AI Discussion Paper Version 1.0

Preliminary Discussion Points for Promoting the Sound Utilization of AI in the Financial Sector

Financial Services Agency of Japan
March 2025

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I. Introduction

I. Introduction

Background

The dramatic leap in performance of generative AI

- Approaching the stage of widespread implementation in society, with the potential to contribute significantly to improving various aspects of public life
- However, society is acutely aware of the risks associated with the misuse of generative AI, such as crimes and the spread of false or misleading information

In the financial sector, while the consideration for AI utilization is advancing, on the other hand, there are hesitations due to risks and regulatory concerns

Awareness

AI has the potential to become a core technology, fundamentally transforming financial services and FI business models

- FIs must be acutely aware of the **"risk of not taking actions"**, which will pose challenges to their ability to provide quality financial services in the medium to long term

Policy responses

The FSA strongly supports the sound utilization of AI by FIs.

- Providing safe harbors by clarifying the application of regulatory
- The Paper serves as a basis for developing medium to long-term policies and other considerations through dialogue with financial institutions and other related entities

II. Purpose and Positioning of The Paper

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Based on surveys and interviews with FIs, as well as progress in international discussions, this DP presents preliminary discussion points and policy directions of the FSA.

Note: The issues mentioned are based on preliminary analysis, and risks vary by use case and implementation. Institutions are encouraged to actively take on challenges without being overly cautious.

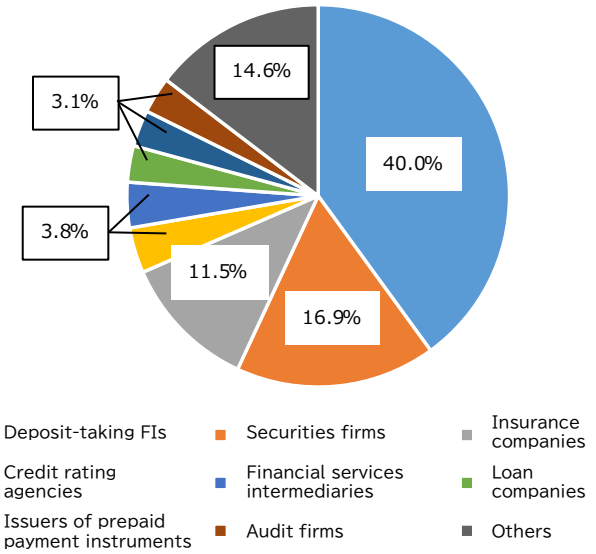
Inputs

- **"Questionnaire Survey on the Status of use of AI by FIs"**
  - Survey period: October 3 – November 15, 2024 (voluntary responses)
  - Target group: 130 companies including banks, securities firms, and insurance companies
- Interviews with FIs and vendors
- Progress in international discussions

Outputs

- Use Cases / Challenges / Examples of Initiatives for Solving Challenges by FIs (Conventional AI / Generative AI)
- Use of AI by the FSA
- Direction of future initiatives

Figure 1: Distribution of respondent FIs by business type

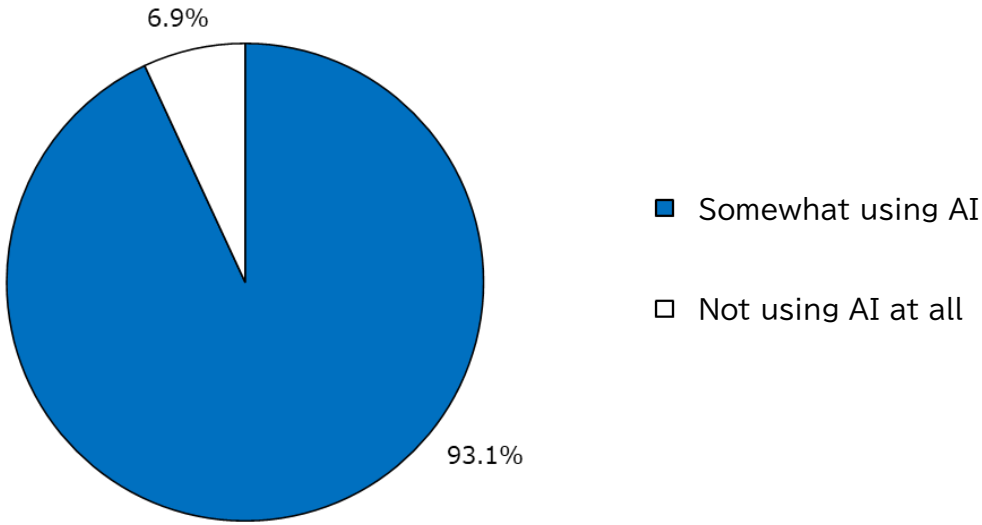


III. Potential Applications and Use Cases of AI in Finance

III. Potential Applications and Use Cases of AI in Finance

- Over 90% of respondents already use conventional AI or generative AI
- Many FIs and Fintechs have already adopted the use of AI in their operations.

Figure 2: FIs using conventional AI or generative AI



III-1 Key use cases for conventional AI

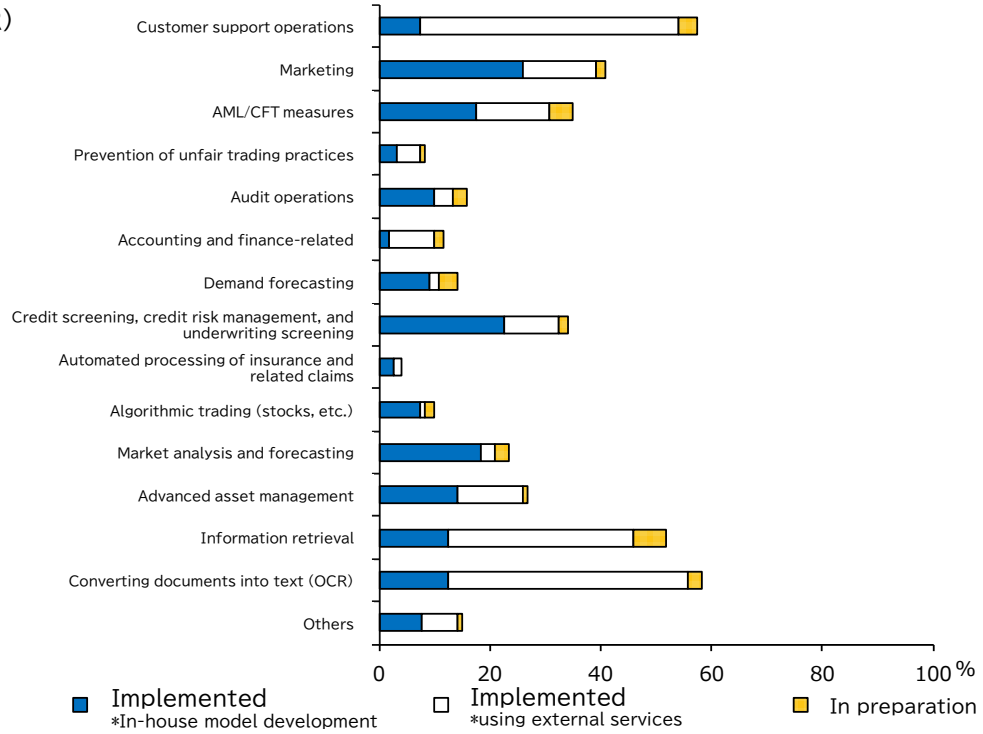
① **Streamlining operations**
- Converting documents into text (OCR)
- Information retrieval

② **Use in customer service**
- Chatbots
- Marketing

③ **Advancement of risk management**
- Fraud detection (AML/CFT, etc.)
- Credit screening, credit risk management, and underwriting screening
- Sampling of compliance violations

④ **Market forecasts and others**
- Currency and interest rate forecasts
- Market sentiment

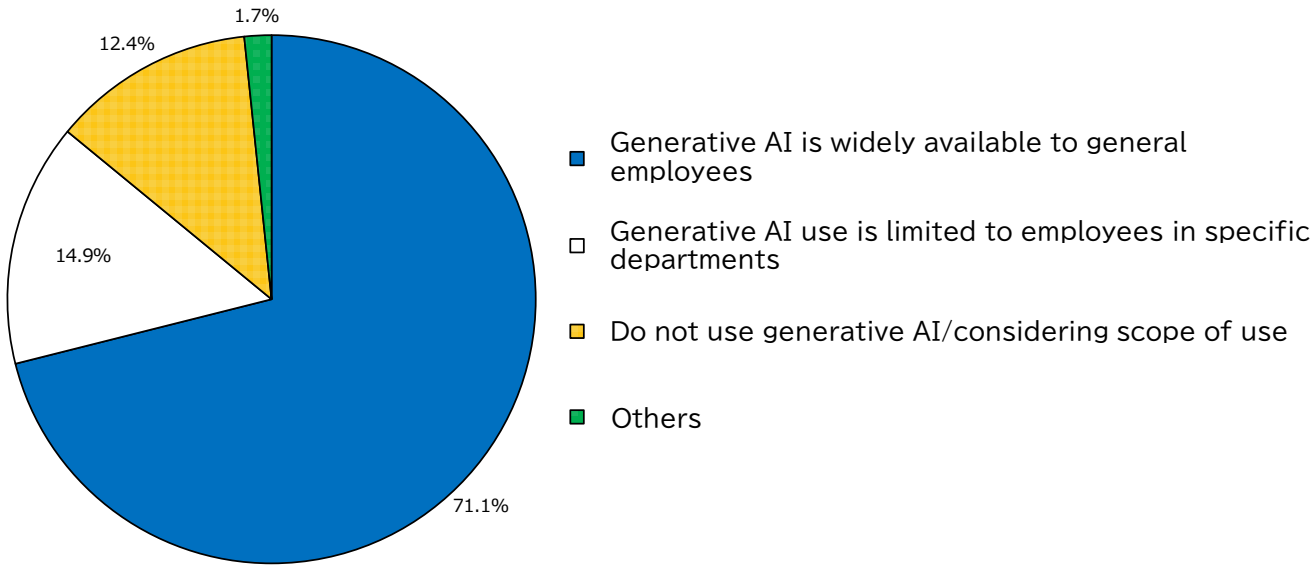
Figure 3: Status of conventional AI by use case



III-2 Status of generative AI and its main use cases: Scope of use

- Approximately 70% of FIs broadly allow the use of generative AI for general employees
- Some institutions require applications for using AI, some limit usage to headquarters staff only, and others set different usage scopes depending on the type of generative AI.

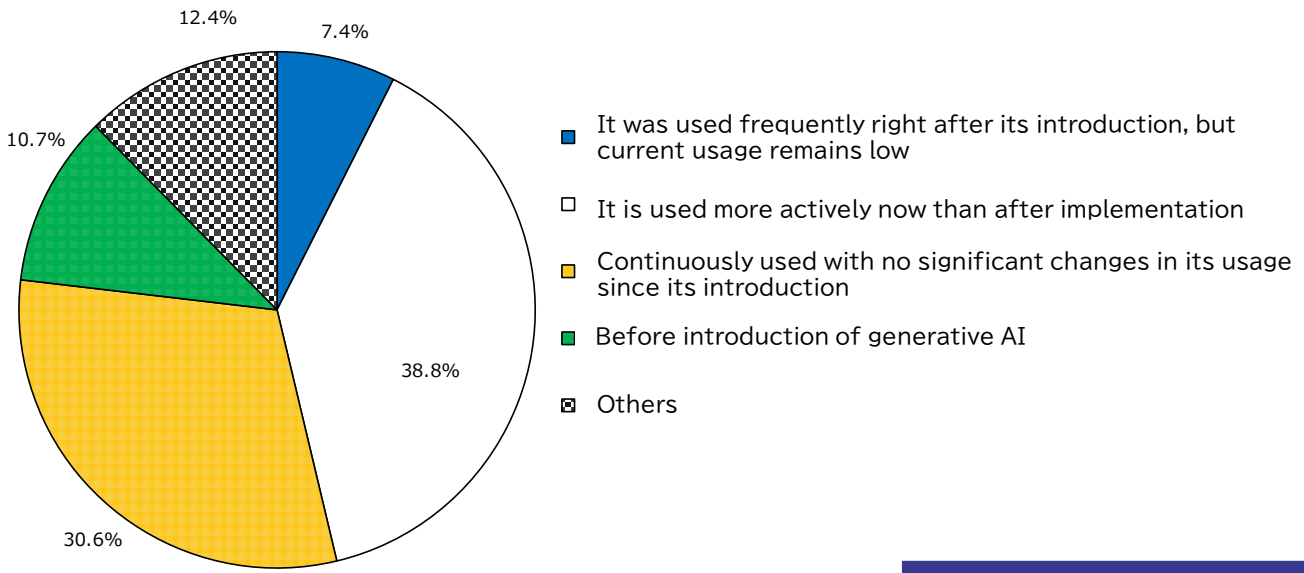
Figure 4: Scope of generative AI utilization



III-2 Status of generative AI and its main use cases: Usage after implementat

- Most FIs have either continued to use AI consistently since its introduction or are currently using it more actively compared to immediately after its introduction.
- Many institutions have only introduced general-purpose GenAI, yet its active use highlights its potential to enhance operational efficiency in financial institutions.

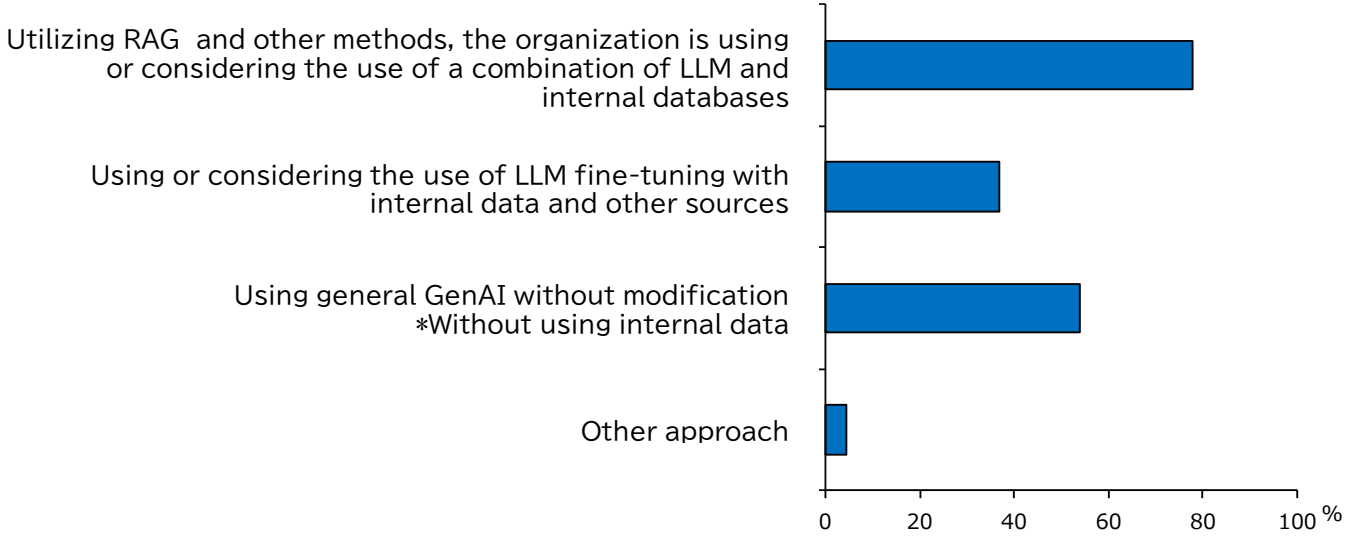
Figure 5: Usage after implementation



III-2 Status of generative AI and its main use cases: Presence of customization

- About half of the financial institutions are using general-purpose GenAI without modification.
  - Due to the ease of implementing pre-trained models, generative AI has a higher overall adoption rate compared to conventional AI.
  - On the other hand, many organizations are using or considering using LLMs provided by external vendors in combination with internal databases and others through RAG and fine-tuning.

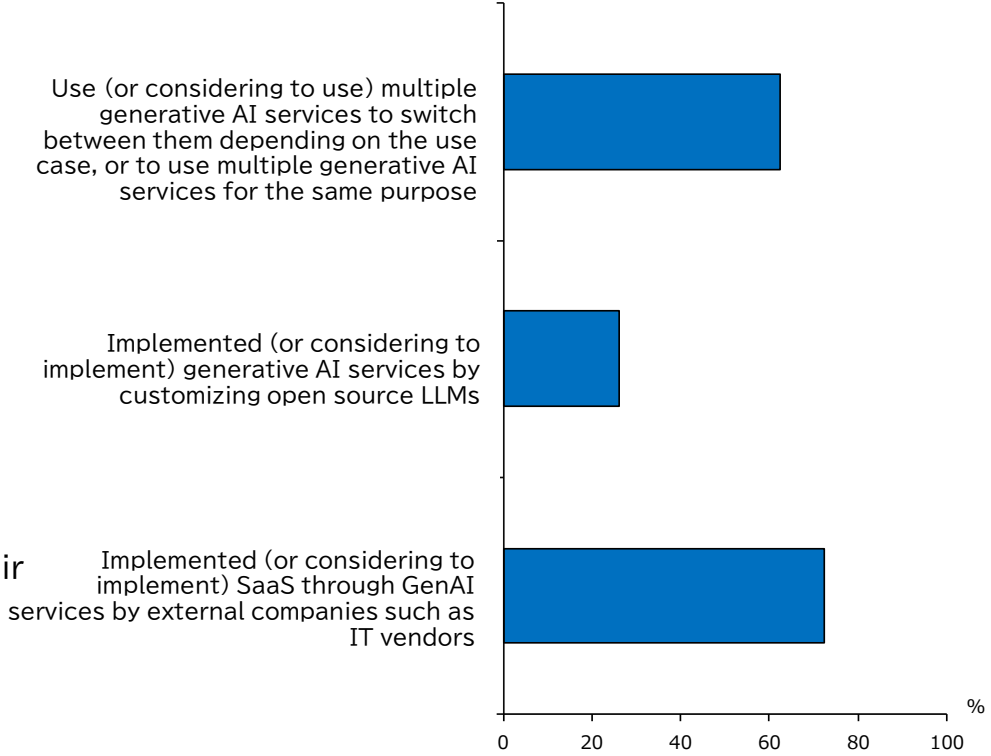
Figure 6: Forms of introducing generative AI (with or without customization)



III-2 Status of generative AI and its main use cases: Forms of introducing

- Form of generative AI implementation varies.
- Many FIs use different generative AI models depending on the use case.
- Some Fls use LLMs provided as open source on on-premise servers, while others use proprietary generative AI services in closed environments via dedicated lines.
- Some have introduced generative AI tools provided by external vendors as SaaS, while others have developed their own user interfaces.

Figure 7: Forms of introducing generative AI (including use in SaaS and others)



III-2 Status of generative AI and its main use cases: Three types of use cases

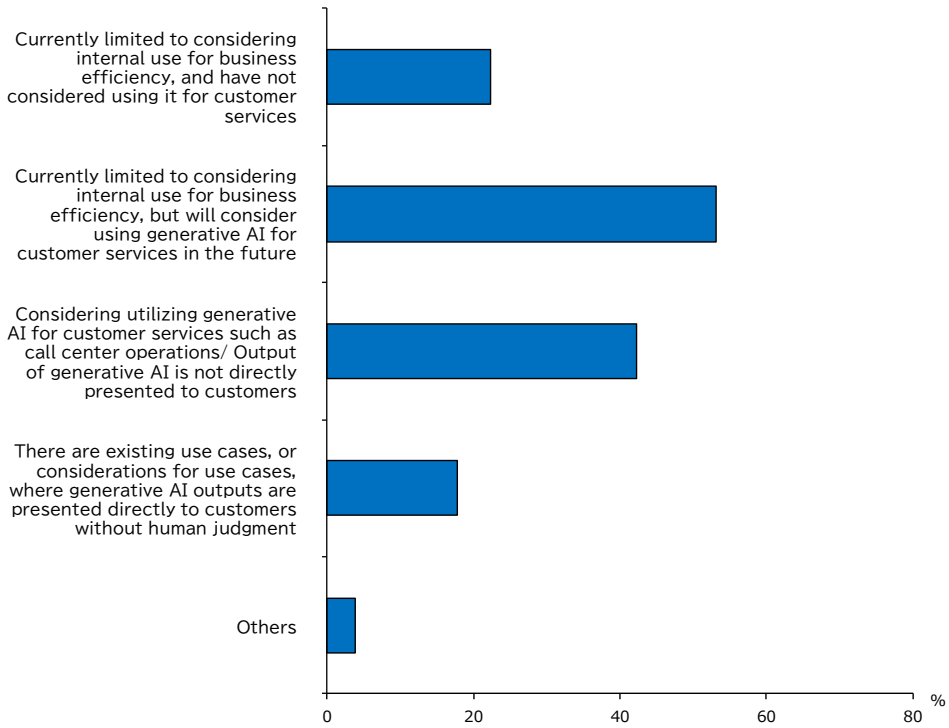
① Internal use such as business efficiency improvement

② Indirect utilization in customer service

③ Direct utilization in customer service

- Currently, many FIs remain at ①.
- More than half of respondents said that they would consider using it for customer services in the future.
- ③ is very limited due to risks such as hallucination.

Figure 8: Utilization of generative AI in customer service



III-2 Status of generative AI and its main use cases: Use Case Details

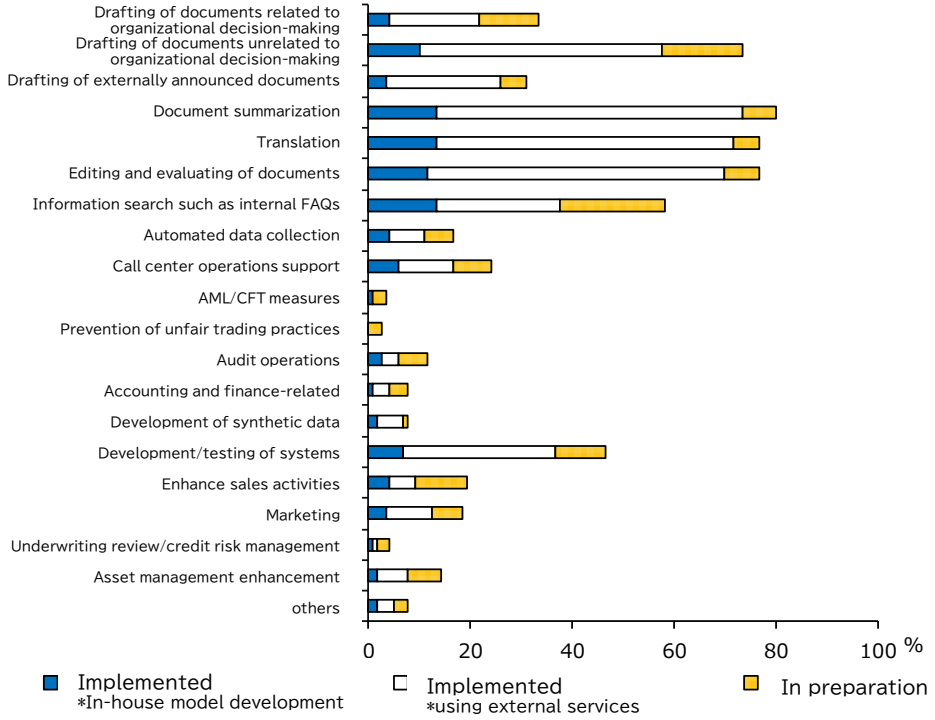
① **Internal use such as business efficiency improvement**
- Document Summary/Translation
- Editing, and evaluating of documents
- Information search such as internal FAQs
- System development/testing (Non-Natural Language)

② **Indirect use in customer service**
- Call center operations support
- Preparation of draft documents such as request for approval.
- Draft of external communication document

③ **Direct use in customer service**
- (Currently very limited)

■ **Progress in the introduction of general-purpose generative AI, such as document summarization**
■ **Advanced use of generative AI is still in the early stage**

Figure 9: Adoption of generative AI by use case



IV. Initial Considerations for Promoting The Use and Application of AI by FIs

IV-1 Major challenges related to the use of AI by FIs and examples of initiatives to overcome these issues

① Common challenges for conventional AI and generative AI

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

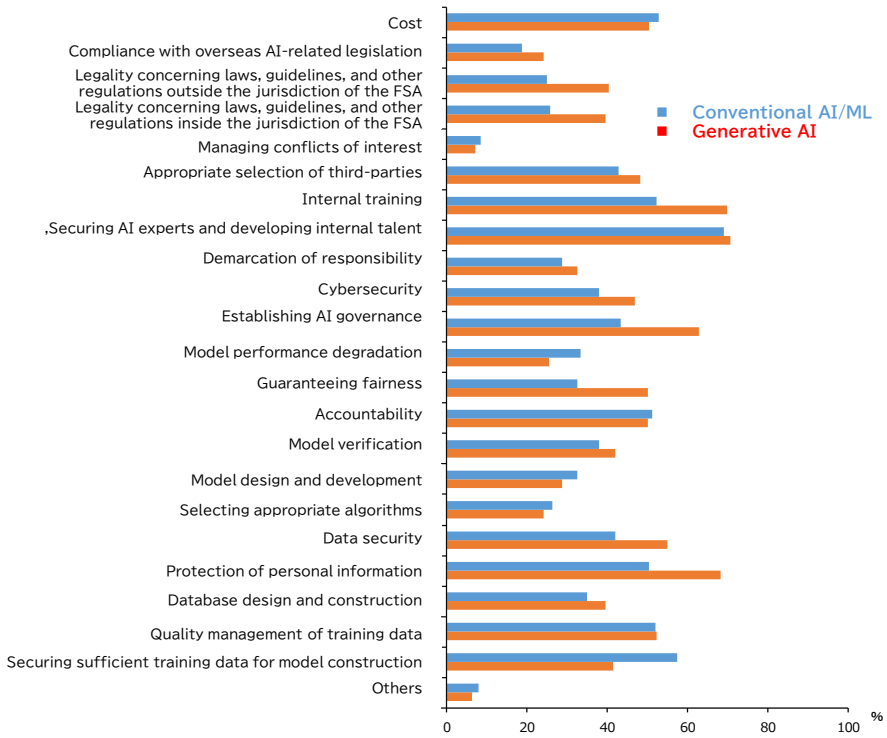
② Issues made difficult by generative AI

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

③ New challenges created by generative AI

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

Figure 10: Issues in AI consideration, introduction, and use



IV-1 – ① Common challenges for conventional AI and generative AI: Data preparation

Challenges

- The rapid development and widespread use of AI is making data even more important
- Meanwhile, many FIs face challenges in organizing and managing internal data
- Around half of the FIs responded that they face challenges in
  (i) securing sufficient learning data for model construction and
  (ii)quality control of training data

Examples of initiatives and approaches to solutions

- Progress in efforts to build databases suitable for AI use and secure training data
  - Build a platform for the centralized collection and management of internal data
  - Implementing solutions to efficiently control access to data and manage data versions
  - Analysis of unstructured data such as text and speech using OCR and speech recognition
- It is important for Fls to recognize that their data can become a crucial management resource for enhancing profitability and transforming their business model
- Organizations should consider the development of a data utilization infrastructure and the integration of API connections as important management challenges, all while ensuring security

IV-1- ① Common challenges for conventional AI and generative AI : Collaboration with external vendors and risk management

Challenges

- Due to the advanced expertise required for implementing complex AI models, many FIs are utilizing, or considering utilizing, solutions provided by external vendors
- Concerns have been raised about the drawbacks of over-reliance on external vendors. To implement an appropriate AI system, considering the business environment, work processes, and customer needs, it is necessary for personnel within financial institutions to possess a certain level of AI knowledge
- AI-related vulnerabilities that could increase systemic risk include reliance on third parties and concentration of certain service providers (FSB report)

Examples of initiatives and approaches to solutions

- Examples of initiatives to address challenges
  - Implement security checks by applying the existing third-party risk management framework
  - Leverage open-source foundation for model development to avoid over-reliance on specific vendors
  - When outsourcing the development of an AI model by providing internal data to external vendors, FIs should ensure that the IP rights of the model belong to the FIs
- Partnerships with external entities are essential for the utilization of AI. It is necessary to select appropriate partners based on the company's needs while addressing the risks associated with partnerships

IV-1 - ① Common challenges for traditional AI and generative AI : Effectiveness of investment

Challenges

- It is difficult to foresee the benefits, making the explanation of the effectiveness of investment challenging, and it takes time to reach an internal consensus
- For generative AI provided by external venders, usage-based pricing is applied in most cases, so the cost could increase boundlessly depending on the frequency of use

Examples of initiatives and approaches to solutions

- Examples of initiatives to address challenges
  - The budget of the digital department could be used for cases such as when ROI is difficult to ascertain and each department has difficulty in securing its budget
  - Group-wide project management to prevent multiple departments from making similar investments
- Until profitability is expected, setting KPIs or quantitative indicators according to characteristics and monitoring against the plan is an option
- Investment decisions should be made strategically with the appropriate understanding and proactive involvement of management

IV-1-② Challenges made particularly difficult by generative AI: Explainability

Challenges

- Generative Ai requires a complex training process that uses numerous parameters. Furthermore, it dynamically generates outputs in response to multi-modal inputs (prompts) such as text, voice, and images. It is extremely difficult to clearly indicate why each inference was answered
- A potential issue arises when sales branches are provided with AI-recommended client lists without a clear explanation of the underlying rationale, leading to underutilization

Examples of initiatives and approaches to solutions

- It is not easy to ensure explainability in complex AI models such as generative AI
- Progress has been made to some extent in addressing these challenges
  - Utilizing AI model evaluation tools from external vendors
  - Add a column with the rationale to the sales target list to ensure clarity and acceptance
- Ensuring complete explainability is challenging. Depending on the use case, it is important to ensure that relevant stakeholders, such as customers and employees, have a sense of assurance

IV-1-② Challenges made particularly difficult by generative AI: Fairness/bias

Challenges

- Bias in AI learning data, algorithms, and even model inference results increase the risk of unfair treatment of customers and employees with certain attributes
- Risk that the model may strengthen bias at the data training stage, for example, when training data is insufficient

Examples of initiatives and approaches to solutions

- Use of third party bias detection tools
- Given the wide variety of tools available and the lack of clear procedures for establishing specific evaluation metrics and audit processes, there is a need to establish a consistent framework for early detection and mitigation of biases in AI models

IV-1 - ② Challenges made particularly difficult by generative AI: Model risk management

Challenges

- Even for FIs that responded that they have somewhat developed risk management frameworks for AI, they are still in the early stages of development, implementation and management of generative AI, for which systematic performance and evaluation metrics have not yet been established.
- FIs are aware that the unique properties of generative AI, including its broad applicability and frequent model updates, make conventional risk management approaches insufficient for fully understanding and controlling all potential risks

Examples of initiatives and approaches to solutions

- Examples of initiatives to address challenges
  - Continuously strengthen existing policies and procedures for conventional AI to address generative AI
  - Conduct proof-of-concept testing for tools from multiple vendors to validate accuracy of AI models
  - Document AI model methodology, including assumptions, limits, and uncertainties.
  - Pre-production validation and ongoing monitoring of model performance by independent reviewers
  - Added feature value based on business knowledge to maintain model performance
- The FSA will continue dialogue to ensure proper risk management is being conducted, taking into account the evolving discussions on AI both domestically and internationally, as well as the actual usage of AI

IV-1 - ② Challenges made particularly difficult by generative AI : Personal information protection

Challenges

- When handling personal information as learning data, it is essential to clearly define the purpose and scope of its use; otherwise, there is a risk of inconsistency with the individual's consent and privacy policies
- There is a potential risk that the training data in pre-trained generative AI models provided by external vendors may include personal information
- Relevance to "third-party provision of personal data" when outsourcing the development and training of AI models to external vendors, and appropriate measures based on personal information protection laws when using generative AI platforms with overseas servers

Examples of initiatives and approaches to solutions

- Examples of initiatives to address challenges
  - To ensure that personal information is not used as input to the generative AI model, all employees are warned through internal administrative notifications, including notifications from the Personal Information Protection Commission
  - Consider automatic system-based restrictions on entering customer information
  - Measures to prevent input data from being used for re-learning (establishment of dedicated sections, conclusion of contracts with vendors, etc.)
- There is a need to strike a balance between appropriate measures concerning the protection of personal information and the effective use of data. The FSA will monitor the initiatives of FIs through ongoing dialogue and consider the appropriate approach

IV-1 - ② Challenges made particularly difficult by generative AI : Information security and cybersecurity

Challenges

- The potential for AI, including generative AI, to enhance an attacker's capabilities and increase the likelihood and impact of a cyber attack on the financial sector
- Risk of unintended external leakage of customer information and important business information when financial institutions use generative AI
- Attacks such as prompt injection could cause AI systems to malfunction or confidential information to be leaked
- The AI model itself may be subject to attacks, such as data poisoning

Examples of initiatives and approaches to solutions

- Examples of initiatives to address challenges
  - Set certain constraints on the input data for prompts
  - Build a system environment that can manage input / output information by introducing a generative AI service in the company's proprietary environment
  - Verification is being conducted at the planning and development stage. During the operation phase, a system is being constructed that constantly monitors output data with both human eyes and the system
- Due to the wide range of security issues involved in the introduction and operation of AI, an organizational response such as continuous monitoring of AI model-specific vulnerabilities is essential

IV-1 - ② Challenges made particularly difficult by generative AI: Recruitment, development, and internal training of specialized personnel

Challenges

- Many FIs recognize the need to secure and train experts in the development, operation, and management of complex AI models, as well as the necessity for internal training due to the increase in AI users brought about by generative AI
- There is a concern that using external vendors may hinder the accumulation of know-how and intellectual property within the organization, and slow down internal human resource development.
- There is a lack of personnel who can select the best solutions for ongoing operation and management, and those who can bridge the gap between the business and the IT department.
- Conventional educational content is insufficient due to additional risks specific to generative AI, such as hallucination and piracy.

Examples of initiatives and approaches to solutions

- Examples of initiatives to address challenges
  - Develop internal human resources through OJT while seeking support for AI model development from part-time professionals
  - Reskilling of highly skilled personnel within the company, such as SE graduates, and expanded recruitment of newly graduated experts
  - Implementation of educational measures such as support for acquisition of AI-related qualifications
  - Sharing practical examples of AI use for call center staff
  - Implemented an education program for all employees on the risks of generative AI.
  - Establishment of joint ventures with startups for in-house AI development and use
- Organizations in which multiple FIs participate are making efforts to develop human resources, and cross-industry efforts are also important

IV-1 - ③ New challenges brought about by generative AI: Hallucination

Challenges

- The credibility of FIs could be undermined if incorrect information is presented or if responses that are directly linked to credit risk or legal risk are incorrectly generated
- Even in the case of using RAG, if the business design is not appropriate, the selection of reference sources will be insufficient and the accuracy will not be improved, and there is a risk that operations will be conducted without eliminating false outputs
- The risk of employees inadvertently conveying misinformation when using generative AI to respond externally.

Examples of initiatives and approaches to solutions

- Examples of initiatives to address challenges
  - Building business processes based on human involvement (Human in the loop)
  - Incorporating RAGs and prompts so that supporting documents can be included in responses to confirm supporting evidence
- It may not be appropriate to impose high accuracy requirements on AI, such as “AI must not make mistakes.” Therefore, the FSA’s expectation is that generative AI will be actively explored while acknowledging the societal acceptance of AI and the pace of technological development and potential use cases, and while avoiding undue restraint

IV-1 - ③ New challenges created by generative AI: Misuse of generative AI for financial crime

Challenges

- The development of generative AI has made it possible to generate natural Japanese texts, sounds, and images. Thus, criminal techniques are becoming more sophisticated, and the risks surrounding FIs and their customers are also expanding
- In addition to increasingly sophisticated scams such as phishing scams, deepfake technology makes it easier to carry out scams through fake videos and audio that impersonate specific persons
- Conventional KYC procedures and authentication systems are challenged in distinguishing between genuine individuals and fraud. This raises concerns about the potential for bypassing identity verification

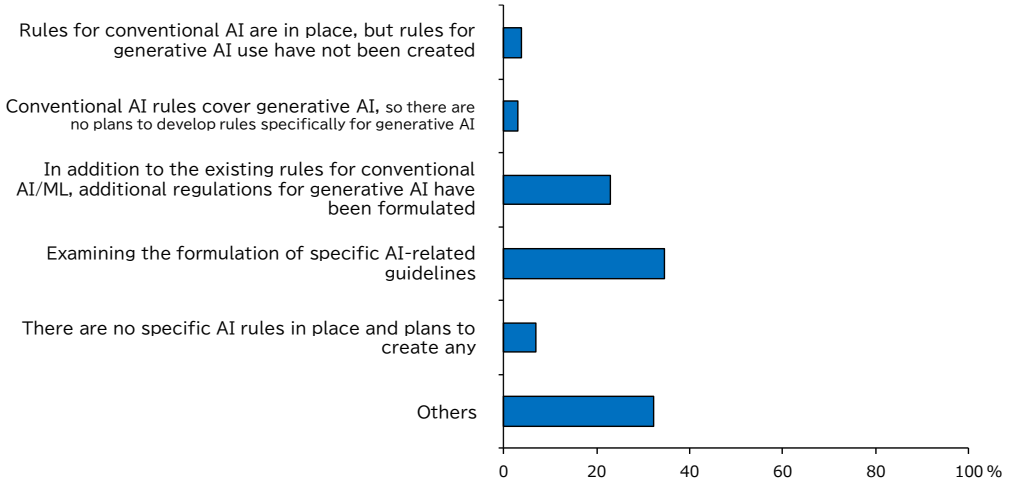
Examples of initiatives and approaches to solutions

- There is a potential for generative AI to create numerous new criminal techniques that are not envisioned by existing financial crime countermeasures, potentially posing a threat of a scale that cannot be addressed by individual technological measures alone
- As a result, there is also an undeniable risk of damaging the credibility of Fls as a whole and the stability of the financial system. Therefore, it is important for both the FSA and Fls to remain attentive to these risks

IV-2-1 Initiatives by FIs towards building AI governance: Establishment of internal rules

- Some FIs have formulated and published AI governance guidelines and are making efforts to ensure thorough implementation at affiliated companies
- Some FIs first focused on establishing internal rules for the introduction and use of generative AI and then extended these rules to include conventional AI
- More than a few FIs responded that “the existing framework can be generally applied”
- Documents used as reference in the development of regulations: AI business guidelines, guidelines on generated AI by private organizations, FISC publications, overseas AI related laws and regulations such as the ones in EU

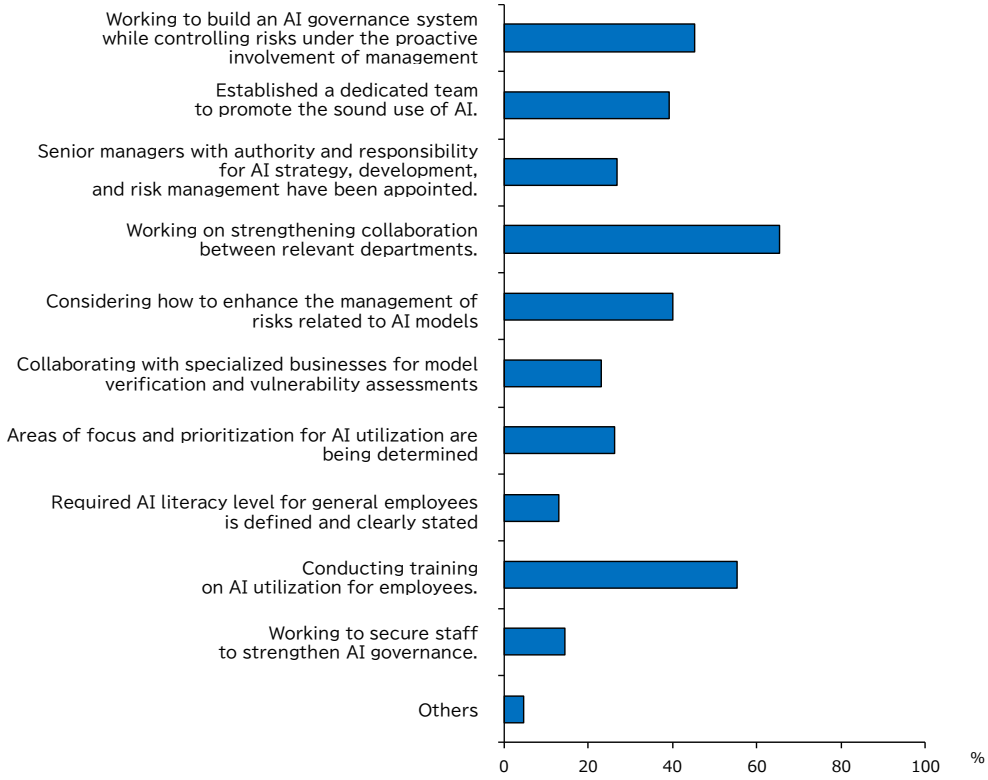
Figure 11: Current status of developing regulations and other guidelines concerning AI



IV-2 - 2 Initiatives by FIs towards building AI governance: Other initiatives

- Promotion of AI and establishment of management systems through strengthening collaboration among related departments
- Multiple departments, such as the risk management department, work together with the promoting department to understand the status of risk measures
- With an eye on the development of AI technologies and their further utilization within the company, clarify the AI risk evaluation criteria from a multifaceted perspective
- Due to the challenges specific to AI, many FIs are currently considering sound AI utilization through trial and error while applying the conventional governance and risk management framework

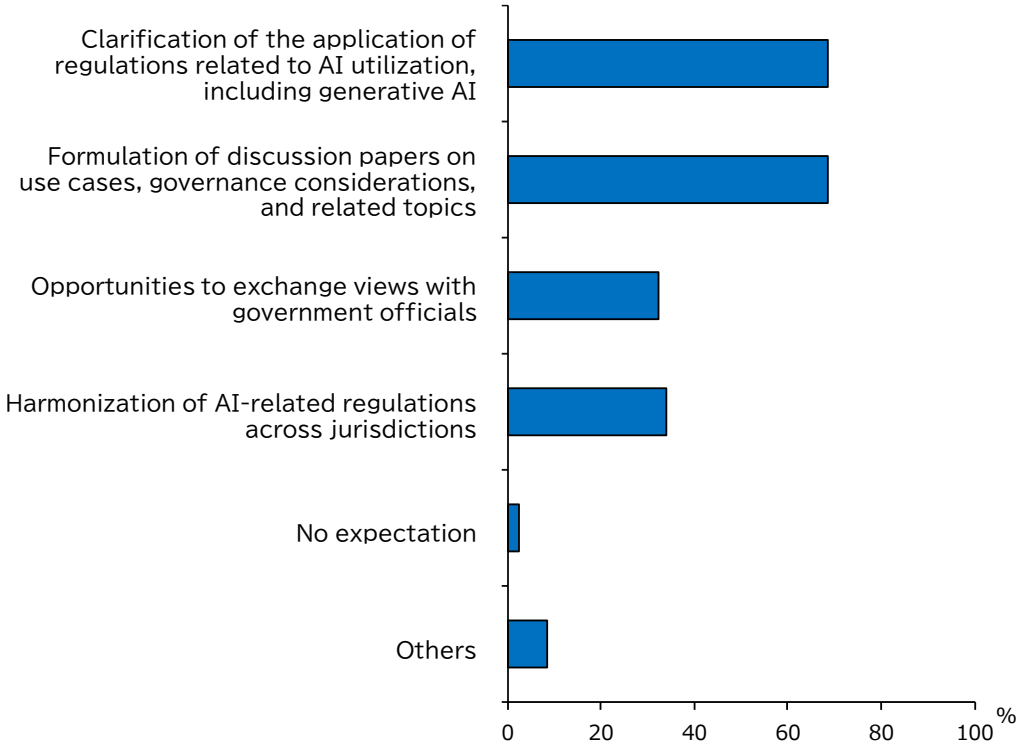
Figure 12: Initiatives towards developing AI governance



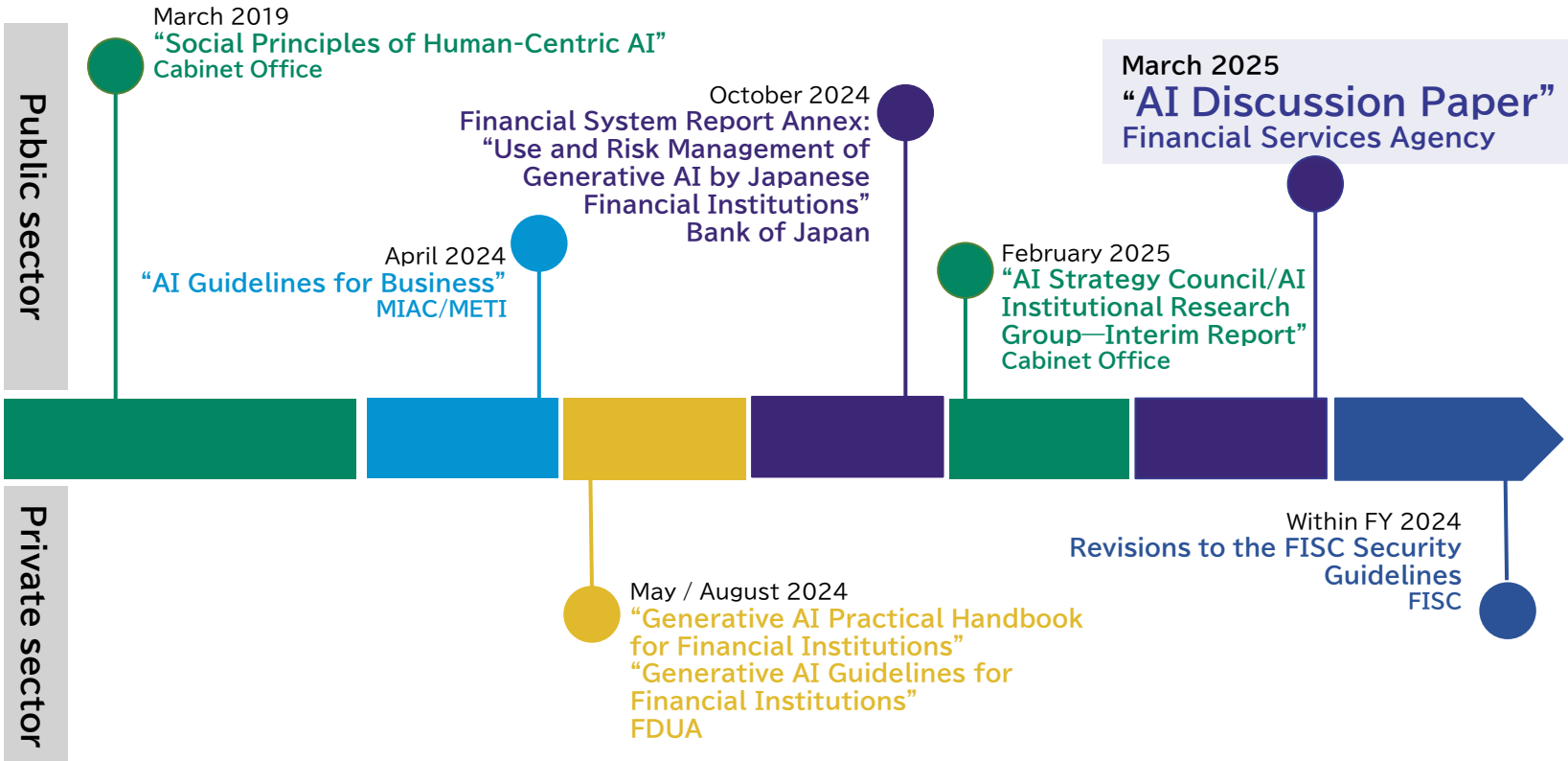
IV-3 Direction of future initiatives: Major requests to the FSA

- Clarification for application of regulations related to AI utilization
- Harmonization of AI-related regulations across jurisdictions
- Opportunities to exchange views with government officials

Figure 13: Major requests to the FSA



IV-3 Response by the FSA: Recent actions by the government and related entities



IV-3 Response by the FSA: Trends in international discussions

G20 Minister of Finance and Central Bank Governors Meeting

in February 2024

The meeting emphasized the importance of understanding the benefits and vulnerabilities coming from digital innovations, including artificial intelligence (AI).

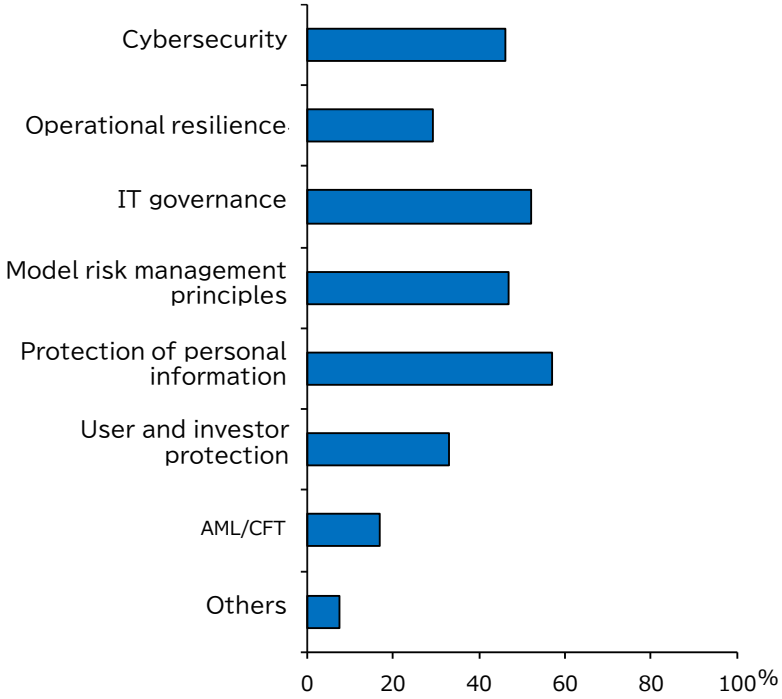
Financial Stability Board (November 2024)

- The Financial Stability Board (FSB) published a report on the financial stability implications of AI in November 2024 for submission to G20 Leaders
- The International Organization of Securities Commissions (IOSCO) plans to publish a report by the first quarter of 2025 on market participants' use cases for emerging AI technologies and the issues, risks and challenges for considering potential policy responses from market integrity and other perspectives. Progress on AI-related discussions in other SSBs (BCBS, IAIS, IFIAR, etc.)

IV-3 Response by FSA: Future direction of FSA 1/3

- Clarifying the application of regulations
  - The top areas requiring clarification are privacy, IT governance, model and risk management, and cybersecurity
  - For all issues, there are existing laws, regulations, supervisory guidelines, principles, and guidelines that apply regardless of whether or not AI is used. Therefore, we will encourage FIs to take actions in line with these regulations.
  - While taking into account new issues arising from the characteristics of generative AI, we will examine whether the regulatory requirements for AI utilization have been sufficiently clarified and whether the existing regulatory and supervisory frameworks have sufficiently addressed risks
  - If a significant regulatory gap is identified, based on the Japanese government's policy that regulatory measures should be limited to those that cannot be expected to be addressed by independent efforts of business operators, consider revising the principles and guidelines first
- **"A Multi-stakeholder Study Group"** will be held to deepen discussion on specific issues

Figure 14: Issues for which clarification of the relationship of application of regulations, and other related issues, is desired



IV-3 Response by FSA: Future direction of FSA 2/3

FinTech Support Desk

- A centralized contact point for consultation on laws and regulations, etc., from business operators running businesses that involve various innovations or business operators that are considering new businesses
- Since its establishment in 2015, the Desk has received a total of 2,380 consultations from FIs and Fintechs as of December 2024. A framework that can be used when seeking clarification of the interpretation of laws and regulations concerning the use of generative AI

FinTech Proof-of-Concept Hub

- A framework to support proof-of-concept testing for innovation by forming a team within the FSA and collaborating with other ministries and agencies as necessary
- AI-related approved projects include a demonstration experiment using AI to improve the efficiency of financial institutions' compliance operations, with a report published in August 2018

FinTech Support Desk Website

IV-3 Response by FSA: Future direction of FSA 3/3

Public-private stakeholder study group

March 2025	June to December 2025 *TBD	March 2026
Publication of AI Discussion Paper (Version.1.0) Japan Fintech Week 2025		**Updating the Paper** Japan Fintech Week 2026

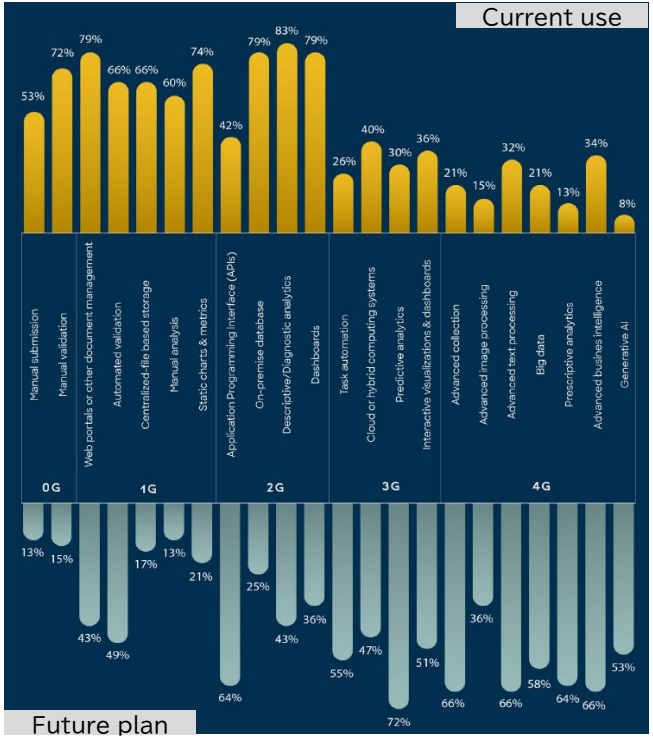
Domestic Response	**Accepting inquiries and consultations as needed** (FinTech Support Desk, PoC Hub, etc.) **Monitoring and environmental development for each discussion point in the Paper** (including review of guidelines)
International Response	**Contributions to international discussions** (FSB, IOSCO, BCBS, IFIAR, etc.), **dialogues with national authorities** **Gathering information and conveying opinions** e.g., participations to Fintech conferences

V. Use of AI by The FSA

V. Use of AI by The FSA

- According to a survey of 64 financial supervisory authorities conducted by the CCAF, 59% of those subject to the survey have implemented at least one Suptech application
- AI-related technologies (e.g., text processing, big data analysis) have been used in Suptech only to a limited extent, but many authorities have expressed interest in using them in the future.
- Examples of initiatives by the authorities
    1. Prediction of financial crisis using big data (Bank of England)
    2. Extraction of patterns from unstructured data (e.g. corporate information) (UK PRA)
    3. Use of AI in market surveillance (AMF, France)
    4. Examples of Initiatives at the FSA
        - Risk analysis using granular data (prediction of the credit risk (credit rating of a borrower) for real estate loans using a machine learning technique, analysis of the impact of HFT on the magnitude of market fluctuations using a neural network)
        - Efficient extraction of financial institution information through text analysis

Figure 15: Status of SupTech adoption by financial supervisory authorities and outlook for future use



Source: Cambridge Centre for Alternative Finance

VI. Conclusion

VI. Conclusion

■ Importance of collaboration with public and private sector stakeholders

- As the use of AI is accelerating, strengthening collaboration across the financial industry and society as a whole is significant in order to overcome challenges and to maximize the benefits of AI
- Public-private partnership initiatives could be effective to create use cases and build AI governance, as small FIs have limited capacity
- The FSA's collaboration with other ministries/agencies and contribution to international rule making are important
- **The FSA intends to support sound AI utilization in the financial sector**
- The FSA is determined to continue providing opportunities for dialogue between public and private stakeholders, both domestic and abroad, at opportunities such as Japan Fintech Week, and make every effort to realize open innovation while improving the predictability of regulatory supervision
- The organization anticipates hosting **study groups on AI** and more

■ Request for comments on the Paper

- The analysis in the Paper is preliminary, and the issues raised are likely to change significantly as a result of technological innovations and changes in the business environment
- Please contact the Fintech and Innovation Office, Risk Analysis Division, Strategy Development and Management Bureau, for any comments or suggestions

JAPAN FINTECH WEEK 2025

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