Financial System Report Annex

[Summary]

Use and Risk Management of Generative AI by Japanese Financial Institutions
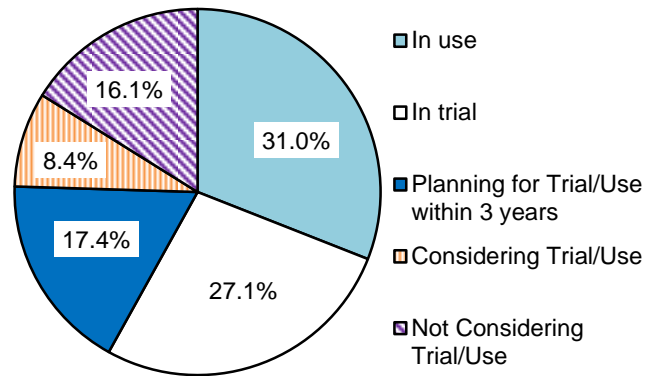# ― Based on the results of questionnaire survey ―

October 2024

Bank of Japan

Background of this survey

✓ In recent years, generative AI (GenAI), which can create new content such as text and images using large language models, has rapidly been penetrating society as a whole, and Japanese financial institutions have started adopting it.

✓ The Bank of Japan conducted a survey on the use of AI, etc., targeting 155 financial institutions.

  --The respondents consist of 10 Major Banks, 99 Regional Banks (62 member banks of the Regional Banks Association of Japan, 37 member banks of the Second Association of Regional Banks), 19 *Shinkin* banks excluding the members of Shinkin Kyodo Center, and 27 other financial institutions.

✓ This paper describes the current status, challenges, and issues related to risk management in the use of GenAI in the financial industry based on the survey results as well as the views exchanged with some IT vendors and financial institutions.
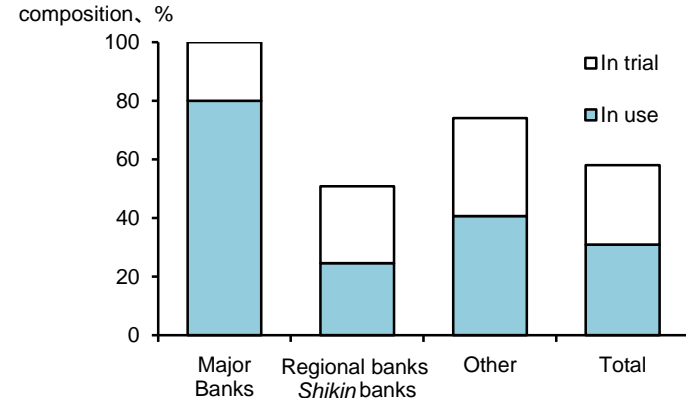
I. Use of GenAI

✓ About 30% of the financial institutions are already using GenAI, about 60% including those currently on trialing, and about 80% including those considering trial or use. The use of GenAI is spreading rapidly.

✓ Sorting by financial institutions' business type, all major banks and about 50% of regional banks and *shinkin* banks have started using GenAI on a trial basis or have already started using it.

▽ **Use of GenAI**

- In use — 31.0%
- In trial — 27.1%
- Planning for Trial/Use within 3 years — 17.4%
- Considering Trial/Use — 8.4%
- Not Considering Trial/Use — 16.1%

Note: See Chart 1.

▽ **Use of GenAI by business type**

composition、%

- In trial
- In use

Major Banks / Regional banks *Shikin* banks / Other / Total

Note: See Chart 2.

（Reference) Reasons for not introducing GenAI

✓ 16% of the financial institutions said they were not considering trial or use GenAI. The reasons for not introducing GenAI are "unable to develop a management system" and the "use constraints/challenges (information leakage, rights infringement measures, etc.) ".

▽ **Reasons for not introducing GenAI**
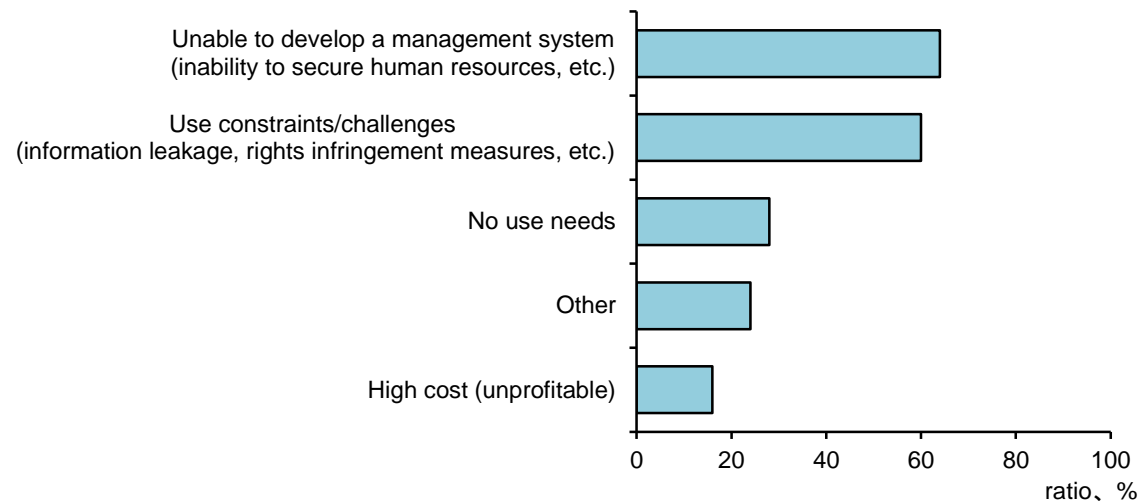
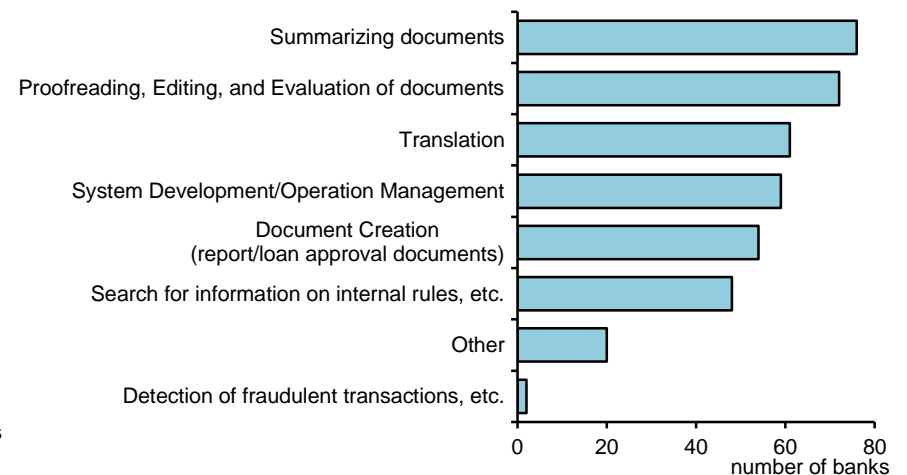Note: See Chart B-1.

II. Purpose and application of GenAI

✓ Regarding the purpose of introducing GenAI, almost all the financial institutions already using or trying it responded that they aimed at "improving operational efficiency and reducing costs".

✓ Main areas of use included "summarizing documents"(e.g. records of customer interviews, specialized books on banking business, market information) ; "proofreading, editing, and evaluation of documents"(e.g. legal checking); "translation" of documents related to overseas regulations, and "system development/operation management"(e.g. coding, creating test items, and assisting in responding to system failures).

✓ Due to the nature of their business, financial institutions often handle a variety of documents and use a wide range of systems in the performance of their daily tasks. It is presumed that they expect to improve labor productivity by introducing GenAI.

▽ **Purpose of Introducing GenAI**
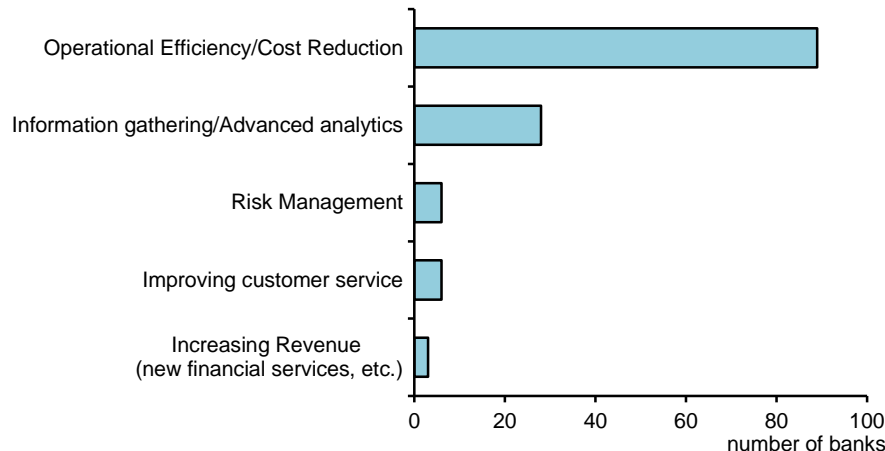
▽ **Applications of GenAI**
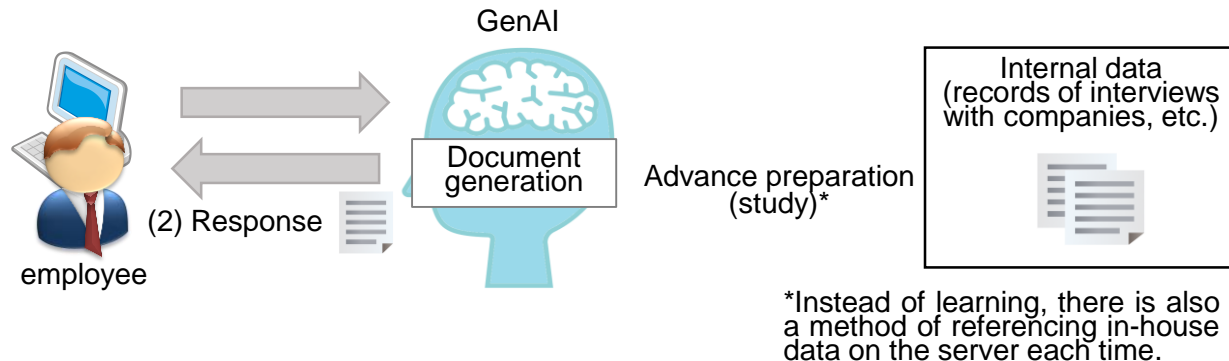

Note: See Chart 3.

Note: See Chart 4.

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（Reference) GenAI Use Case1: Assistance in document creation

- ✓ "Summary" of customer interview records, specialized books on banking business, market information, etc.
- ✓ "Proofreading, Editing, and Evaluation", namely checking the accuracy of created reports, editing typographical errors, and legal checking of documents.
- ✓ "Creation" of loan approval documents, etc.

▽ Case study image

(1) Instructions to GenAI:
"Summarize the records of the past three years of interviews with company A"

GenAI

Internal data
(records of interviews with companies, etc.)

Document generation

Advance preparation (study)*

(2) Response

employee

*Instead of learning, there is also a method of referencing in-house data on the server each time.

Note: See Chart B-2.

（Reference) GenAI Use Case2: System development and Operation management

✓ Automatic generation of source code (Excel VBA, Python, etc.), confirmation of consistency of system design documents created by IT vendors (automatic detection of errors and omissions in design documents), and assistance in responding to system failures (extraction of similar cases in the past, etc.).
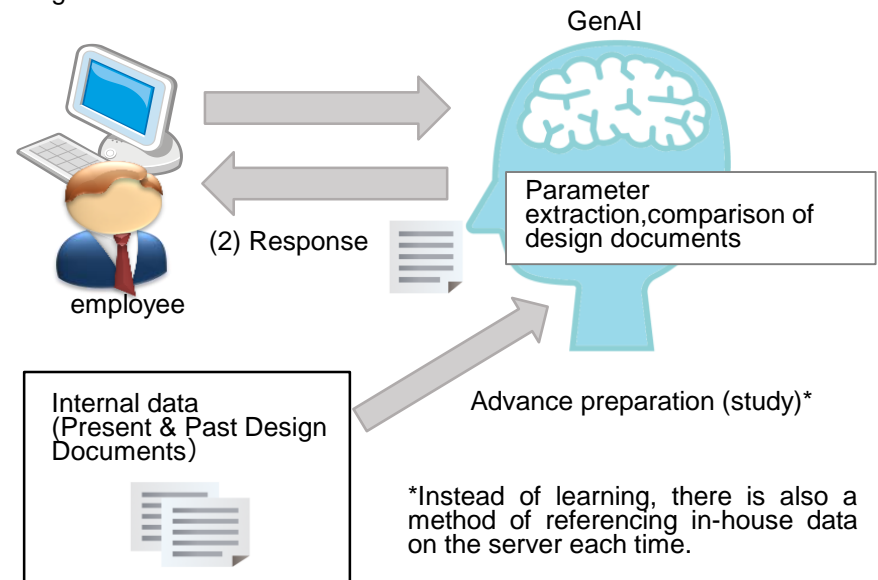
▽Case study image 1

(1) Instructions to GenAI:
"Create an Excel VBA to aggregate the results of customer surveys for each service."

GenAI

VBA generation

(2) Response

employee

Note: See Chart B-3.
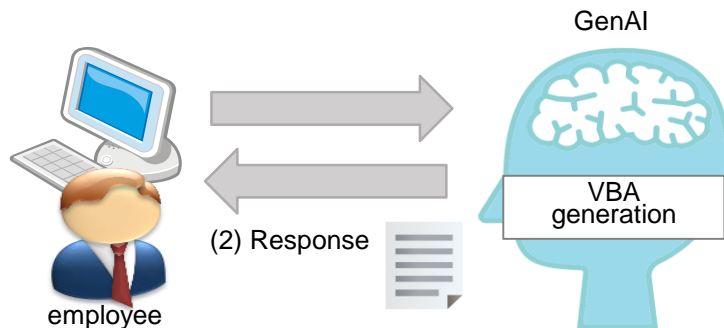
▽Case study image 2

(1) Instructions to GenAI:
"Extract all the parameters from the current design documents and compare them with the previous design documents."

GenAI

Parameter extraction,comparison of design documents

(2) Response

employee

Internal data
(Present & Past Design Documents）

Advance preparation (study)*

*Instead of learning, there is also a method of referencing in-house data on the server each time.

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III. Evaluations after adopting GenAI

✓ Regarding their evaluations after adopting GenAI, the financial institutions gave reasonably positive feedback, namely "exceeded expectations" or "mostly met expectations".

✓ More respondents evaluated "system development and operation management" as "exceed expectations" than other business areas, indicating that GenAI can be a useful tool in this area. On the other hand, many respondents evaluated "search for information on internal rules, etc." as "fell below expectations".

▽**Evaluations after adopting GenAI (operational efficiency/cost reduction)**
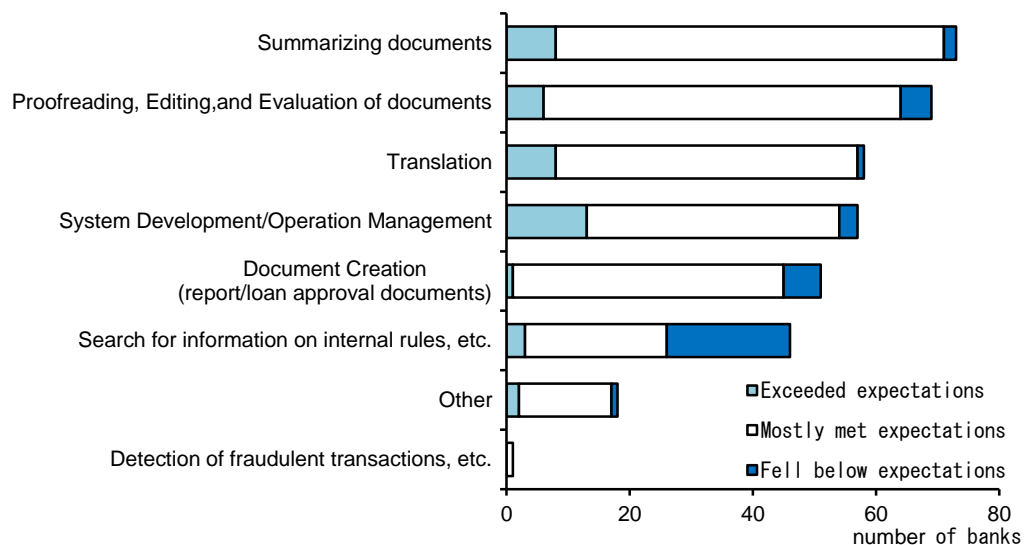
Note: See Chart 5.

IV. GenAI Risks and Governance

✓ For financial institutions to promote the use of GenAI, it is necessary to develop an appropriate governance structure based on the risks specific to GenAI, such as hallucination and information leakage.

▽ Key risks specific to GenAI

Hallucination	Risk of GenAI plausibly answering things that are not true
Leakage of confidential information	Risk of unintentional leakage of information input to GenAI as a result of being used as training data
Infringement of copyrights, etc.	Risk of GenAI outputs causing infringement of intellectual property rights, such as copyrights
Occurrence of bias	Risk of unintended bias in responses due to bias in the training data of GenAI
Lack of accuracy or reliability	Risk of not being able to obtain sufficient response accuracy due to outdated versions and training data of GenAI
Security Threats	Risk of malfunction due to malicious instructions given to GenAI (prompt injection)
Accountability for products	Risk of unreliability due to the "black box" nature of the output process and the reasons for the decisions made by GenAI.

▽ Example of Applicability and Risks of GenAI use among financial institutions

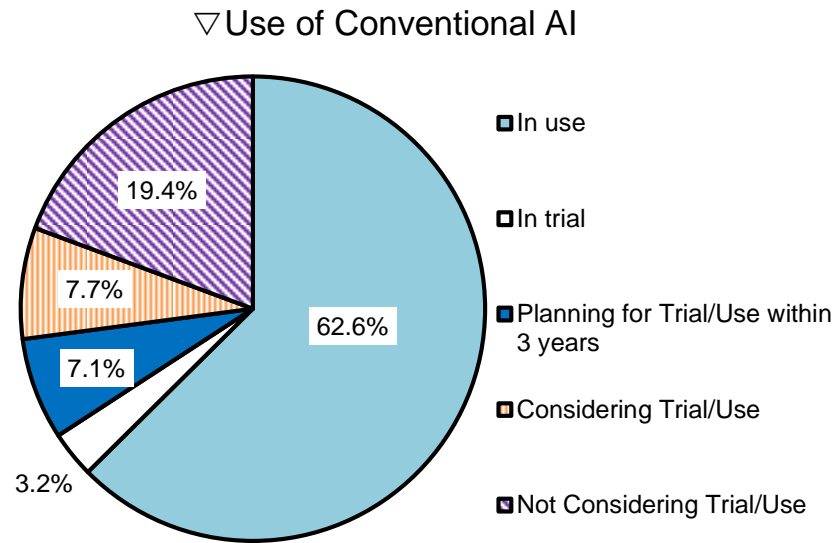|	Data handling	Operation
Example of Applicability	Text analysis (Search for information on internal rules, etc.) Preparation/review of loan approval documents Customer relations	Summarizing/Proofreading documents Translation System Development/Operation Management
Example of Risk	Hallucination Occurrence of bias Lack of accuracy or reliability Accountability for products	Security Threats Leakage of confidential information Infringement of copyrights, etc. Occurrence of bias

Note: See Chart 6 and 7.

V. Management status of GenAI

✓ About 70% of the financial institutions responded to questions on the status of their management of GenAI by saying that they use their own virtually isolated areas in cloud services, introduce mechanisms to prevent both the reuse of input content by GenAI and the leakage of products to the Internet, and set restrictions on what kind of data is input. Since financial institutions handle a large amount of important information, such as confidential information, it can be assumed that they are paying attention to the risk of information leakage.

✓ On the other hand, on topics such as the clarification of the policy for the use of GenAI, the development of practical rules, and the verification and evaluation of output data, about 50% of the financial institutions answered that they found room for improvement or that they were considering appropriate measures. As technological innovation in GenAI progresses rapidly, financial institutions are required to continuously review their operating rules in accordance with changes in risk.

▽ Management status of GenAI
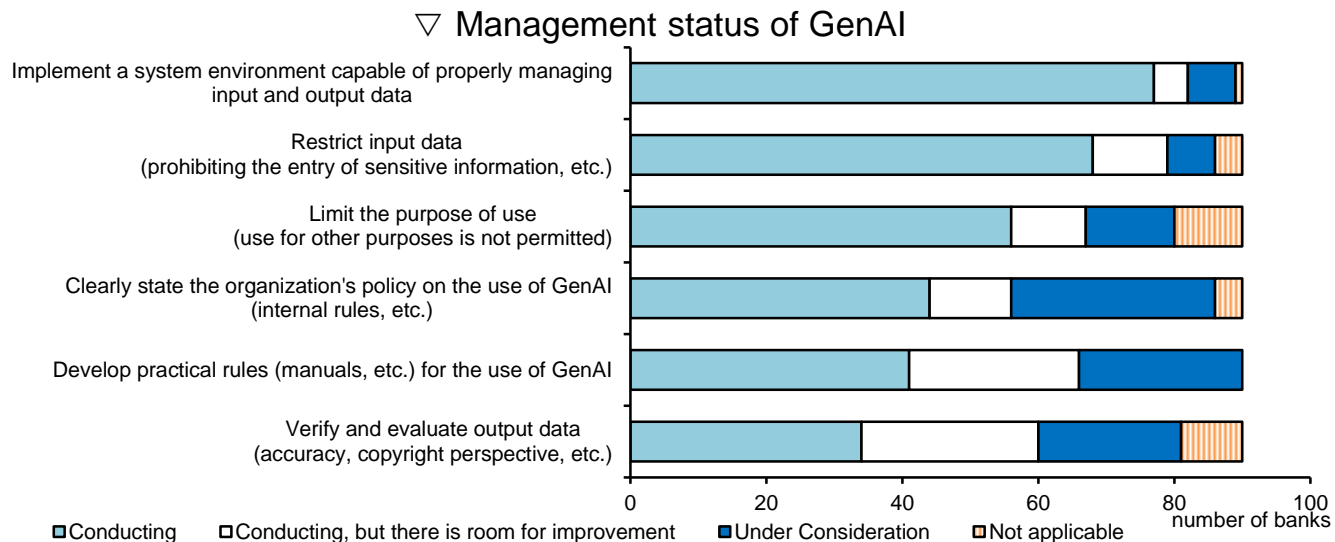
Note: See Chart 8.

（Reference) Current status of conventional AI use

✓ About 60% of the financial institutions are already using conventional AI. The proportion rises to about 80 percent when those financial institutions that are considering future trials or use of conventional AI are included.
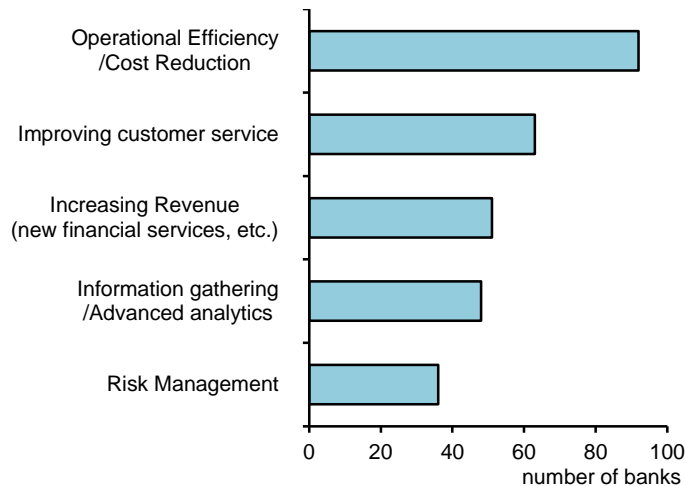
▽Use of Conventional AI

- In use
- In trial
- Planning for Trial/Use within 3 years
- Considering Trial/Use
- Not Considering Trial/Use

62.6%
19.4%
7.7%
7.1%
3.2%

Note: See Chart B-4.

# （Reference) Purpose of introducing and application of conventional AI

✓ Regarding the purpose of introducing conventional AI, many respondents cited "operational efficiency/cost reduction". In addition, they expect to increase profits by "improving customer service" and "targeting customers".

✓ The main areas of use are "customer relations and records (chatbots, etc.)","texting documents (OCR)", and "customer targeting".

✓ It is conceivable that there will be a growing movement to not only use conventional AI alone, but also to combine GenAI and conventional AI in order to reform business processes and create services in the future.

▽Purpose of Introducing Conventional AI

▽Applications of conventional AI
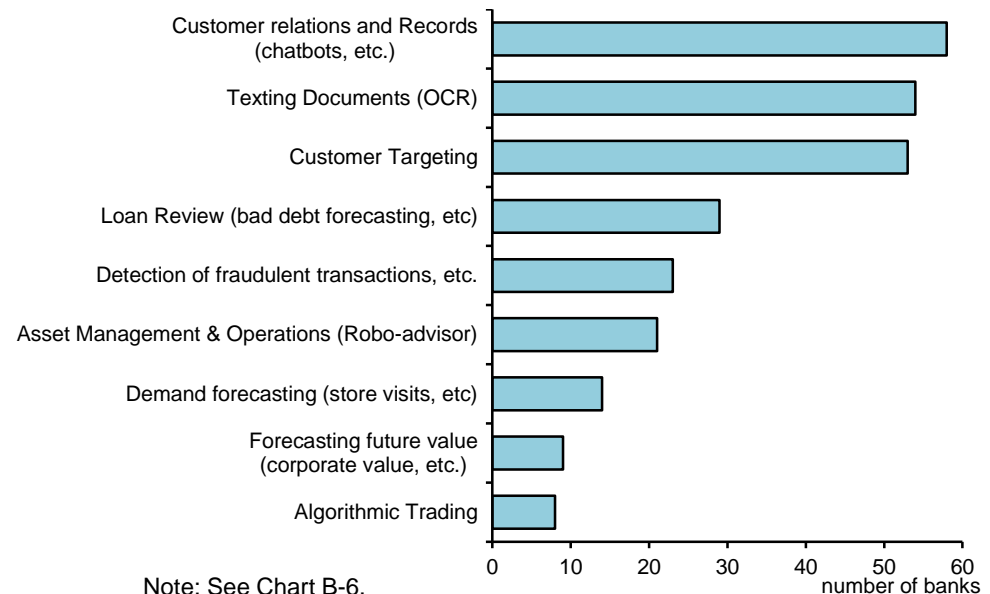
Note: See Chart B-5.

Note: See Chart B-6.

Conclusion

✓ The findings from the survey results are listed below:

1. The use of GenAI is expanding in financial institutions. About 30% of the financial institutions are already using GenAI, about 60% including those currently on trialing, and about 80% including those considering trial or use.

2. Many financial institutions adopt Gen AI in the areas of assisting document preparations, such as "summarizing documents", "proofreading, editing, and evaluation of documents", and "translation", as well as engaging in "system development and operation management", in order to improve labor productivity. Regarding the evaluation after adopting GenAI, the respondents gave reasonably positive feedback.

3. Regarding the status of their management of GenAI, many respondents use their own virtually isolated areas in cloud services, introduce mechanisms to prevent both the reuse of input content by GenAI and the leakage of products to the Internet, and set restrictions on what kind of data is input.

4. On the other hand, on topics such as the clarification of the policy for the use of GenAI, the development of practical rules, and the verification and evaluation of output data, about 50% of the financial institutions answered that they found room for improvement or that they were considering appropriate measures.

Conclusion (continued)

✓ When financial institutions try to promote GenAI in their business, they need to recognize the risks specific to GenAI, such as information leakage and hallucination, and continuously review their operating rules in accordance with technological innovation and changes in risk.

✓ The Bank of Japan will continue to engage in dialogue with financial institutions on the use of GenAI and on risk management through on-site examinations, monitoring, and seminars.