGENCE AT ALLIANZ



DA & AI ADD VALUE ALONG THE FULL INSURANCE VALUE CHAIN



AI DRIVEN QUOTE & BUY ADVISORY

OBJECTIVE

Enable more agents to sell SME through AI-enhanced, simplified Quote & Buy:

- Fewer questions, automatic prefilling of crucial risk inputs
- Best-fit product recommendations and advisory support

APPROACH

Classify business activity

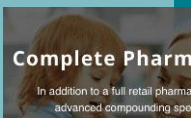
- Identify risk factors
- Determine business activity
- Estimate pricing-relevant inputs (turnover, # of employees)

Recommend best-fit coverage

- Recommended coverage type per business activity
- Estimate coverage size
- Positively reinforce sale (claims examples)

DATA

Text on customer website



Images on customer website



Company data



Classification &
Recommendation

Satellite and geospatial data

Customer and policy profile data

EXAMPLE: SME

What are the specific risks of a pharmacy?



Versicherungsvorschlag auf Basis der Eingaben und der betrieblichen Tätigkeit

Die Berechnungen basieren auf den Eingaben zu der betrieblichen Tätigkeit, der Personenanzahl, dem Jahresumsatz sowie der Auswahl im Bereich der Versicherungsmöglichkeiten. Ohne Firmen-Rechtsschutzversicherung.

Unsere Empfehlung

Sie gehören zu den exklusiven 10 % ihrer Berufsgruppe, die sich für den Top-Schutz der Allianz entscheiden - eine ausgezeichnete Wahl! Wussten Sie, dass die Schadenszahlungen der Allianz für Apotheken im letzten Jahr im Bundesland Bayern bei €1.250.000 lagen? Die Allianz Haftpflichtversicherung wurde in den vergangenen Jahren von externen Ratingagenturen stets für besten Versicherungsschutz prämiert.

	COMFORT	PLUS	EXTRA	Empfehlung MAX
 Feuerversicherung MEHR	✓	✓	✓	✓
 Sturmversicherung MEHR	✓	✓	✓	✓
 Elementarversicherung MEHR	✓	✓	✓	✓
 Basis-Assistance MEHR	✓	✓	✓	✓

IMAGE-BASED DAMAGE ASSESSMENT (1)

OBJECTIVE

- Provide claims department with a data-driven damage and cost assessment for individual claims enabling automatic claims segmentation and payout



APPROACH

- Finalize model for severity classification achieving 90% accuracy for both low damage and high damage types of claims
- Achieve less than 100€ error for predicting the cost of repair from photos of damaged cars and from structured claims data
- Implement total loss detection model achieving 90% of accuracy

DATA

DAMAGED CAR PHOTOS
6.7M IMAGES

EXPERT ASSESSMENT REPORTS

STRUCTURED CLAIMS DATA
119K CLAIMS

MODELS DEVELOPED

DOCUMENT, CAR IMAGE, VIN, DASHBOARD SEPARATION

CAR DETECTION AND CROPPING

CAR AREA AND PART DETECTION

DAMAGE SEVERITY CLASSIFICATION

REPAIR COST ESTIMATION MODEL

CHALLENGES

DATA QUALITY

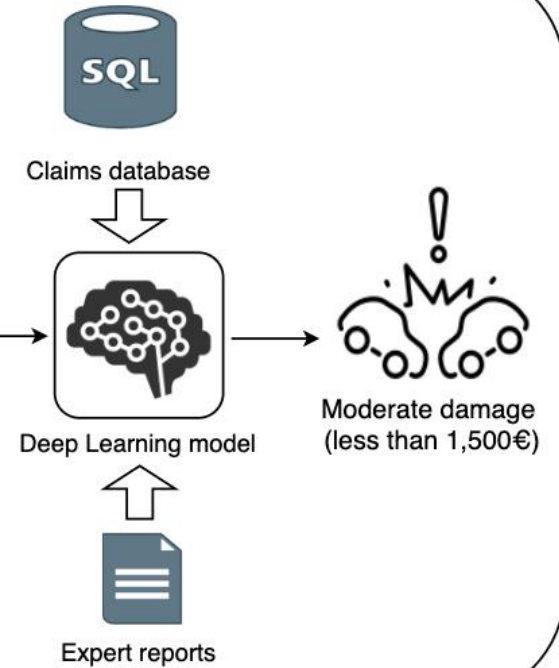
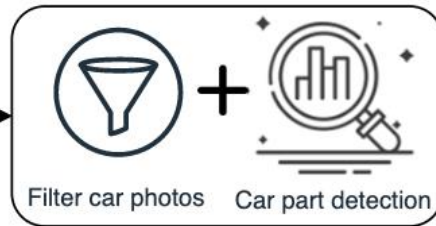
AVAILABLE IMAGES CONTAIN CONSIDERABLE AMOUNT OF NOISE

MODEL STACKING

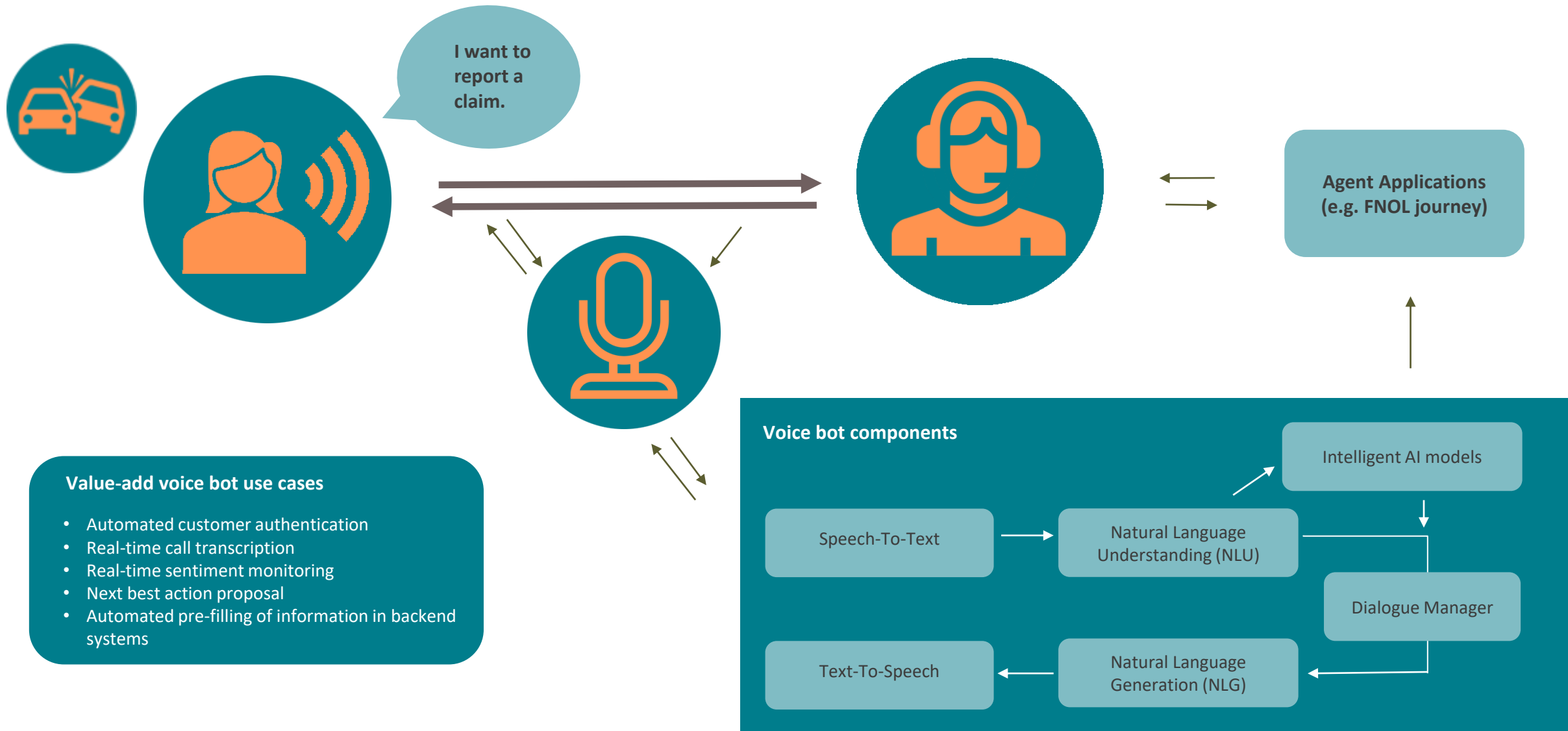
EFFICIENT WAY OF COMBINING CNNs AND MODELS TRAINED ON STRUCTURED DATA

IMAGE-BASED DAMAGE ASSESSMENT (2)

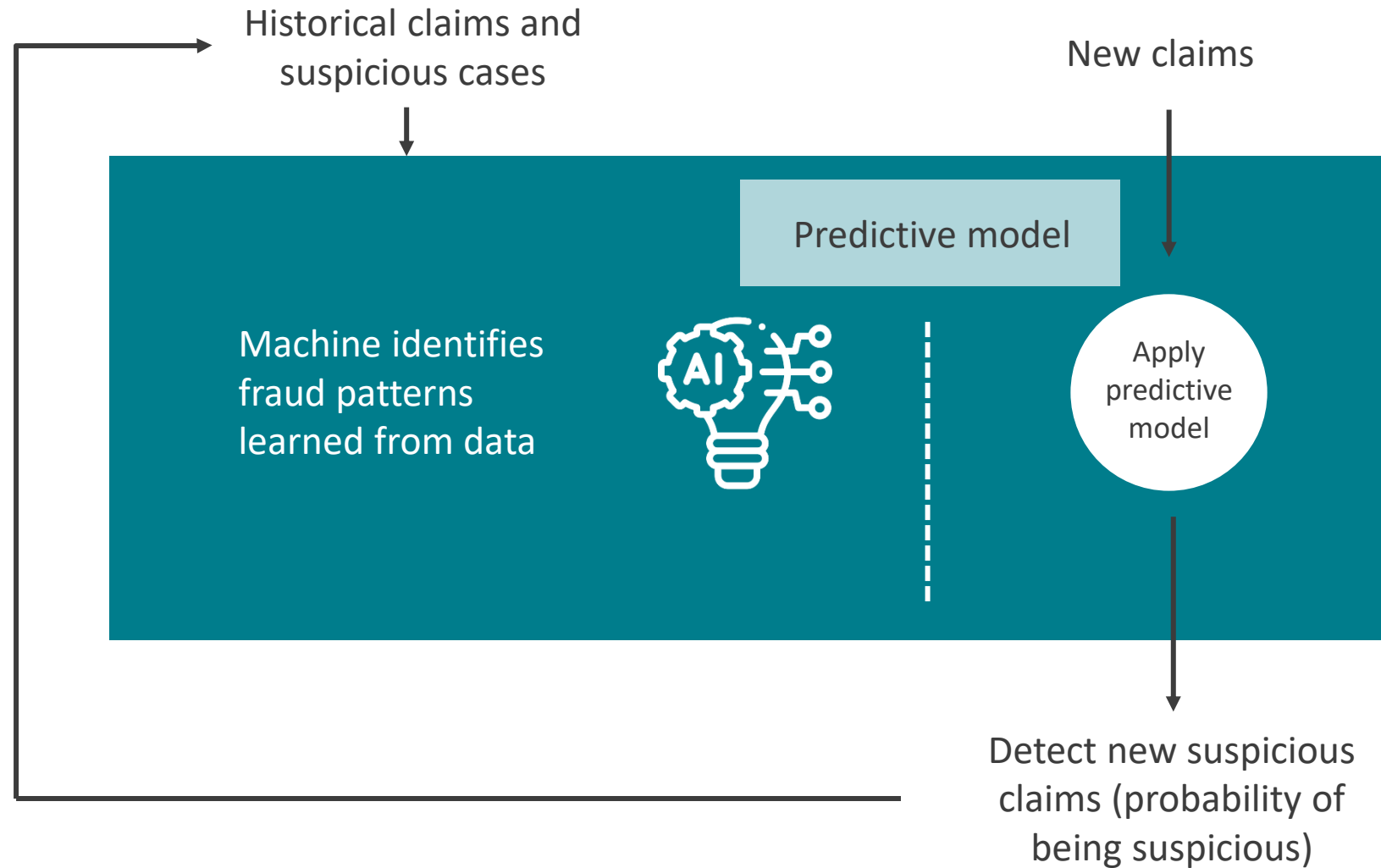
Claim Images



INTELLIGENT VOICEBOTS SUPPORT CUSTOMER SERVICE



MACHINE LEARNING FOR FRAUD DETECTION



AI AND ITS LIMITS

ACCESS TO DATA

USE OF DATA

FAIRNESS

ACCESS TO TECHNOLOGY

LIMITATIONS OF TECHNOLOGY/
COMPUTING POWER

DATA QUALITY

BIAS IN DATA

03

ARTIFICIAL INTELLIGENCE AND ETHICS



AI AND NON-DISCRIMINATION: DOES AI DISCRIMINATE?





vor 1 Tag

manager magazin | Wirtschaftsnachrichten
manager-magazin.de



D&O Versicherungslösungen - D&O Versicherungslösung...
kuv24-manager.de

The New York Times

Facial Recognition Is Accurate, if You're a White Guy

SOURCE: [The New York Times, Feb 9, 2018](#)



Die 10 Rollen eines Managers: Was tut ein Manager...
computerwoche.de



Bewerbung als Manager: So positionieren Sie sich
karrierebibel.de



Wie werde ich Marketing Manager? ein Bericht von Geral...
high-potential.com







AI & FAIRNESS IN INSURANCE: WHAT IS IT ABOUT?

Artificial Intelligence (AI) and data analytics enable insurers to apply personalized pricing to their products. As a result, it is often alleged to go against the fundamental principle of “collectives” and to be too obscure to unbox

Voiced concerns are potentially poor outcomes for vulnerable customers and that the application of granular pricing can lead to exclusions of customer segments

The usage of AI and data analytics in other process like fraud detection, digital marketing, and cross- and up-selling have been frequently mentioned when debating AI and Fairness in Insurance

AI & FAIRNESS IN INSURANCE: CUSTOMIZED OR UNFAIR?

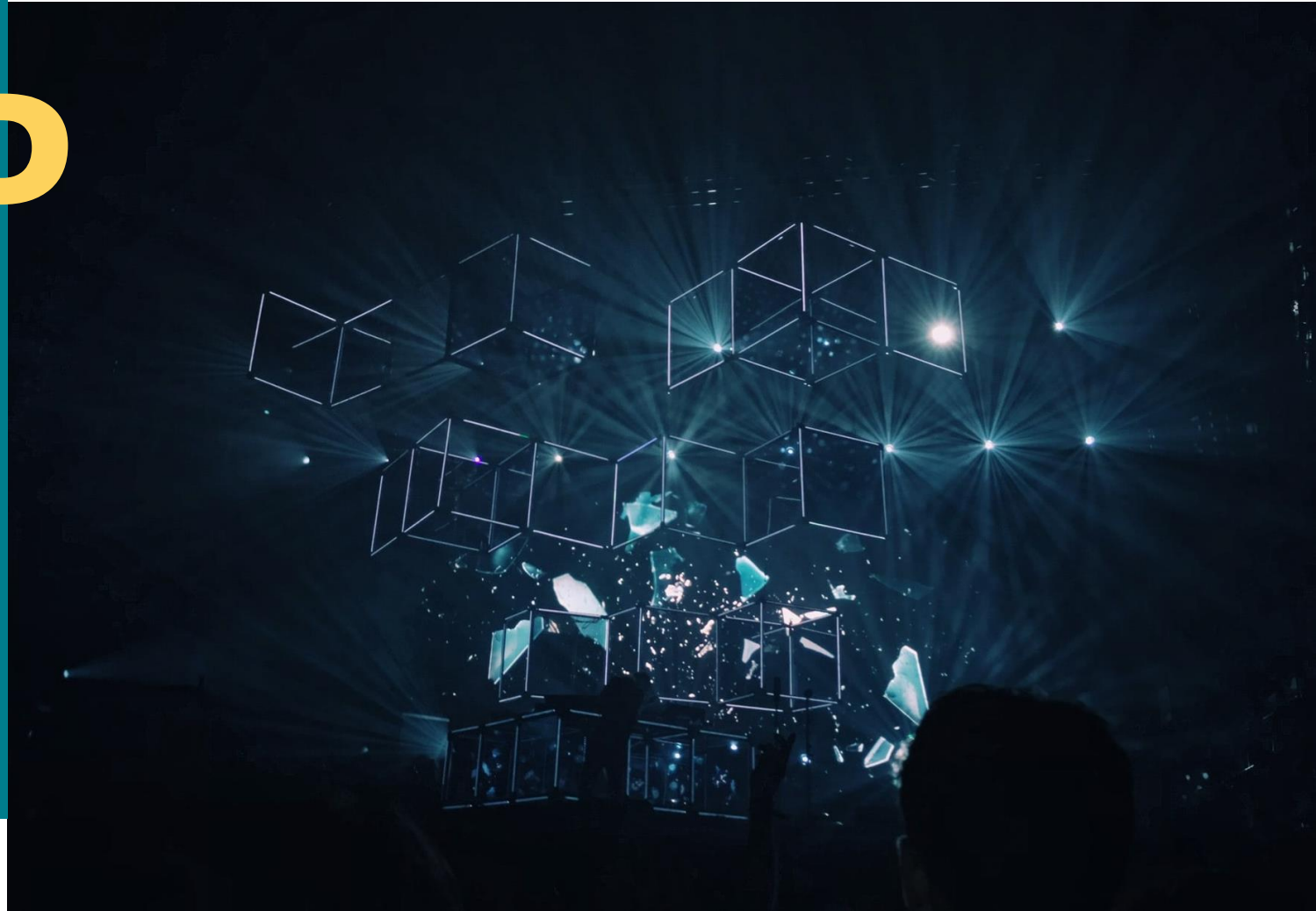
Using AI, insurers can better (i.e. more adequately) assess risks. If women and men have different risk profiles, is it fair to price them differently?

Is eliminating critical factors (e.g. gender, ethnicity) from the data enough? What if there is a correlation with other non-critical pieces of information?

Is the use of AI justified for technical pricing but not for commercial pricing?

The intimate question: does using AI/ Data Analytics in insurance lead to customized or unfair pricing? Is the future of insurance fairer with AI?

BACKUP



AI & FAIRNESS: SOME EXAMPLES

AI can make insurance fairer:

- Motor insurance: Speeders pay more; cautious drivers are rewarded
- Life insurance: Life insurance can be priced more suitably to the risk based on lifestyle (e.g., wearables or analysis of health data)
- Property insurance, e.g. home: can be priced in a more tailored way based on characteristics of the property and its surroundings, e.g. exposure to natcats

Where AI doesn't help or can be controversial:

- Health: highly granular pricing may lead to people with higher risk not being able to afford insurance any more
- Fraud detection: Using AI in fraud can lead to unfair profiling of claims and wrong outcomes based on some features. Example: If a network of fraudsters in a specific zip code gets flagged in the system, this can lead to any future claim from this zip code being flagged as fraudulent in case the system is not recalibrated correctly.

AI & FAIRNESS IN INSURANCE: REGULATORY VIEW

Fairness is a major topic in the EU Guidelines for Trustworthy AI, most principle based frameworks for AI and also in the EIOPA Expert Group discussions.

- Existing **sector neutral regulation** expresses clear set of not acceptable parameters for differentiation (i.e. non-discrimination).
- **Sector specific limitations** are set at EU level as well as by national legislation (e.g. for use of health data)

The European Parliament (EP) issued a **Study on Customer Protection re Digital and AI use** with the aim to integrate the recommendations into **Digital Service Act** (Q4/2020)

Summary of the relevant recommendations:

- Consumers' option not to be tracked and (micro)-targeted and to express preferences
- Guidance on right of consumers to contest a decision
- Specification on the grounds on which service providers and traders cannot price-discriminate
- Guidance concerning what algorithmic practices count as aggressive advertising

AI & FAIRNESS IN INSURANCE: ALLIANZ POSITION

- Avoiding bias (i.e. unwanted discrimination) is a technical question that can be resolved by following the scientific progress and sector neutral standards
- The concept of Fairness implies not only “technical avoidance of bias” but points to the broader **ethical discussion** of adherence to a **proper conduct regime** and transparency on underlying **value-based decisions**
- Certain AI applications in the financial sector could require ex-ante approval (e.g. robo-advice for asset allocation or long term financial products)
- The existing Conduct Regime for financial services (i.e. demands and needs based advice, fair and transparent conflict of interest management) could serve as new EU sector neutral standard