Data Science and AI Adoption in Japanese Financial Institutions

Yosuke Fujisawa

Introduction

Yosuke Fujisawa

FIAJ, CERA, Certified Pension Actuary

2000 **Sumitomo Trust & Banking**
- Fellow of Institute of Actuaries of Japan
- Certified Pension Actuary

2008 **Master of ActSc, University of Waterloo**

2011 **Lifenet Insurance, GM of risk management**
- CERA
- Part-time lecturer at Osaka University

2014 **RGA Reinsurance Company, Director**

2017 **Swiss Reinsurance Company, Vice President**
- Part-time lecturer at Waseda University

2020 **Sumitomo Life, Data Science Officer**
- Chair of EFR forum, IAA
- Member of AI taskforce, IAA
- Visiting professor at Waseda University

Company Overview

- Established: May 1907

Key Figures[1] – 1H FY2025 (as of Sep 2025)

- Premium income: JPY 1.76tn (USD 11.8bn) (JPY 3.37tn in FY2024)
- Core business profit[2]: JPY 196.5bn (USD 1.3bn) (JPY 379.8bn in FY2024)
- Total assets: JPY 49.25tn (USD 330.8bn)
- Annualized premiums from policies in force[3]: JPY 3.65tn (USD 24.5bn)
- Solvency margin ratio: 668.6%
- Economic value-based solvency ratio : 184%
- Embedded value[4] (EEV) : JPY 6.41tn (USD 43.0bn)
- Number of sales representatives(tied agents): 31,825
- Insurer financial strength rating[5]: A+ [S&P], A1 [Moody's], A+ [Fitch], AA [R&I], AA [JCR]

Source: Company disclosure.

1. Consolidated figures. USD amounts in parentheses in this presentation (except as otherwise stated) are translated from JPY using USD1 = JPY148.88, as of September 30, 2025.
2. Core business profit of the group (see page 6 for details).
3. Figures for individual life and individual annuity for domestic business (see page 5 for details).
4. Combined figures of Sumitomo Life's EEV, Medicare Life's EEV, Symetra's EEV and Singlife's EEV (see page 8 for details).
5. As of October 31, 2025.
6. As of September 30, 2025 on ownership

Group Overview[6]

Empowering your future
SUMITOMO LIFE

Domestic

Life Insurance

メディケア生命 住友生命グループ

Medicare Life Insurance

- Sells simple and affordable products through banks and outlets
- 100% subsidiary

Small-amount and Short-term Insurance

アイアル 住友生命グループ

AIARU Small Amount & Short Term Insurance

- 100% subsidiary

Insurance Outlets

ほけん百花

保険デザイン Agent IG Holdings 保険ほっとライン hoken line .com

Izumi Life Designers / INSURANCE DESIGN / Agent IG Holdings / Mycommunication

- Also sell other insurers' products
- Ownership: 100% / 95% / 30.45% / 43%

Overseas

U.S.

SYMETRA

Symetra Financial Corp

- Life insurance group operating businesses across the U.S.
- 100% subsidiary since February 2016

Singapore

Singlife

Singlife Holdings

- An insurance group formed by the merger of Aviva Singapore, a major insurance company, and Singlife, an insurtech company
- 100% subsidiary since March 2024

China

PICC

PICC Life

- Life insurance JV with PICC group
- Owns 10% of the shares

Vietnam

BAOVIET

Baoviet Holdings

- The largest financial / insurance group in Vietnam
- Owns 22.08% of the shares

Indonesia

BNI Life

PT BNI Life

- JV with BNI, a national bank
- Owns 39.99% of the shares

Digital & Data × AI (D&D 2.0) / Enhancement of Human Capital Value

By integrating continuously evolving AI technologies into digital and data initiatives and expanding the areas handled by AI, we will transform business processes. At the same time, by concentrating human resources on higher-priority areas, we will maximize human potential and further enhance the value we create.

デジタル&データ × AI (D&D2.0)

We will incorporate technological innovations, including AI, into our business and promote the use of digital and AI across the entire organization to drive sustainable value creation.

Digital

● IT開発体制の強化

- ✓ スミセイWXをはじめとする重点領域に経営資源を優先配分し、生産性向上・コスト最適化を通じた戦略的なIT投資を推進する。
- ✓ サイバーリスクの高度化を見据え、グループ横断で持続的な事業運営を支えるサイバーセキュリティ態勢を強化する。

● デジタル共創

- ✓ デジタルによる相互送客を軸とした共創モデルを確立し、顧客基盤の拡張と新たな収益機会の創出を図る。
- ✓ お客さま接点を継続的に深化させ、関係性を維持・強化しながら価値のあるサービスをお届けするスキームを構築する。

Data

● Data Science

- Expand the creation of evidence that can be leveraged for sales support and business development, and strengthen the data utilization infrastructure.
- Enhance analytical and delivery processes—including the provision of the “Sumisei Health Expectancy Report”—to improve the quality of data-driven value for both corporate and individual customers.

×

AI

AI investment: About 20 billion yen over three years (cumulative total)

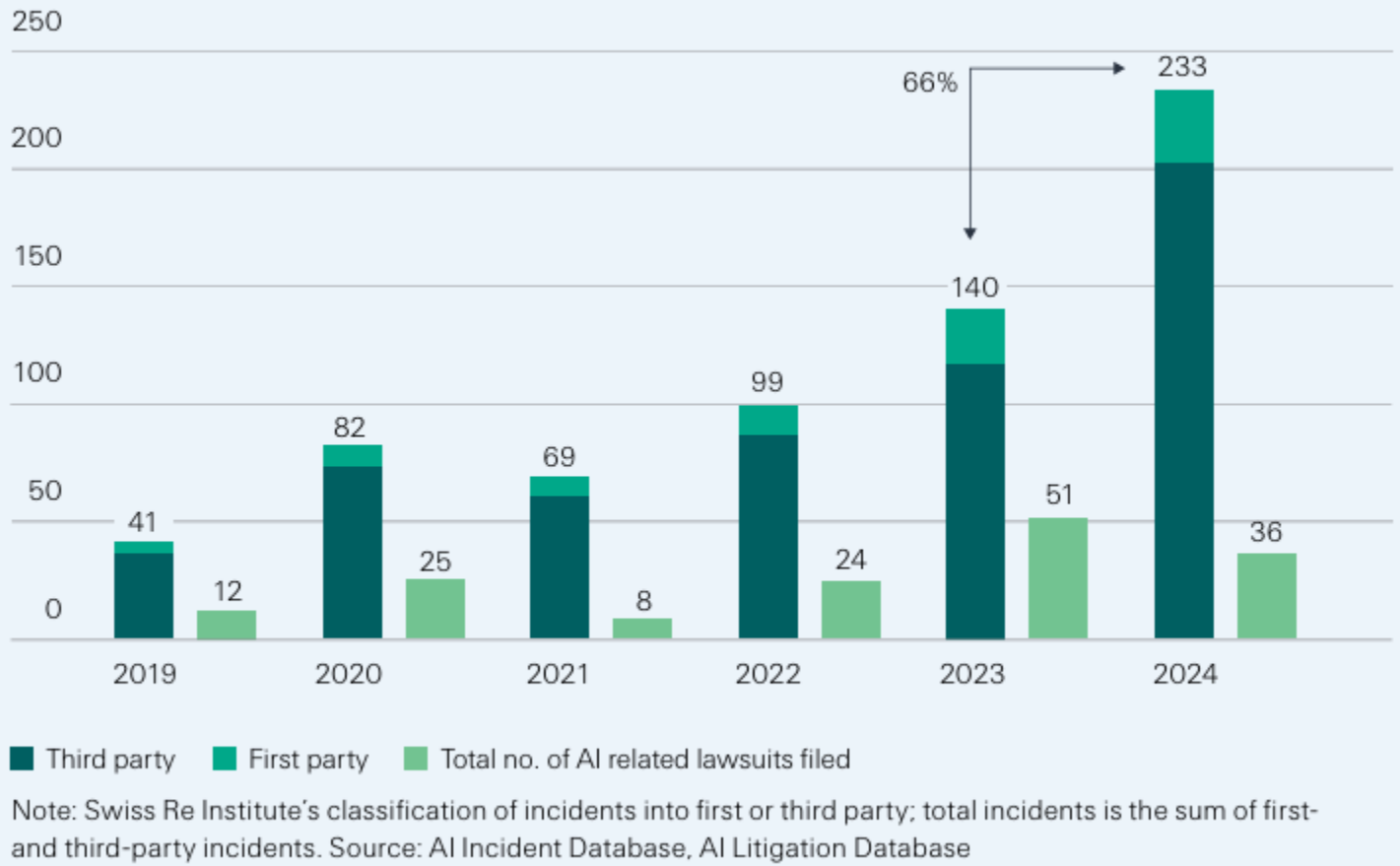
Amid a declining population and increasingly sophisticated customer needs, this serves as a critical management foundation that balances value creation and efficiency.

- **Strengthen “indispensable” value delivery by maximizing the value created through AI utilization.**
- **Formulate an overall strategy and a mid- to long-term roadmap for full-scale AI adoption, and implement it in a strategic and phased manner.**
- **Establish a cross-organizational promotion framework to enable AI utilization beyond departmental optimization, and ensure company-wide optimization through prioritization of investments and progress management.**

Enhancement of Human Capital Value | 10% reduction in working hours

- AI-related incidents are increasing, with reported cases rising by more than **60% between 2023 and 2024**.
- As AI adoption expands across **individuals and organizations**, a further increase in litigation is expected.
- In particular, lawsuits related to **intellectual property infringement and defamation** have surged, including cases linked to large language models (LLMs) such as ChatGPT.

Figure 5
Number of AI incidents

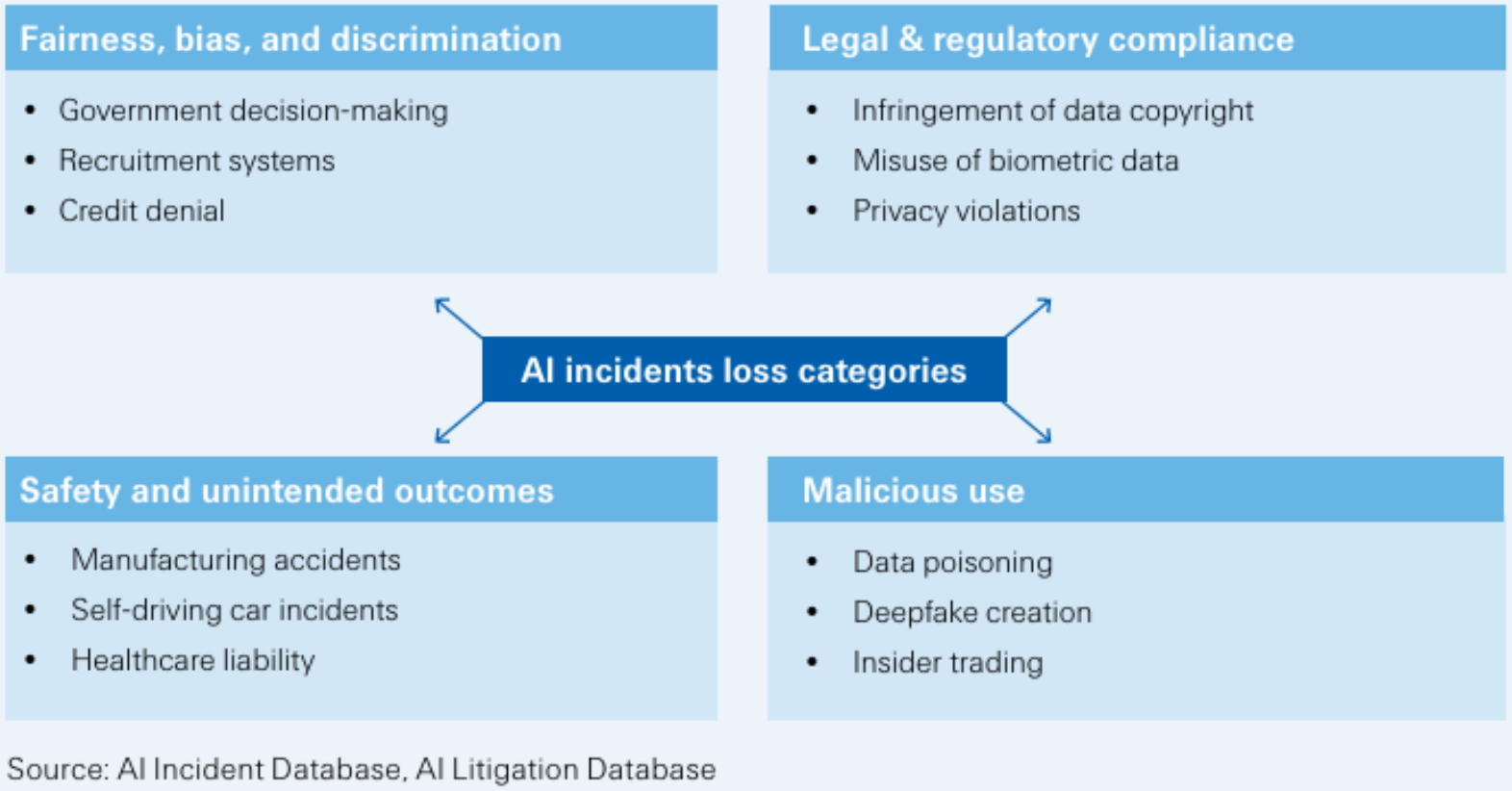


Note: Swiss Re Institute's classification of incidents into first or third party; total incidents is the sum of first- and third-party incidents. Source: AI Incident Database, AI Litigation Database

Source: Swiss Re SONAR report 2025

Major Categories of AI Risks

Figure 7
Loss drivers

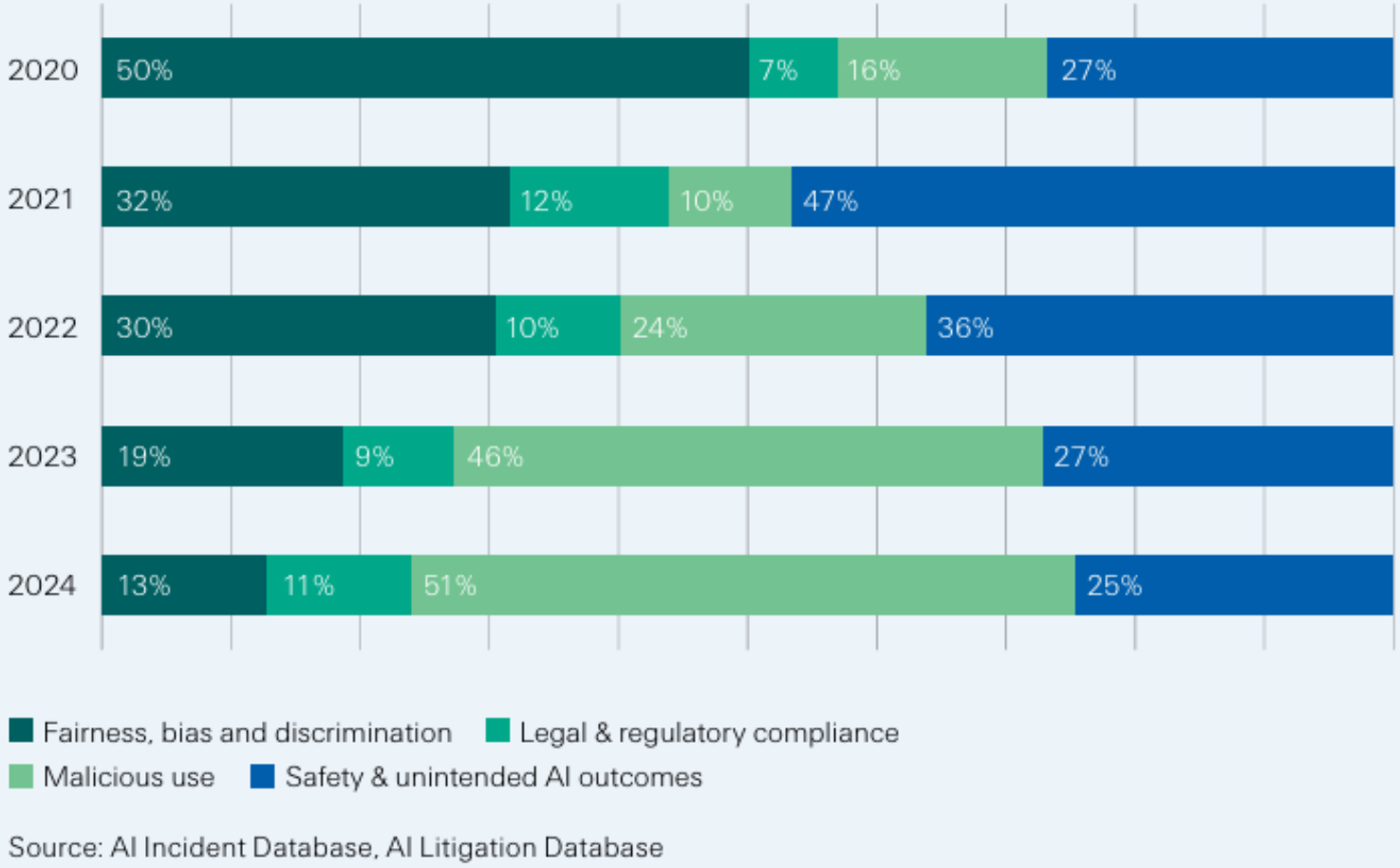


Source: AI Incident Database, AI Litigation Database

Source: Swiss Re SONAR report 2025

- While incidents related to fairness, bias, and discrimination are decreasing as a proportion of total AI incidents, **malicious use–related incidents** continue to increase.

Figure 6
Loss categories' share of total losses



Source: AI Incident Database, AI Litigation Database

Source: Swiss Re SONAR report 2025

EU vs Japan: AI Regulation Approach

	EU (AI Act)	Japan
Regulatory Approach	Rule-based, legally binding	Principle-based, soft law
Risk Classification	Strict risk classification, including prohibited uses	Flexible, non-binding risk considerations
Enforcement	Strong enforcement with penalties	Limited enforcement, supervisory dialogue
Governance Model	Centralized regulation	Multi-layered (government, regulator, industry)
Innovation vs. Regulations	Safety-first	Pro-innovation, pro-trust

- Japan relies on trust and distributed responsibility.
- Soft law offers flexibility and innovation, but suffers from uncertainty, weak enforcement, and potential chilling effects.

Japanese government

AI Guidelines for Business Ver.1.1 (Ministry of Economy, Trade and Industry)

Support for voluntary efforts by business operations

Show directions for AI business actors founded on the risk-based approach.

Coordination with international discussions

Ensure consistency with trends and contents of domestic and overseas relevant principles.

Understandability for readers

Readers can check risks and handling policies that should be considered regarding AI, for each of AI developers, AI providers, and AI business users.

English version is available on https://www.meti.go.jp/shingikai/mono_info_service/ai_shakai_jisso/20240419_report.html

Social Principles of Human-Centric AI (Cabinet Office)

- Human-centric
- Education/literacy
- Privacy protection
- Ensuring security
- Fair competition
- Fairness, Accountability, and Transparency
- Innovation

Horizontal vs. Vertical Principle/Guideline

Horizontal

- Rules that apply to the use of AI in any sector.

Examples:

1. **Social Principles of Human-Centric AI** (Cabinet Office, Government of Japan, 2019)
   - The Human-Centric Principle
   - The Principle of Education/Literacy
   - The Principle of Privacy Protection
   - The Principle of Ensuring Security
   - The Principle of Fair Competition
   - The Principle of Fairness, Accountability, and Transparency
   - The Principle of Innovation
2. **AI Guidelines for Business ver1.1** (Ministry of Internal Affairs and Communications & Ministry of Economic, Trade and Industry, 2025)

Vertical

- Rules tailored to a specific industry, reflecting its unique risks and social responsibilities.

Examples:

1. **AI Discussion Paper** (Financial Services Agency, 2025)

2. **Generative AI Guidelines for Financial Institutions** (Financial Data Usage Association, 2024)

3. **AI Governance Framework** (International Actuarial Association, 2025)

Agenda

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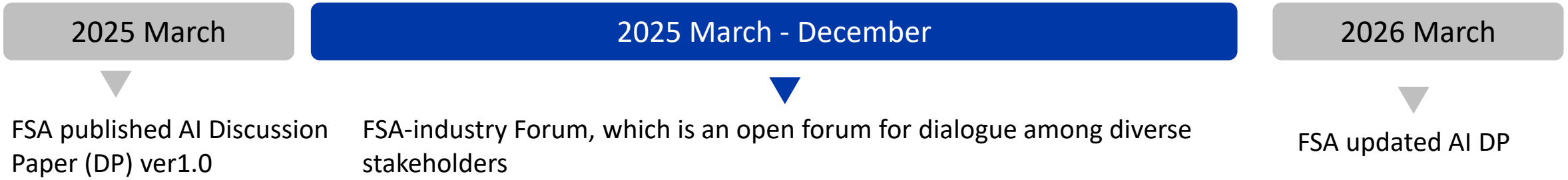
Our company and Japanese experience

AI Discussion Paper



Background and key issues

- The DP clearly sets out a policy to **actively promote the sound use of AI** by financial institutions.
- Going forward, in considering the provision of **safe harbors through clearer regulatory applicability**, it is necessary to **deepen the initial issues identified in the DP** and translate them into concrete policy measures.
- In addition, to support financial institutions in **steadily advancing AI initiatives**, it is important to **share use cases and practical approaches to governance**, as strongly requested in post-DP feedback.

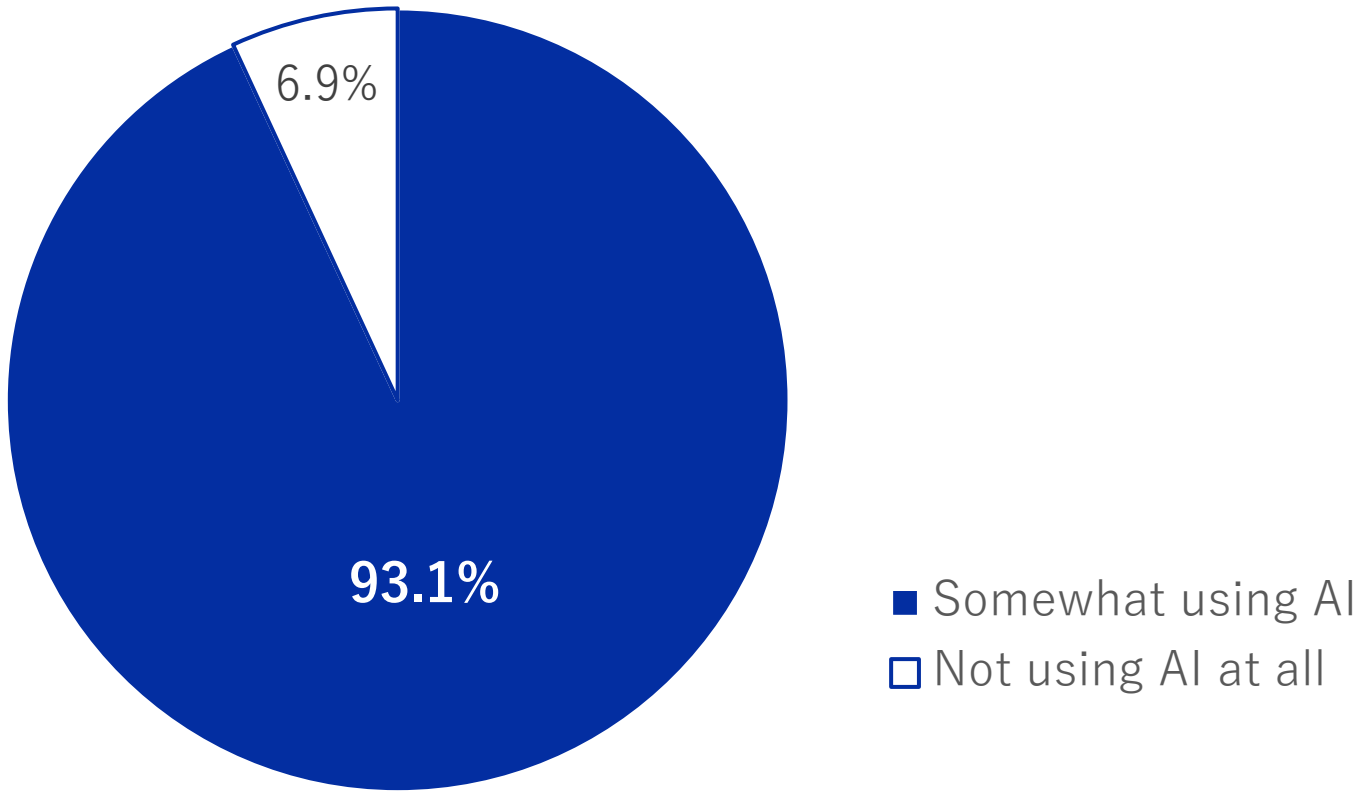
AI Discussion Paper

Summary

- Generative AI's dramatic performance improvements are driving a societal transformation.
- Looking ahead, AI is expected to greatly improve efficiency and convenience across industries, including finance, and in various aspects of daily life, contributing to improved living standards and national economic development.
- However, the utilization of complex AI, particularly generative AI, presents challenges and emerging risks, such as misuse leading to crime and the spread of misinformation.
- While the financial sector is actively exploring AI adoption, concerns about risks and regulatory hurdles are causing some hesitation.
- **Recognizing the "risk of inaction"** - the potential for long-term decline in high-quality financial services due to technological stagnation - we encourage initiatives that emphasize customer convenience and operational efficiency.
- Therefore, the FSA has published this Discussion Paper to provide strong support for the sound use of AI and to contribute to constructive dialogue with business operators in the future.

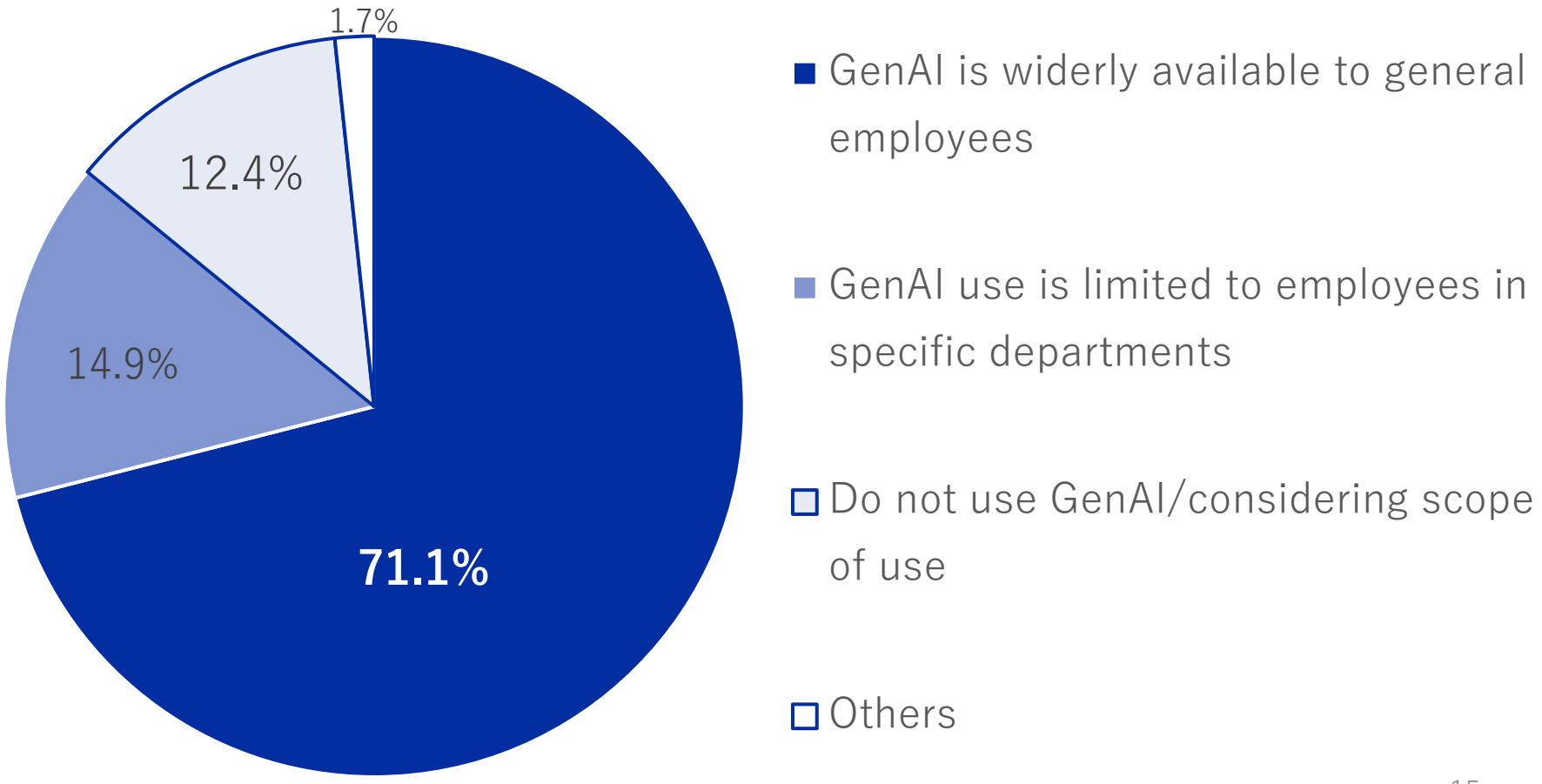
AI Discussion Paper

- Questionnaire Survey on the Status of use of AI by Financial Institutes (40.0% for banks, 16.9% for securities firms and **11.5% for insurance companies**)
- **Over 90%** of respondents already use conventional AI or generative AI.



AI Discussion Paper

- **Approximately 70%** of Financial Institutions broadly allow the use of generative AI for general employees.
- Utilization is expanding through internal study sessions and idea contests.



AI Discussion Paper

Internal use

- Currently, many financial institutions remain here.
- Use cases such as **document summary/translation, editing and evaluating of documents, internal FAQs, and system development/testing**.
- More than half of respondents said that they would consider using it for customer services in the future.

Indirect utilization in customer service

- A considerable number of companies have already introduced generative AI into customer-facing services. However, due to risks, GenAI outputs are generally not presented directly to customers, and most use cases involve human judgment.
- Use cases such as **call center operations support, preparation of documents, and draft of external documents**.

Direct utilization in customer service

- This is **very limited** due to risks such as hallucination.

Specific examples of initiatives towards widespread internal use and application of GenAI

- To provide an environment where employees can use generative AI daily, a personable GenAI assistant was added to Slack, the main internal communication tool. Equipped with practical capabilities to support tasks, it is also used as a casual advisor. Instead of web page that needs to be opened every time, the GenAI functionality was embedded in the collaboration tool to improve usability. It is used for research, translation, transcription, etc.
- The Financial Institute utilizes not only general-purpose AI functionalities but also deploys a document-referencing GPT that generates draft answers based on internal documents. It has also introduced an add-in that enables GenAI access from document creation applications, across the entire organization.
- A GenAI chatbot was introduced on a vendor-provided platform, allowing users to interactively ask questions about administrative procedures. AI summarizes the content of the bank's administrative manual and responds along with the source of the information.

AI Discussion Paper

Common challenges for conventional AI and GenAI

- Data preparation
- Collaboration with external vendors and risk management
- ROI (Return On Investment)

Issues made difficult by GenAI

- Accountability and Fairness/bias
- Development and operation of AI systems, and model/risk management
- Protection of personal information/Information Security and Cybersecurity
- Hiring of AI experts and training of employees

New challenges created by GenAI

- Hallucination
- Misuse of generative AI for financial crime
- Other issues concerning financial system stability

Agenda

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2. **Generative AI Guidelines for Financial Institutions** (Financial Data Utilization Association, 2024)
3. **AI Governance Framework** (International Actuarial Association, 2025)

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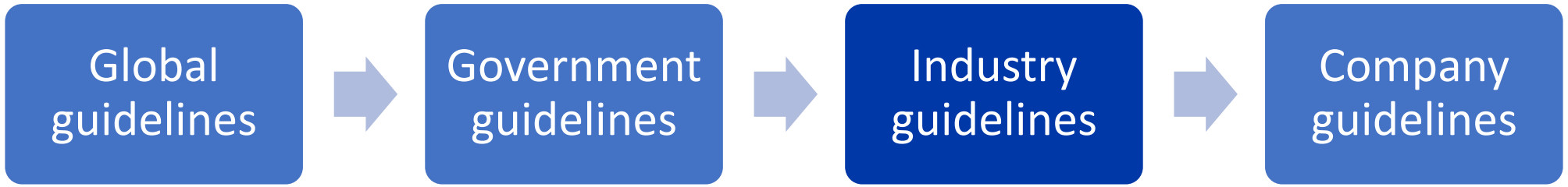
Our company or Japanese experience

Generative AI Guidelines for Financial Institutions

- **The Financial Data Utilization Association (FDUA)** is a Japanese industry association that promotes the effective and responsible use of financial data.

- FDUA supports financial institutions by developing **guidelines and best practices** on data governance, analytics, and the use of emerging technologies such as GenAI, with a strong focus on risk management and social trust.

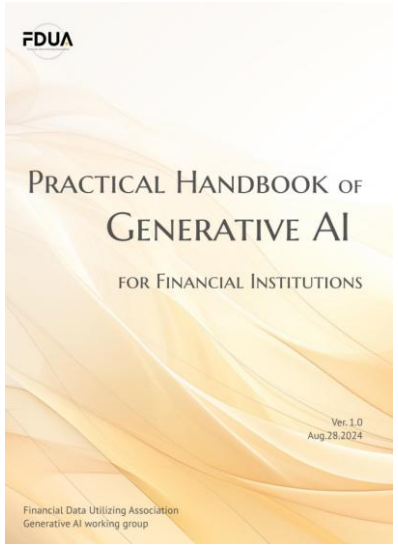


- Organizes data competitions to promote innovation, talent development, and real-world use of financial data.

- Purpose: This guideline aims to promote the innovative yet responsible use of GenAI in financial institutions. This provides guidance tailored to the financial sector, complementing Japan's national AI guidelines and other industry standards.

- Scope: The guideline classify GenAI adoption into three levels:
  1. **Individual use** of GenAI tools for internal productivity
  2. **Enterprise use**, such as RAG-based applications leveraging internal use
  3. **Customer-facing services**, which require the highest level of governance and risk control.

Generative AI Guidelines for Financial Institutions



Level 1

- Using GenAI **within a company at an individual level**.
- Use cases: drafting documents and emails, coding, meeting minutes, etc.

Level 2

- Incorporating **internal information** through the RAG mechanism to build applications for **specific domains**.
- Use cases: drafting responses to customer inquiries, sale support, etc.

Level 3

- Providing services to **external** customers using GenAI.
- Use cases: customer inquiries support

Source: Practical Handbook of Generative AI for Financial Institutions

Use Cases

- Using GenAI within a company at an individual level.

あなたの未来を強くする
住友生命

NEWS RELEASE

2023 年 7 月 13 日
住友生命保険相互会社

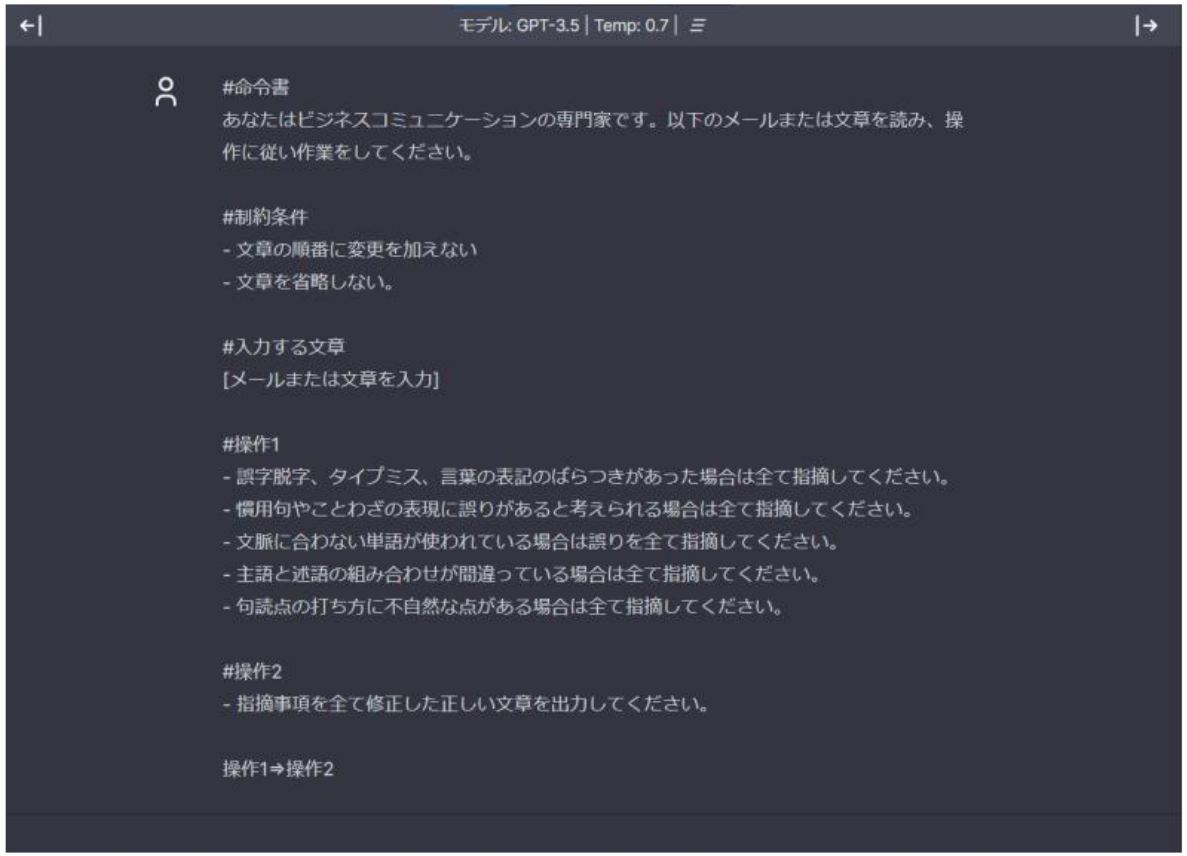
生成系 AI を活用した新たな顧客価値創造や生産性向上の取組み

～１万人の職員に導入 「人」と「デジタル」の融合で ウェルビーイングサービスの創出へ向けて加速～

住友生命保険相互会社（取締役 代表執行役社長 高田 幸徳、以下「住友生命」）は、生成系 AI チャットシステム（Sumisei AI Chat Assistant、以下「本システム」）を、７月 18 日より本社・グループ会社の職員約１万人を対象に運用開始予定です。本システムを通じて日常業務の生産性向上を図るほか、お客さま向けサービスの開発・更なるレベルアップに活用していきます。

住友生命は、「住友生命グループ Vision2030」の中で掲げる全てのステークホルダーの「ウェルビーイング※1」実現に向け、従来の保険会社の姿に留まることなく、“住友生命「Vitality」”をはじめとした、さまざまなよりよく生きるサービス「WaaS（Well-being as a Service）※2」を創出・提供することを目指しています。職員がデジタル・IT に関する知識やスキルを身に付け、さらに生成系 AI システムを活用することで、新たなウェルビーイングサービスの創出に向けた取組みを加速していきます。

＜本システムのデモ画面：プロンプトの事例＞

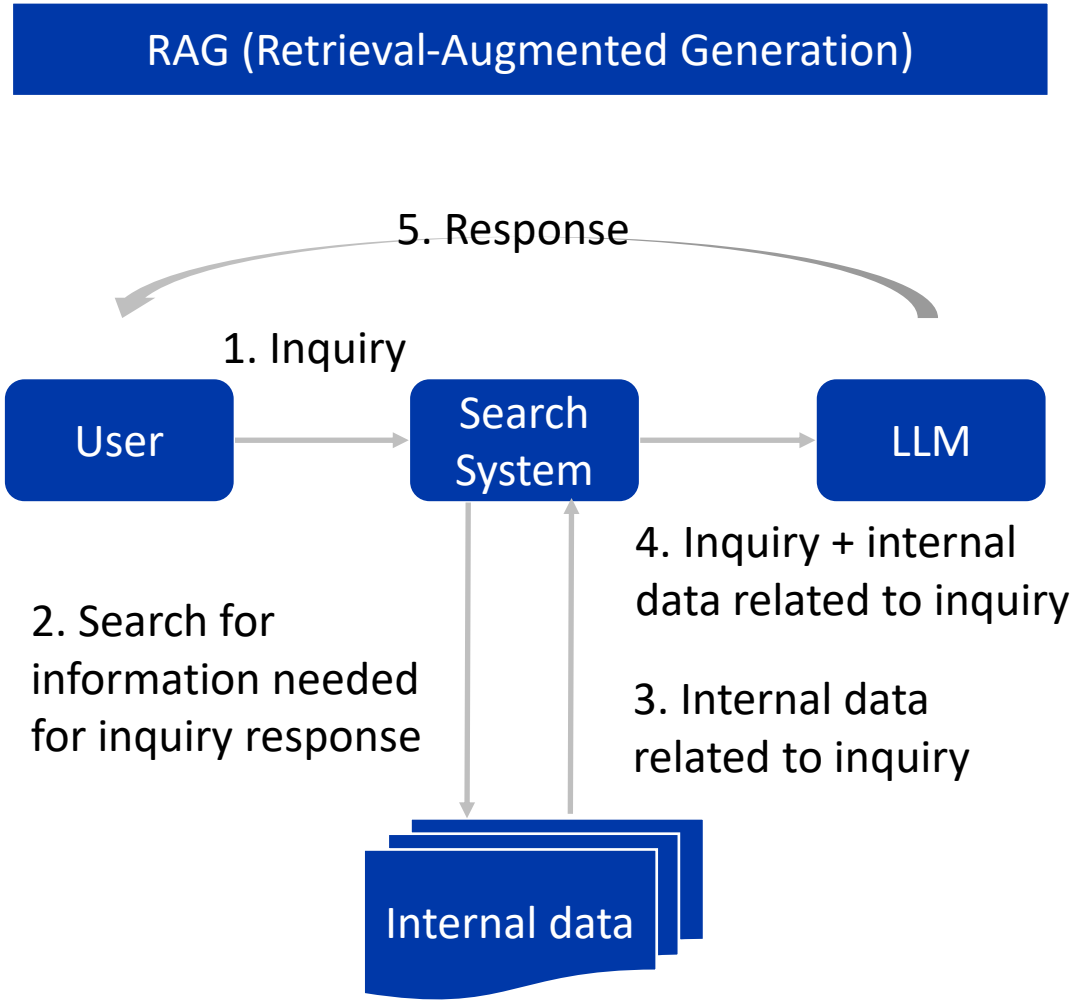


Source: Sumitomo Life

Use Cases

Challenges	Action Taken
• Simply providing tools does not lead to adoption by frontline staff.	• Held an executive briefing one month before the company-wide rollout. • Held a company-wide training session one month after the rollout. Prepared 30 business-ready prompts and introduced the 3R framework (Role, Rule, and Reference) • Afterward, conducted interviews with individual departments in advance and held tailored training sessions to address their specific challenges. • Conducted one-on-one training sessions for executives.
• The cos-effectiveness is difficult to visualize	• Calculated that the initial investment would be recovered within 3 months and reported this to management. • Continuously improved and redefined the model over time.

Use Cases



- RAG is a technology that enhances the quality and accuracy of outputs by adding relevant information to the input for LLMs.
- Key considerations when implementing RAG include:
  - Ensuring the accuracy of the added information
  - Confirming that the added information is not outdated
  - Considering search algorithms that can retrieve appropriate responses to questions, etc.

Source: Practical Handbook of Generative AI for Financial Institutions

Use Cases

＜ロープレ実施画面イメージ＞

- Sumitomo Life has upgraded its AI-based role-playing system for tied agents as part of its broader AI-driven workforce transformation initiative.
- The upgraded system uses GenAI–driven avatars to enable unscripted, realistic conversations that simulate real customer interactions. Tied agents can train across an entire consultation flow, including understanding customer needs, responding flexibly, deepening discussions, and securing follow-up appointments. After each session, the AI provides immediate, objective feedback, helping to standardize guidance and improve training efficiency.

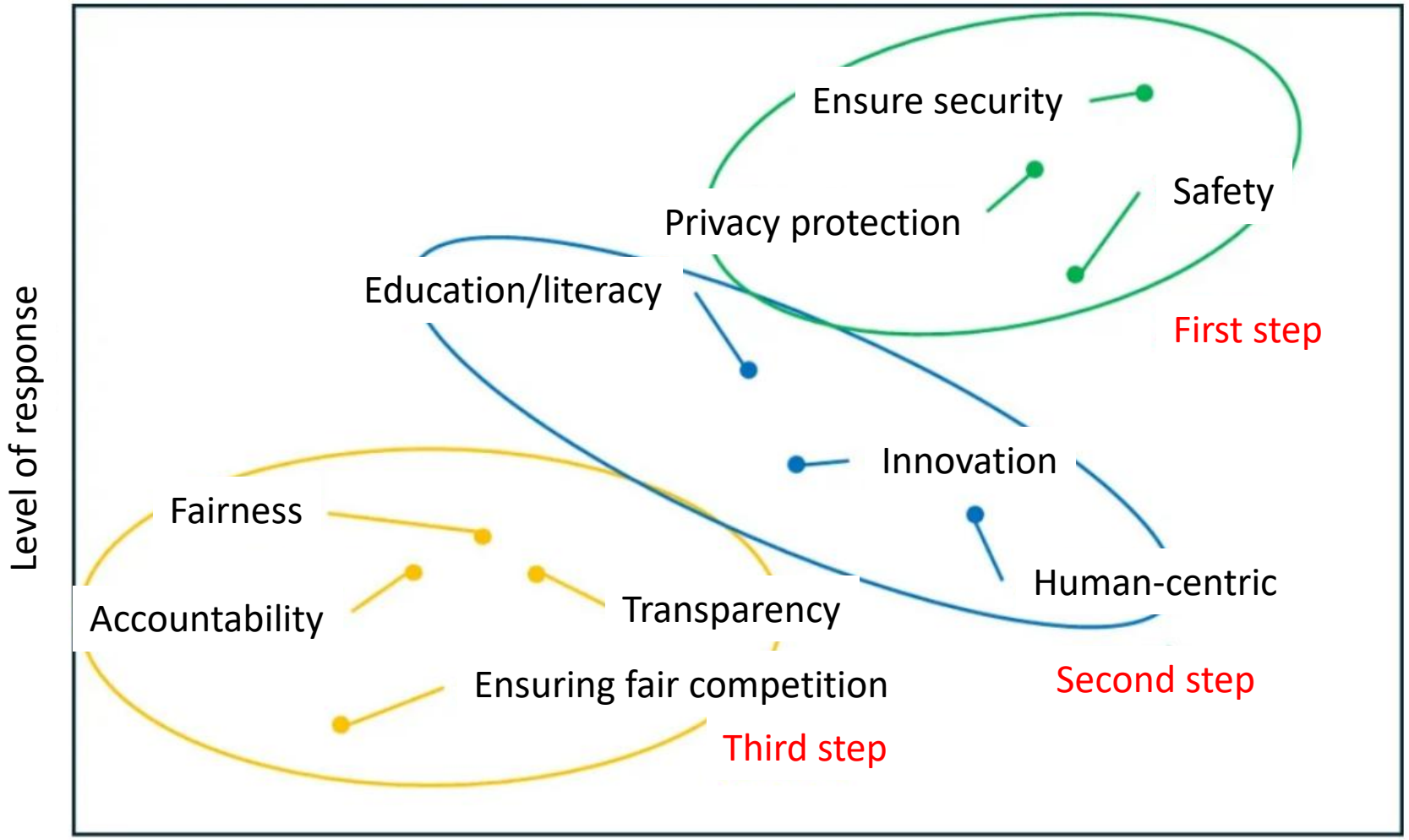
Potential use cases

「糖尿病・脳卒中・心血管疾患・腎臓病・がん」のリスク評価を確認出来ます。

- Disease prediction model using Vitality data was released in 2023.
- Capable of assessing risk for diabetes, stroke, cardiovascular disease, kidney disease, and cancer.
- Scores vary on a weekly basis.
- Combining Machine Learning and Actuarial Science.
- Logic-based generation of comments for health, but generative AI could be used to generate more personalized comments.
- This is one of the ideas for future level ups.

Source: Sumitomo Life

Generative AI Guidelines for Financial Institutions



Source: Results of FDUA member survey

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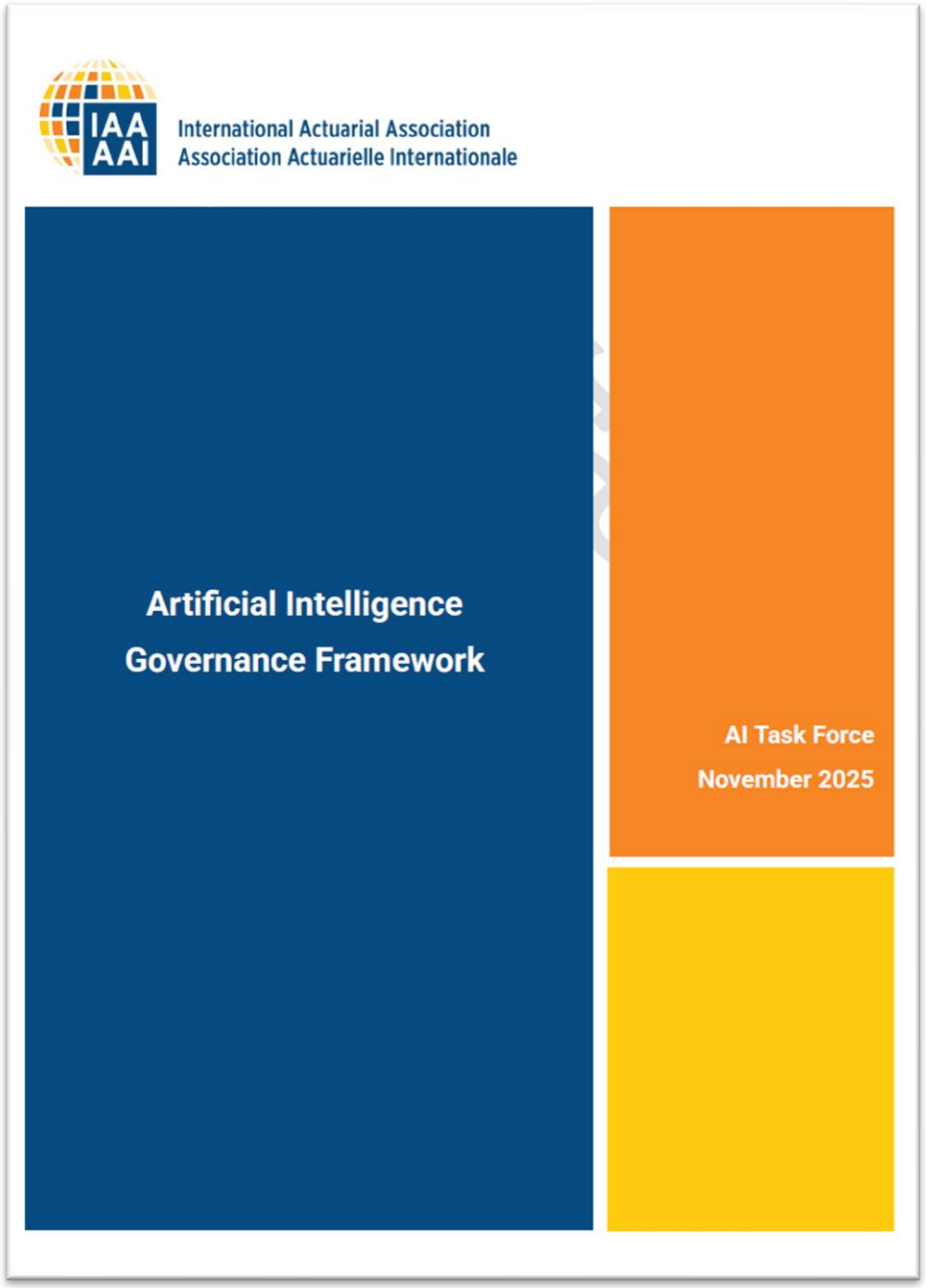
Our company or Japanese experience



- Purpose: To provide educational guidance to support the responsible design, development, implementation, and the use of AI in actuarial tasks

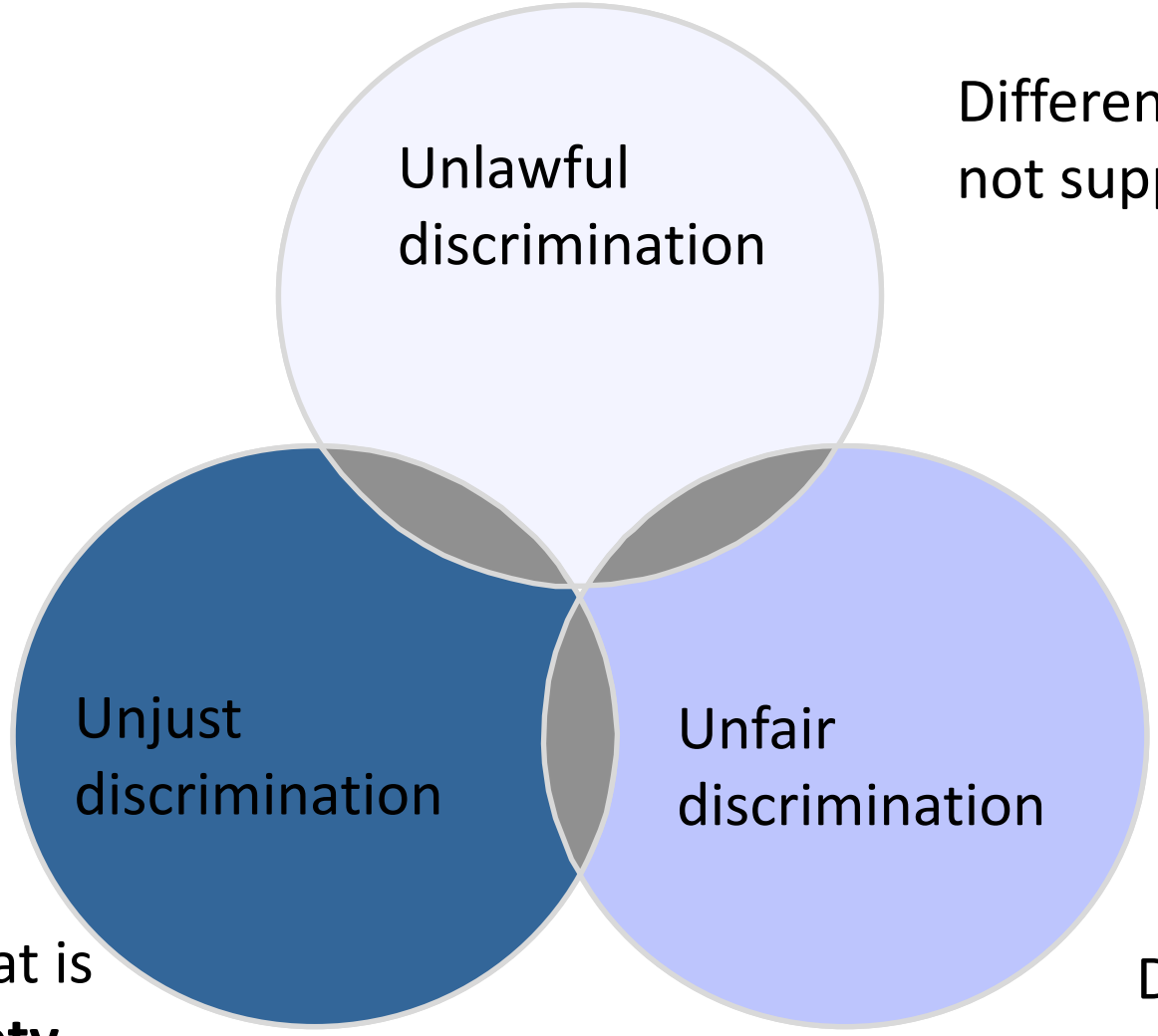
- Scope:
  1. Applies to actuaries in actuarial work using AI.
  2. Covers AI models and AI systems across the full lifecycle.
  3. Applicable to both internally developed and third-party AI systems.
  4. Intended for use across industries (not limited to insurance)
  5. Serve as an educational supplement to existing model governances, data governances, and international AI governance frameworks.

AI Governance Framework

- AI is increasing used in underwriting decision support and automation
- UW directly affects customers and therefore tends to be high-risk.

Fairness and Non-discrimination	• Ensure UW models do not introduce direct or indirect discrimination. • Particular care is required regarding protected characteristics and proxies.
Data governance	• Data used for UW must be appropriate, representative, and free from undue bias. • Heighten scrutiny is required where AI impacts consumer directly
Human oversight	• Full automation may not be appropriate • Human review or intervention may be required, especially for high-impact UW decisions
Model risk management	• UW AI models are likely classified as medium to high risk. • Stronger validation, approval, and ongoing monitoring are expected.

AI Governance Framework



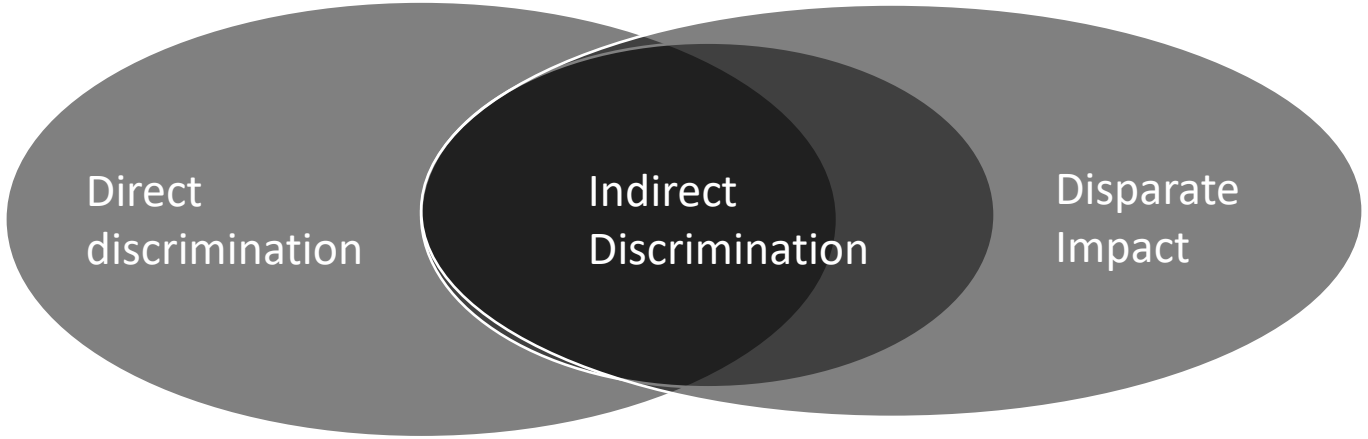
Different treatment that is not supported by **law**

Different treatment that is not supported by **society**

Different treatment that is not supported by **statistics**

AI Governance Framework

- **Direct discrimination**：Intentional and unlawful discrimination in which individuals belonging to protected characteristics (e.g. race, gender) are treated differently from others explicitly because of those characteristics.
- **Indirect discrimination**：Discrimination arising from practices that appear neutral but, in practice, disadvantage individuals with certain protected characteristics. This may occur through the use of proxy variables (e.g. residential location, occupation, purchasing history) rather than the protected characteristics themselves.
- **Disparate impact**：A situation where facially neutral policies or practices unintentionally result in disproportionate adverse effects on individuals with certain protected characteristics, even in the absence of discriminatory intent.



Use cases

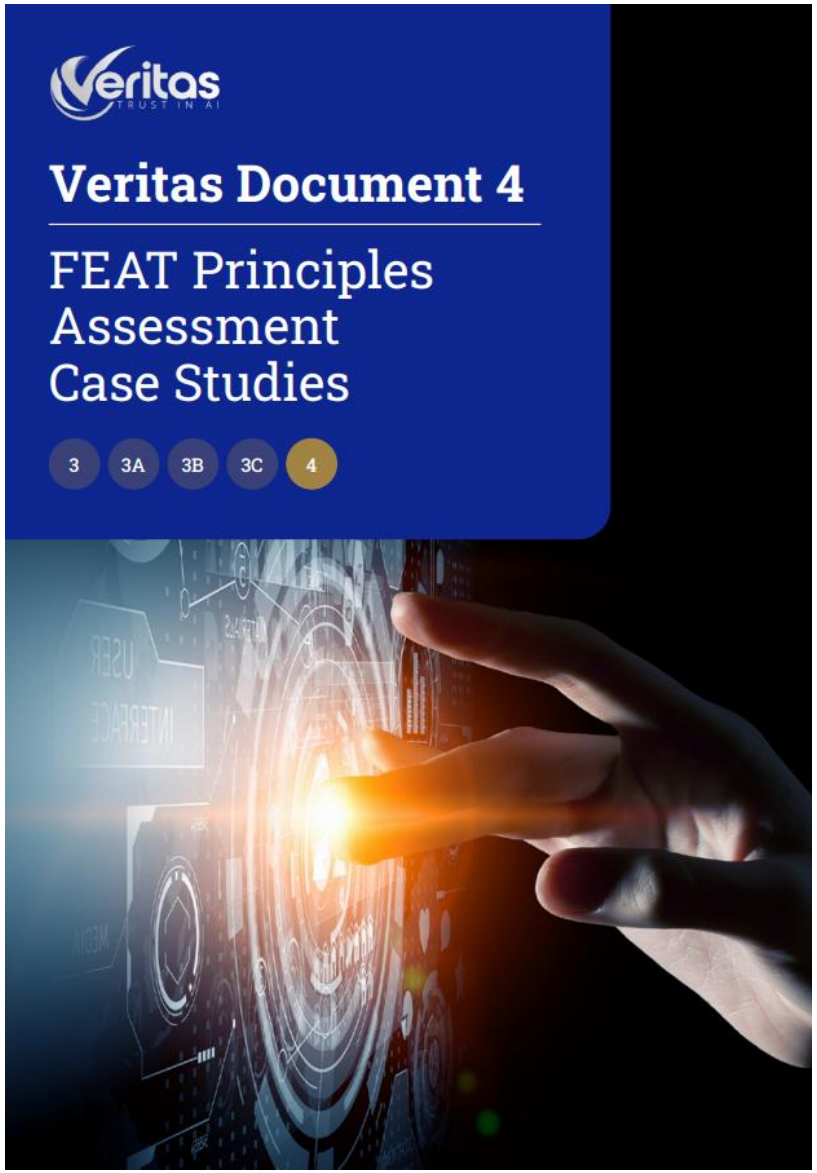
- Several Japanese life insurance companies use AI in UW, not to replace underwriters, but **to support and enhance underwriting decisions**.

- This cautious approach reflects the high risk associated with AI-driven UW particularly in terms of fairness and discrimination, data governance, human oversight ant model risk management.

- A key challenge is the lack of established monitoring methodologies for underwriting AI. Monitoring needs to cover not only model accuracy, but also fairness and bias.

- One potential solution is provided by the monitoring approach adopted in Singapore, which offers a more structural framework for ongoing AI oversight.

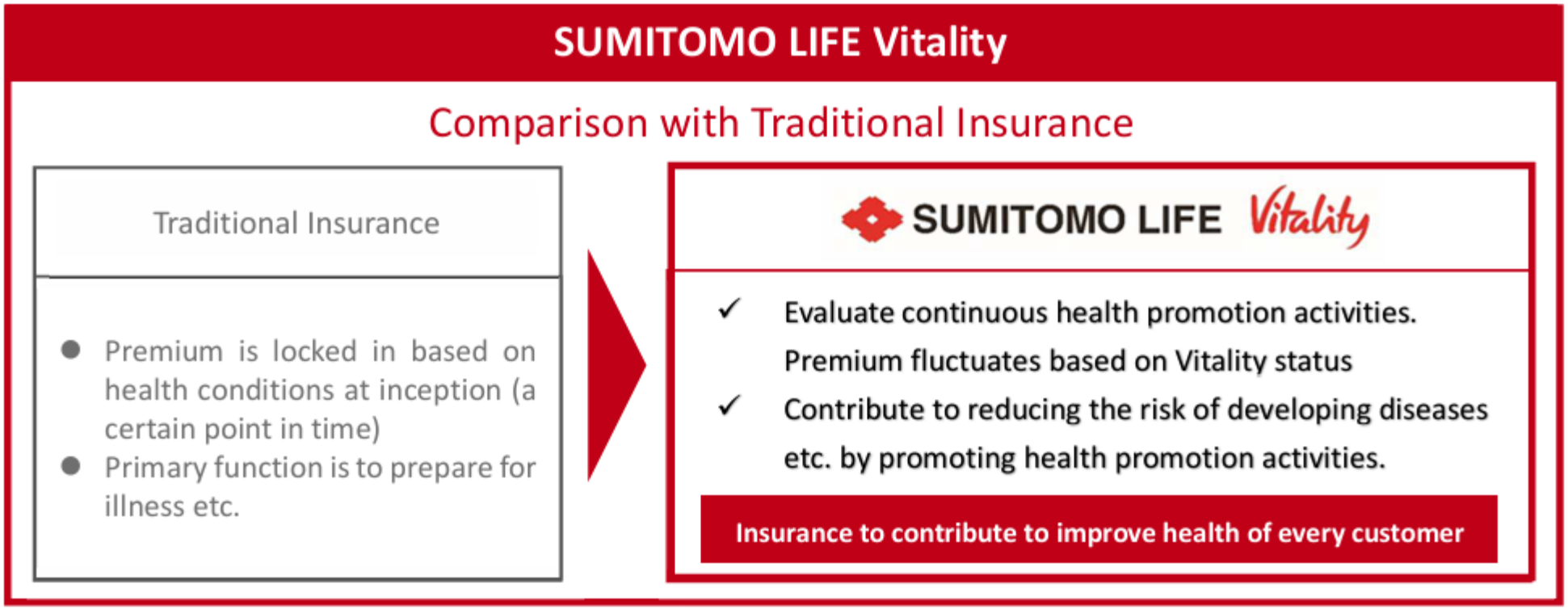
Use cases



- On 4 February 2022, the Monetary Authority of Singapore (MAS) announced the publication of five white papers that set out assessment methodologies for the FEAT Principles (Fairness, Ethics, Accountability and Transparency) to guide financial institutions in the responsible use of AI.
- The white papers were published by the Veritas Consortium, an industry group comprising 27 industry participants.
- The Consortium also released an open-source toolkit to support adoption of the methodologies, including practical implementation of fairness and transparency assessment.

Source: Monetary Authority of Singapore

AI and the Future of Life Insurance



Health Promotion Activities

See P8~ for details

Know Your Health

- Online Assessment ➡ Up to 3,000pt
- Vitality Health Check ➡ Up to 10,000pt
- Screening ➡ Up to 2,000pt

Improve Your Health

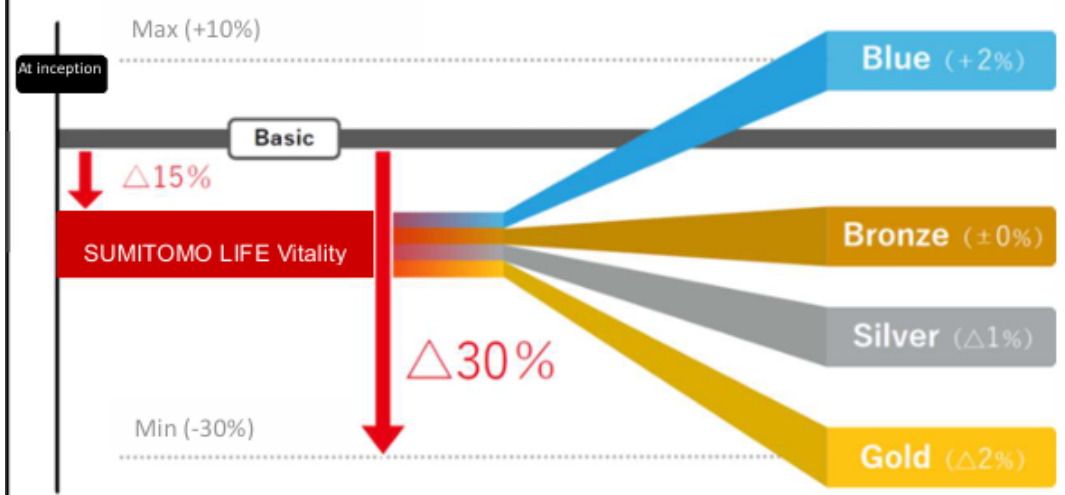
- Physical Activities & Fitness ➡ Up to 14,000pt

Status Determined by Points

- Blue 0pt～
- Bronze 12,000pt～
- Silver 20,000pt～
- Gold 24,000pt～

Premium Flex (image)

See P13 for details



Enjoy the Rewards

See P10 for details

- Members get discounts on hotels etc. depending on their Vitality status.
- Members receive a free coffee, etc. based on the points earned in a week.

AI and the Future of Life Insurance

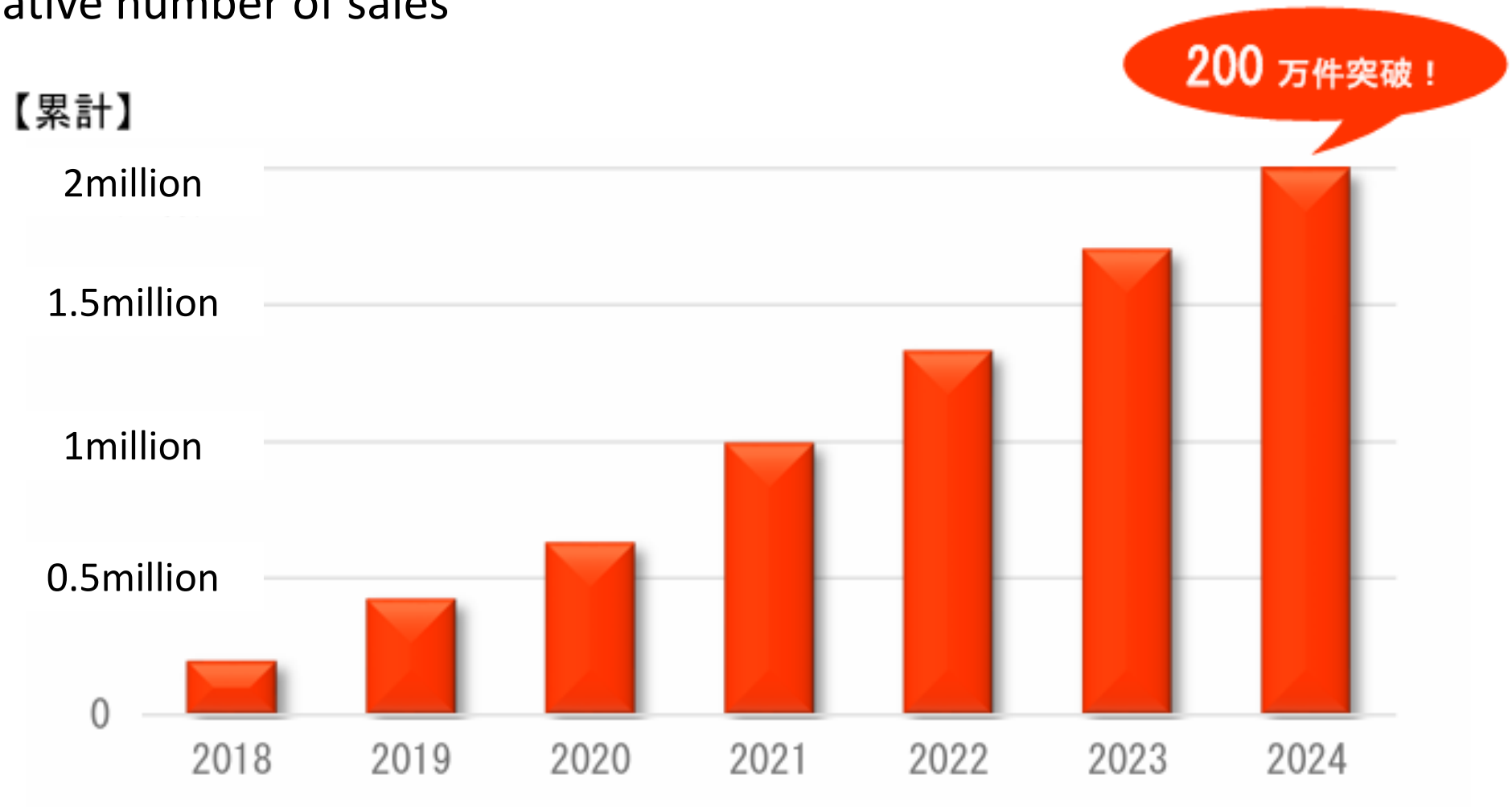
1. Automatic Setting of Exercise Point Goals
By launching the "Active Challenge" feature in the Vitality app, weekly point goals are automatically set.

2. Work Toward Achieving Goals
Engage in physical activities to aim for achieving the set goals.

3. Earn Rewards by Reaching Exercise Point Goals
Enjoy various rewards such as drinks. You can also choose to make a donation instead of receiving drinks or other rewards.

AI and the Future of Life Insurance

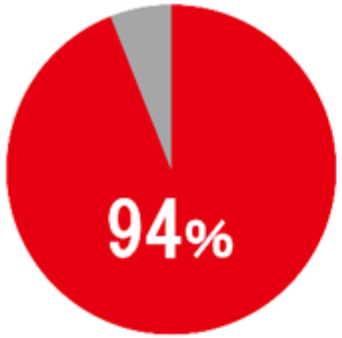
Cumulative number of sales



AI and the Future of Life Insurance

1. change one's mindset

I'm more health conscious than before I joined.

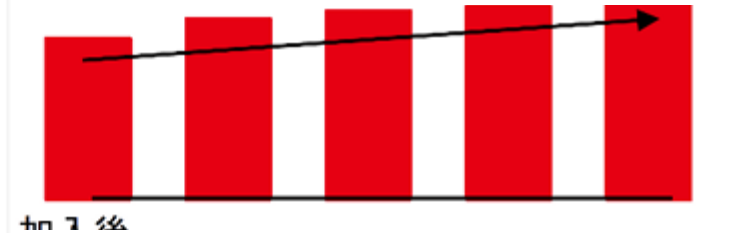


2. change one's behaviour

% increase in steps per day

+22% ※4

Continue moderate exercise



Join	1yr	2yrs	3yrs	4yrs
7,447歩	8,332歩	8,687歩	8,916歩	9,113歩

3. outcome

Blood pressure dropped

50%

※10mmHg以上

Blood glucose dropped

42%

※10mg/dl以上

LDL cholesterol dropped

49%

※10mg/dl以上

AI and the Future of Life Insurance

あなたの未来を強くする
住友生命

PREVENT

2025年6月19日
住友生命保険相互会社
株式会社 PREVENT

Published an international paper in Preventive Medicine detailing the long-term increase in step counts resulting from the Vitality program

住友生命保険相互会社（取締役 代表執行役社長 高田 幸徳、以下「住友生命」）と、株式会社 PREVENT（代表取締役 萩原 悠太、以下「PREVENT」）との共同研
Vitality※1加入者の長期的な歩数増加結果に関する論文を「Preventiv
稿し、受理されました。

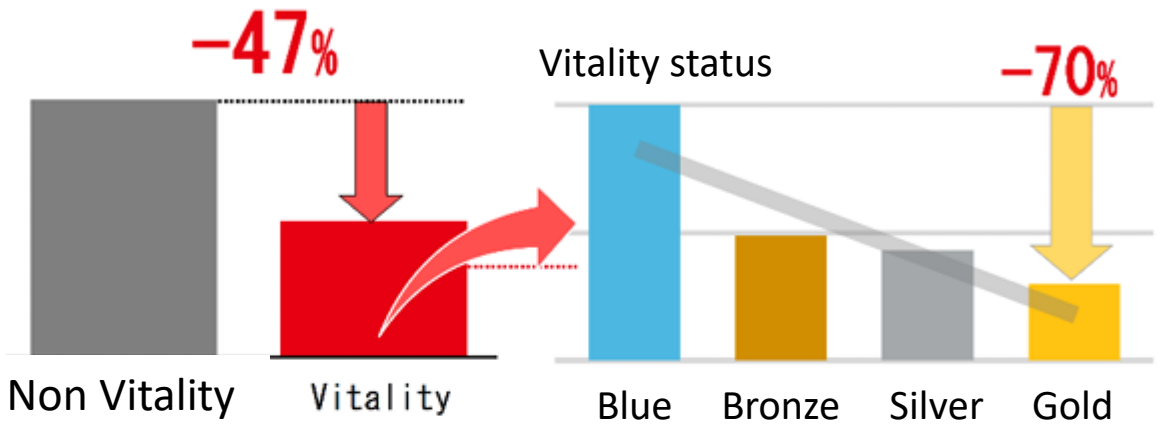
※1 詳細は右記URLを参照ください。https://vitality.sumitomolife.co.jp/
※2 予防医学分野で権威のある国際誌の一つ。採択率は7％でした。

経過月数	一日当たりの平均歩数	95%信頼区間※4
1	7,239.7	(7,213.4, 7,266.0)
12	9,054.9	(9,023.7, 9,086.2)
24	9,350.1	(9,318.4, 9,381.8)
36	9,392.7	(9,361.1, 9,424.3)

AI and the Future of Life Insurance

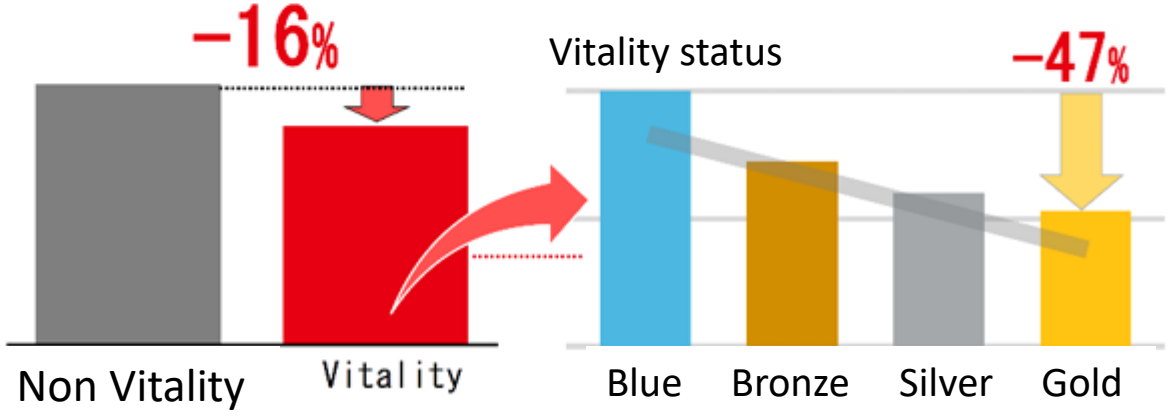
[redacted] Mortality [redacted]

Vitality has 47% lower mortality rate than Non Vitality



[redacted] Hospitalization rate [redacted]

Vitality has 16% lower hospitalization rate than Non Vitality



AI and the Future of Life Insurance

Vitality AI

Vitality AI, developed with Google, is transforming insurance by empowering millions worldwide to live healthier longer lives.

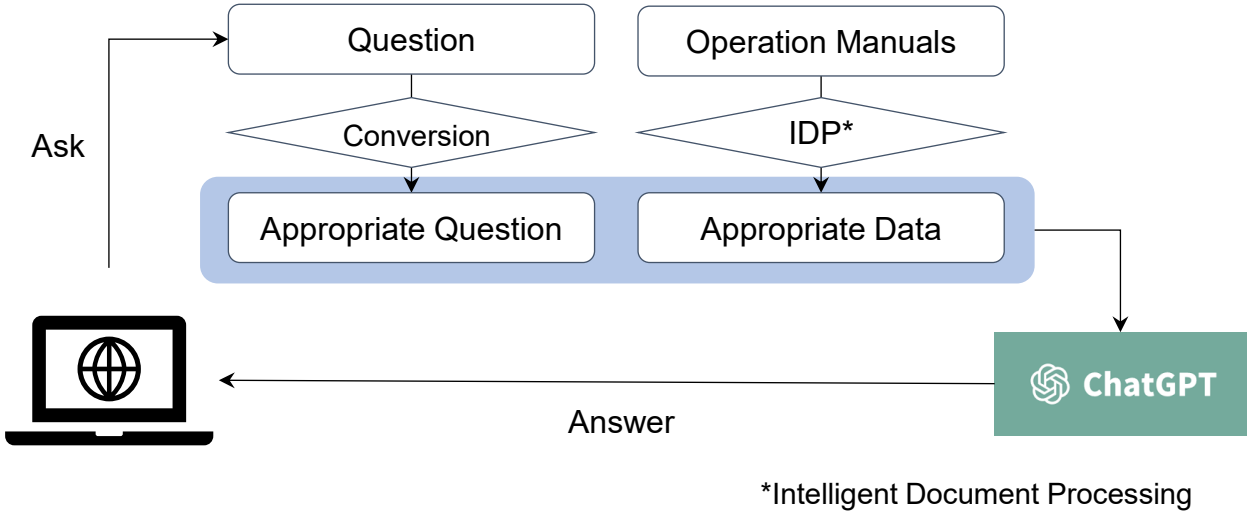
Until now, delivering health improvements at scale has been difficult, with recommendations often being too generic to be effective. Vitality AI changes that by setting a new standard through **personalized, actionable, data-driven** health insights; and in turn creating a step-change for how health and life insurers can increase customer engagement and improve actuarial outcomes.

https://www.vitalitygroup.com/vitality-ai/

AI and the Future of Life Insurance

Narrow AI

- 2018: Vitality insurance launch (comprehensive health & wellness product)
- From Protection to Prevention
- 2020: Data analytics team set up
- 2023: Disease risk model developed (see below)
- 2024: Quantifying the impact of Vitality
  - Academic paper and white paper



*Intelligent Document Processing

「糖尿病・脳卒中・心血管疾患・腎臓病・がん」のリスク評価を確認出来ます。

Nov, 2022
ChatGPT

Personalized Recommendation

General AI

- Internal ChatGPT rolled out in July 2023
- Customized Prompt Engineering Training to solve problems in each department:
  - 3Rs（**R**ole, **R**ule, **R**eference）
  - Integrating GPT-4
  - Adding Bing Search
  - Introducing file upload features
- ABC risk (**A**ccuracy, **B**ias, **C**yber/**C**opyright)
- RAG to deal with accuracy risk (see above)