Japan Research Institute

Finance × Generative AI
Case Study and Strategy

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The Japan Research Institute, Limited.

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Executive Summary

- The use of Gen AI is expanding in finance industry to automate operations, enhance customer experience and improve risk management. However, a number of challenges remains such as selection of application areas, development of data infrastructure and governance. This report explores domestic and global key trends and offers strategic actions.

Current Analysis of Gen AI Initiatives in Leading Japanese Financial Institutions

- **Solid Business Applications:** Steady Adoption of Gen AI for Operational Efficiency
- **Strong Governance Awareness:** Emphasis on Risk Management
- **Regional Comparison:** U.S. = Aggressive, Europe = Cautious, China = Rapid Deployment

Six Strategic Pillars for Japanese Financial Institutions

1. **Vision and Goals:** Define "Value Creation + Growth" and swiftly scale from field trials to strategy
2. **ROI Calculation:** Shift focus and optimize long-term investment decisions
3. **Use Cases & Priorities:** Look beyond efficiency and identify promising use cases early
4. **Tech & Data:** Fuse in-house strengths with external tech; codify tacit knowledge
5. **Risk & Governance:** Automate AI oversight with tools and frameworks
6. **Organization & Talent**: Systematically train 1% in AI expertise

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1. Case Study of Gen AI in Leading Financial Firms

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1. Case Study of Gen AI in Leading Financial Firms

- **As Gen AI rapidly evolves worldwide, leading financial firms have already begun practical use.**
- **We compare global financial firms' AI use by region to grasp key trends.**

Target Financial Firms

- Publicly available data on leading firms in banking, investment, and cards were reviewed.
- The review covers activities up to the end of 2024.

	Japan(7)	The U.S.(7)	Europe(6)	China(6)
Banking/Investment	**MUFG Bank**	**JPMorgan Chase**	**HSBC**	**ICBC**
	SMBC	**Bank of America**	**BNP Paribas**	**CCB**
	Mizuho Bank	**Citibank**	**Credit Agricole**	**ABC**
	Nomura Securities	**Wells Fargo**	Deutsche Bank	**Bank of China**
	Daiwa Securities	Goldman Sachs	Banco Santander	CITIC Securities
	SBI Group	Morgan Stanley	Barclays	-
Card	JCB	VISA	-	UnionPay

Created by JRI
Bold: Top 15 financial firms with over ¥1 trillion (approx. $6.5 billion) in assets (excluding Japan Post Bank)
Regular: Representative firms in securities/investment and card sectors by region/country

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1.1 Promoting Business Use

- **Gen AI is widely used to streamline surrounding business operations.**
- **Many firms are still experimenting, aiming to apply it to core financial operations.**

1. Use by business area

- Currently, Use is advancing in operational efficiency.
- External use of Gen AI—such as customer-facing chatbots—is rarely seen across regions.
- Europe is slightly behind in adoption, but Japan, the U.S., and China show little difference in focus areas or progress.

	Business Area	JP	US	EU	CN
Core	Customer Experience	5	1	1	4
	B2B Sales	1	0	0	0
	Trading, Settlement, and Securities	2	1	2	2
	Risk, Compliance	1	1	1	1
Non-Core	Operational efficiency	**13**	**10**	4	**19**
	Total	**22**	**13**	7	**26**

Adoption

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2. Use of Gen AI will accelerate

✓ Even firms in Europe, though behind, are actively exploring Gen AI. As most are still experimenting, adoption is expected to keep accelerating.

- **MUFG [Japan]**
  There are already 350 candidate use cases leveraging RAG *1, with plans to develop over 40 more advanced ones. [1]
  *A method that boosts LLM output using external search.
- **HSBC [UK]**
  Around 100 Gen AI solutions are being tested.[2]
- **BNP Paribas [France]**
  They are testing 26 Gen AI use cases to improve trading processes and financial data analysis.[3]
- **ICBC [China]**
  Focusing on credit, risk, channels, operations, advisory, marketing, maintenance, and office work to fully advance smart banking operations.[4]

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1.2 Organization, Talent Management, and Governance

●Firms are starting to appoint Heads of AI and establish AI Centers of Excellence (AI CoEs*1).

*1 A CoE (Center of Excellence) is a unit that centralizes top talent and expertise.

1. Setup of AI-related organizational structure

- In recent years, more firms (e.g., GE HealthCare) have begun appointing CAIOs. In U.S. and European finance, roles like “Head of AI” are now emerging.
- Centralized AI units like AI CoEs (Centers of Excellence) are in place at many firms.
- Some firms now disclose their AI governance policies.

	Item	JP	US	EU	CN
Organization, Talent Management *2	CAIO	0	0	0	0
	Head of AI	0	1	2	0
	CDAO・CDO(Data)	2	2	**5**	0
	CTO・CDO(Digital)	**4**	2	**6**	1
	CIO	**5**	**5**	**6**	**5**
	AI CoEs	3	3	**4**	1
Governance	Policy disclosure	3	1	2	0
	AI Governance Tools	0	2	2	0

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*2 Count of roles and organizations listed.

2. External communication by Head of AI

- Senior AI leaders actively communicate via media, IR, and SNS.
- ✓ Such outreach likely aims to attract investors, build trust, and recruit talent.

- **HSBC [UK]**
  LinkedIn post by Edward Achtner, Group Head of Gen AI.[6]

3. AI talent expansion

- Firms are strengthening talent for AI adoption.

- **Deutsche Bank [Germany]**
  Firms focus on reskilling staff to triple AI-related talent.[7]
- **Banco Santander [Spain]**
  In 2023, over 4,500 digital-skilled hires. Also launched "Be Tech! with Santander" to employ 27,500 STEM experts globally. [8]

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1.3 Use of Domestic Tech

●The U.S. and China favor domestic tech and have begun partnering with AI tech holders.

1. LLMs adopted by Financial Firms*1

- Outside China, firms explore various LLMs. Japan/US favor OpenAI, while Europe/China lean toward domestic models.
- China's "Interim Measures for Gen AI Services" [15] (2023) require compliance with local laws, effectively blocking foreign services.

	Vendor	JP	US	EU	CN
JP	NTT	1	0	0	0
US	OpenAI	**6**	**6**	2	0
	Google	0	1	1	0
	Anthropic	2	1	1	0
	Meta	1	2	1	0
EU	Mistral	0	1	1	0
CN	Baidu	0	0	0	2
	DeepSeek	0	0	0	2
Each	Other	1	1	3	**6**

Created by JRI(Include those under review or in research phase.)

2. Financial Firms–GenAI vendor collaborations

- **Mizuho FG [Japan]**
  In Oct. 2024, Mizuho signed a joint research deal with NTT Data Group to develop a custom model based on NTT's LLM "tsuzumi." It will train on internal data and support AI agents for specific tasks.[9]
- **Morgan Stanley [The U.S.]**
  In early 2023, a partnership with OpenAI was announced to co-develop solutions enhancing advisor services. [10] An 18,000 sq ft innovation lab was set up in New York to test and customize OpenAI products. [11]
- **BNP Paribas [France]**
  In July 2024, a partnership with Mistral AI was signed to explore deploying its current and future models in a secure on-premise environment.[12]
- **UnionPay [China]**
  Established a joint LLM lab with Zhipu AI to drive tech development, co-innovation, industrialization, and pilots—aiming to build new AI productivity in finance.[13]

*1 AI trained on large text data to generate natural language and answer questions.

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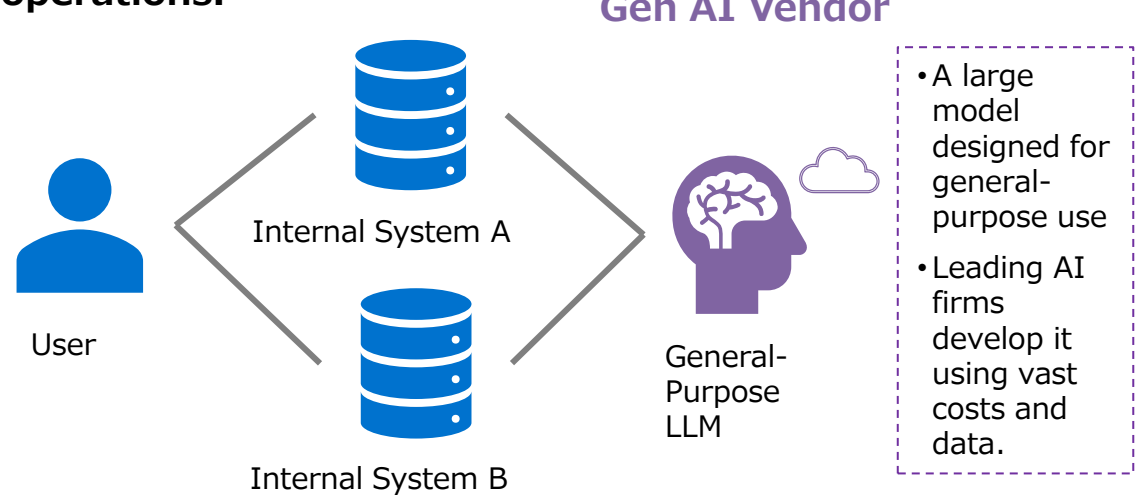
(Reference) LLM usage patterns

- **Leading Financial Firms show two main LLM usage patterns, but most focus on one rather than using both in parallel.**

Usage patterns of general-purpose LLMs

- **Use general-purpose LLMs as a service and combine with technologies like RAG[*1] to apply to internal operations.**



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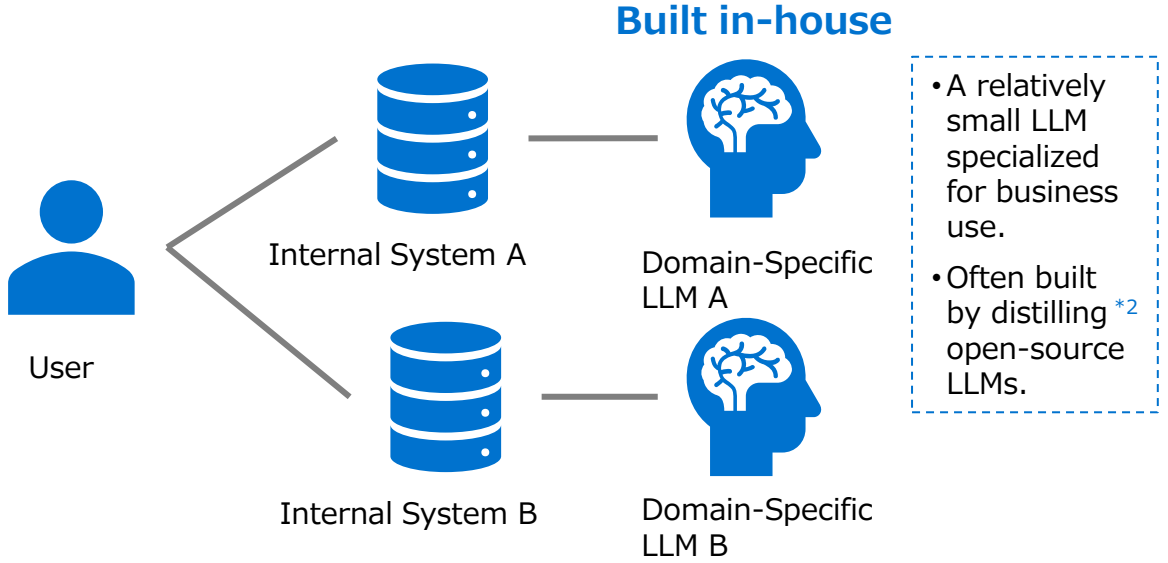
- **Pros:** Easy to adopt, minimum management and low cost.
- **Cons:** More security risks to consider.
- **Reason:** High cost-effectiveness.
- **Adoption:** Mainly used by Financial Firms in the U.S. and Japan.

*1 Technique to boost accuracy by adding external search to LLM output.

Usage patterns of domain-specific LLMs

- **Build an LLM specialized for internal tasks, placing the entire system fully under your control.**



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- **Pros:** Can reduce security risks.
- **Cons:** Needs experts, compute, and time to develop.
- **Reason:** Ensure security, boost capability, gain advantage.
- **Adoption:** China and France lead. Others are in the research stage.

*2 A training method to transfer knowledge from large to smaller models.

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1.4 R&D (1/2)

●U.S. and China's Financial Firms build AI in-house to gain an edge.

1. AI R&D status at leading Financial Firms

- The U.S. leads in research papers, while China leads in patents—Financial Firms actively develop AI themselves.
- Japan and Europe's Financial Firms lack focus on tech.

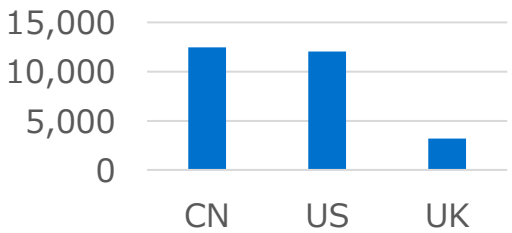
AI R&D	JP	US	EU	CN
Research Papers (2023-2024)	19	280	34	23
Patents (2023-2024)	5	857	3	**2,753**

Created by JRI(集計方法は17頁に記載)

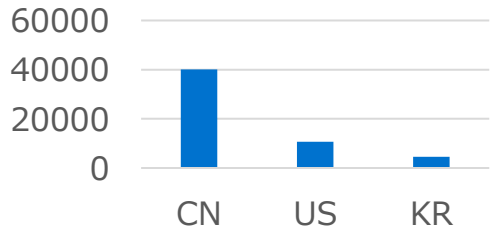
(Reference) GenAI R&D by country[14]

- China is leading in GenAI R&D.
- Ping An ranks 2nd in GenAI patents, ahead of Google and Microsoft. Chinese Financial Firms are active.

GenAI Research Papers(2010-2023)



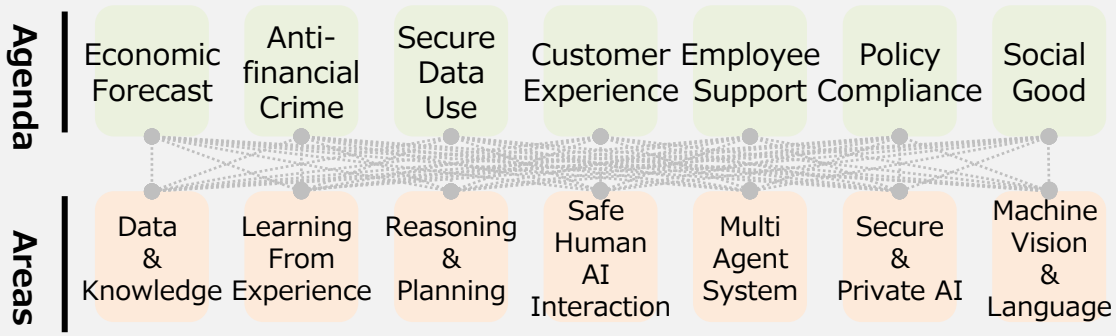
GenAI Patents(2010-2023)



Based on Patent Landscape Report - Generative Artificial Intelligence (GenAI)[21]

2. JPMorgan Chase AI Research Unit

- JPMorgan Chase has a large-scale research setup.
- **JPMorgan AI Research [The U.S.]** [15]
  - **Overview:** A team of AI experts working on fundamental research tied to finance and core themes, accelerating adoption with internal teams and collaborating with top scholars worldwide.
  - **Lead:** Dr. Manuela Veloso, a top AI researcher, is the head. A CMU professor emerita, former AAAI president, and RoboCup co-founder, she's renowned for her work in AI, robotics, and finance.
  - **Goal :** Advances cutting-edge AI, ML, and cryptography to deliver impactful solutions for clients and business.



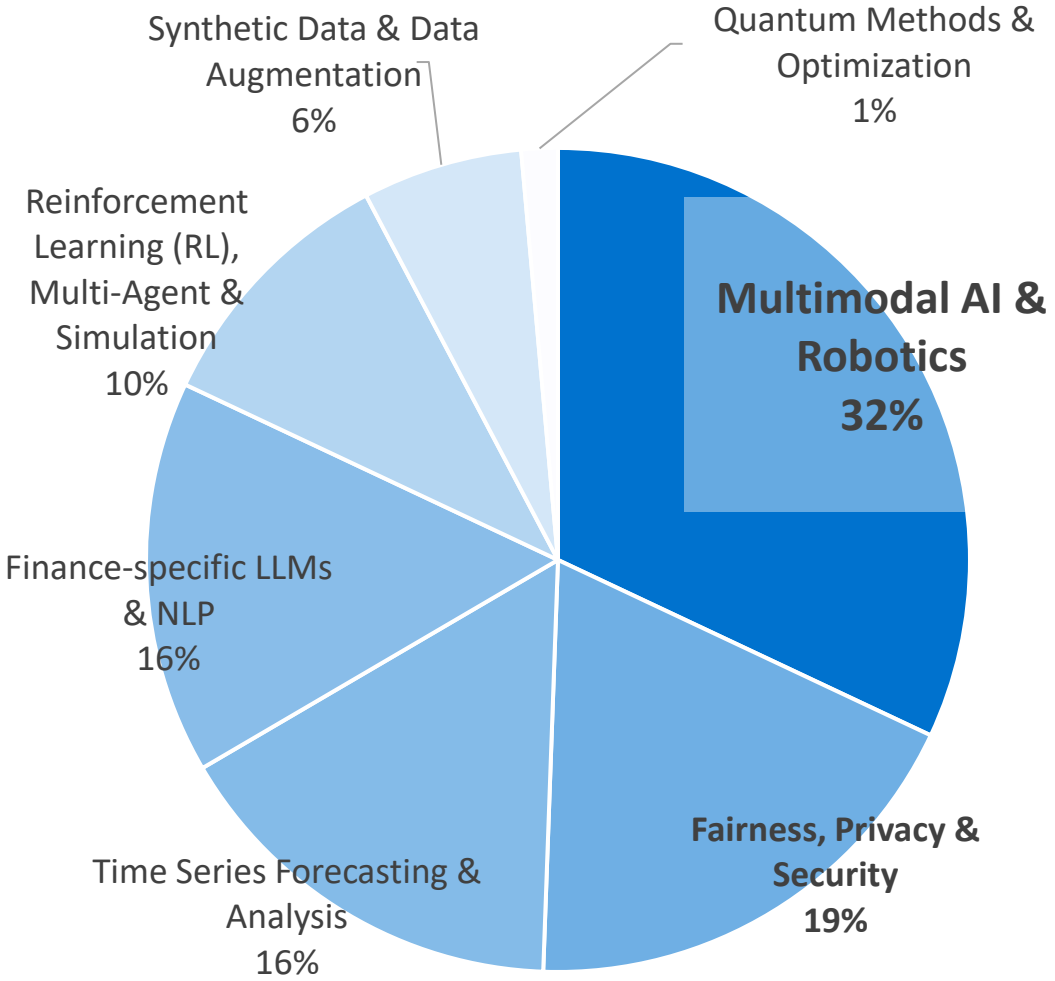
Based on JPMorgan AI Research[22]

1.4 R&D (2/2)

●Analysis shows Financial Firms are targeting multimodal AI *1 and robotics for tech development.

*1 AI that handles text, audio, and images together.

3. Trend analysis of research papers



Created by JRI(Independently categorized based on the method described on page 17.)

- Recent trends focus on emerging, broad-scope research combining multimodal AI, robotics, and more.

✓ **NARF24: Estimating Articulated Object Structure for Implicit Rendering. JPMorgan AI Research. 2024**[16]

- They propose a method to reproduce joint structures and motions—such as doors, drawers, and robotic arms—using implicit rendering.
- ✓ This approach could extend to facility automation and physical security, including equipment handling in back offices and maintenance of physical assets.

✓ **FlowMind: Automatic Workflow Generation with LLMs. JPMorgan AI Research. 2023**[17]

- They propose FlowMind, using LLMs to auto-generate and run workflows, surpassing RPA limits.
- ✓ In Financial Firms' back offices, diverse workflows suggest high potential for such automated flow generation.

✓ **Multi-Modal Financial Time-Series Retrieval Through Latent Space Projections. JPMorgan AI Research. 2023**[18]

- A framework to search vast Financial Firm time-series data via natural language, visual sketches, and other modes.
- ✓ Intuitive queries like “Show inventory trends during the peak sales of a product three months ago” reveal a new frontier in data exploration, retrieving relevant time-series data.

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(Reference) R&D aggregation method

●Since Financial Firms' research units often conduct actual R&D, their activities were included in the aggregation.

- **Method**: Research papers were reviewed via Google Scholar[19] , and patents via Google Patent[20].
- **Period covered**: January 1, 2023 – December 31, 2024.
- **Targets**: Firms on **page 6** and their affiliated research institutes. See table below.

	Japan		The U.S.		Europe		China	
Banking/Investiment	**MUFG Bank**	Japan Digital Design	**JPMorgan Chase**	JPMorgan AI Research	**HSBC**	AI Research	**ICBC**	Big Data and AI Laboratory
	SMBC	Japan Research Institute	**Bank of America**	Bank of America Institute	**BNP Paribas**	Data & AI Lab, Innovation Lab IT Group	**CCB**	-
	Mizuho Bank	Mizuho Research & Technologies	**Citibank**	Citi Innovation Lab	**Credit Agricole**	DataLab	**ABC**	-
	Nomura Securities	-	**Wells Fargo**	Corporate Model Risk	Deutsche Bank	-	**Bank of China**	-
	Daiwa Securities	Daiwa Institute of Research	Goldman Sachs	AI Research team	Banco Santander	-	CITIC Securities	-
	SBI Group	-	Morgan Stanley	Machine Learning Research Team	Barclays	Research	-	-
Card	JCB	-	VISA	VISA Research	-	-	UnionPay	-

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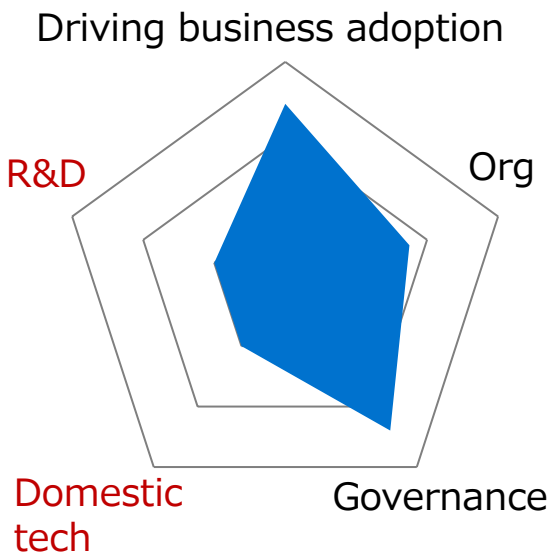
1.5 Challenges and Future Outlook

- **Regional scoring of Gen AI efforts reveals distinct trends.**

✓**Leading Japanese Financial Firms are cautious yet active in use, but lack focus on domestic tech and R&D—raising concerns for long-term competitiveness.**

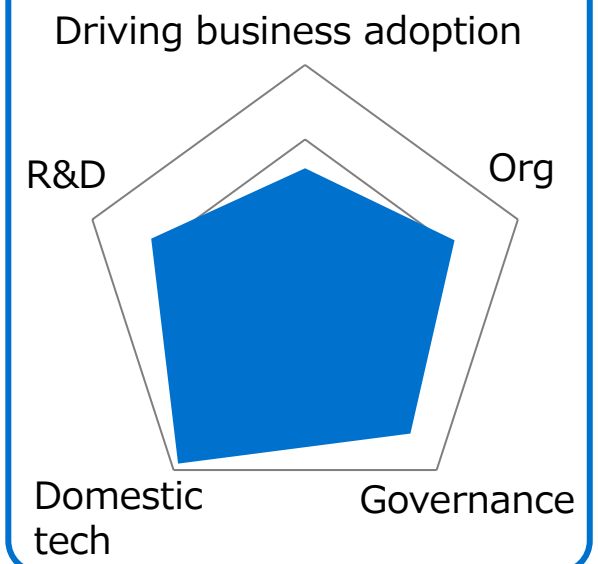
Japan

Balanced and steady — but unclear long-term



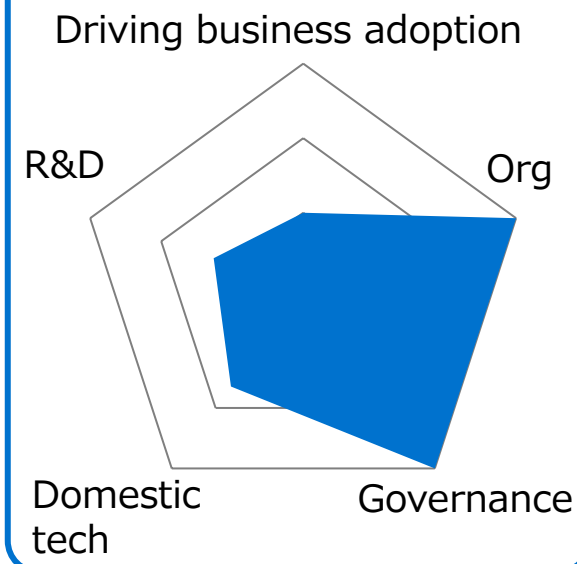
The U.S.

Tech & governance for edge and domestic innovation.



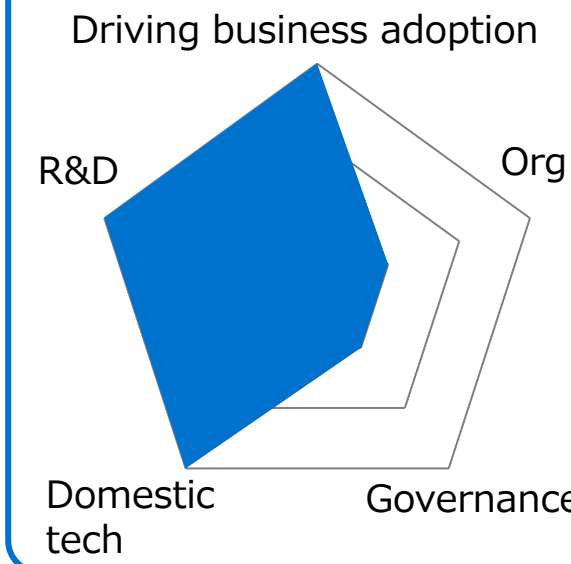
Europe

Governance-first, cautious — poised for takeoff.



China

All offense — fast tech, big leap.



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2. Gen AI Strategy in Financial Firms

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2 Gen AI Strategy in Financial Firms

- ✓Given R&D investment environment, it's hard for a single firm to rapidly advance homegrown tech or research alone.
- ✓Thus, it's vital to design efficient resource allocation and strategy from multiple angles.
- ✓This section proposes practical actions feasible under these circumstances.

Direction (Chapter 1)	Methods & Metrics (Chapter 2)	
Ensure long-term competitiveness	2.1 Vison & Goals	2.4 Tech & Data
	2.2 ROI Calculation	2.5 Risk & Governance
	2.3 Use Cases & Priorities	2.6 Organization & Talent

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2.1 Vison & Goals (1/2)

✓**Set long-term goals, but adapt through on-site trial and learning, adjusting strategy flexibly to change.**

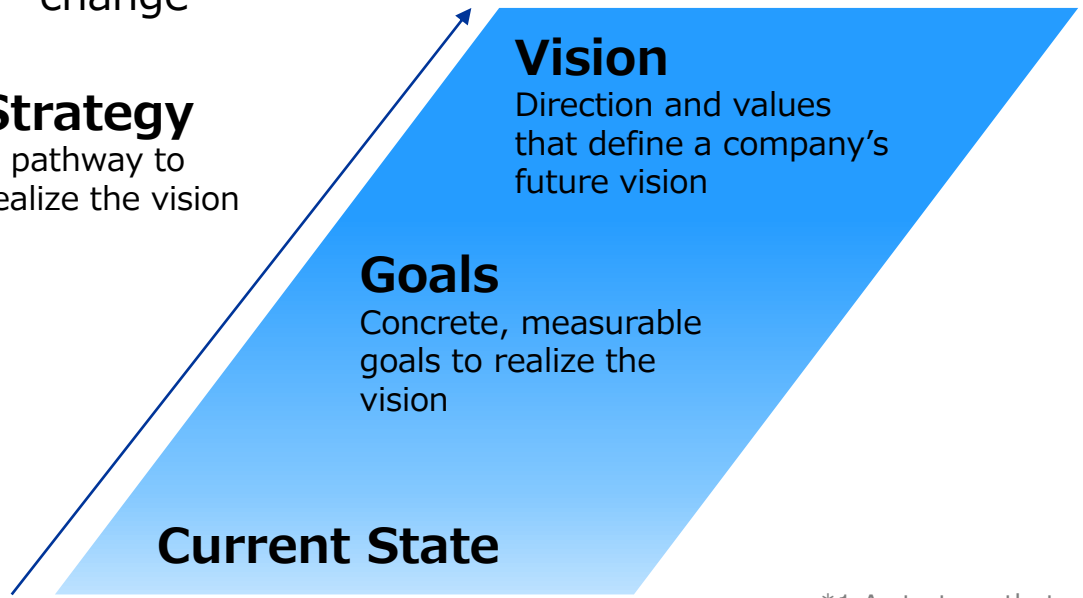
1. Importance of vision and goals

- Setting a vision and goals aligns direction and values, guiding decisions and enabling concrete action.

Significance of setting vision and goals

① Clarifying direction and fostering unity

② Ensuring agility and flexibility in response to change



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2. The Learning School

- According to Canadian scholar Mintzberg, various strategy schools exist, but under high uncertainty, the Learning School [21] is introduced as a fitting approach—well-suited for the AI era.

✓The Learning School emphasizes embedding emergent strategy*1 as a learning process within the organization, focusing on strategy formation through experience.

✓By blending planned strategy and emergent learning*2, it adapts to change and links strategy to real actions.

✓Fits uncertain or new markets, with middle managers driving learning and swift adjustments.

*1 A strategy that emerges later, adapting flexibly to changing conditions and unforeseen shifts.
*2 A process where organizations or individuals create new knowledge and strategies through experience.

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2.1 Vison & Goals (2/2)

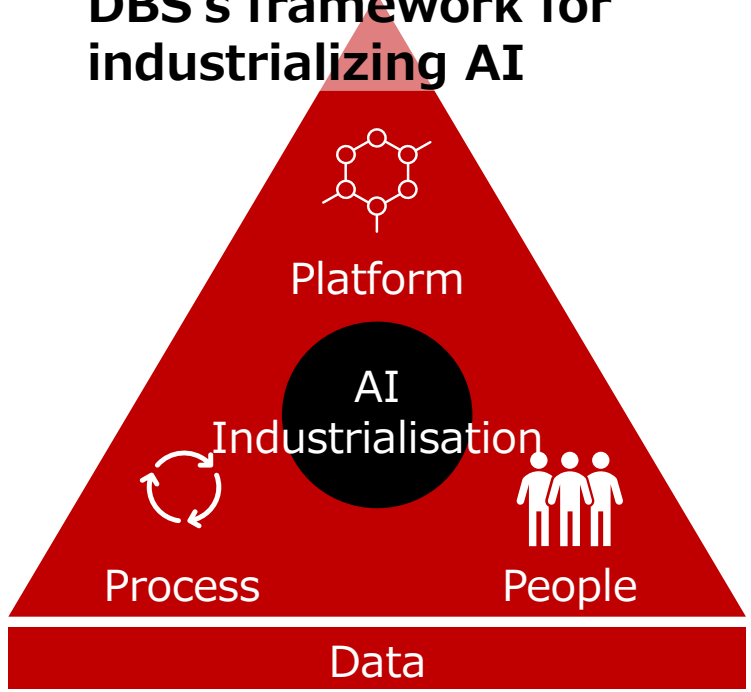
- **DBS uses solid data/AI, cross-unit squads, and sharp talent growth.**
- **As a result, it achieves AI-driven value and revenue growth.**

3. DBS's AI Strategy[22][23]

- **Vison : AI-fuelled Bank**
- **Goals :**
  - **Rapid AI adoption and scaling**
    - Delivered 350+ use cases and 1,500+ AI models to date.
    - Cut **time-to-value** from 18 months to **2–3 months**.
  - **Creating economic value**
    - In 2024, created approx. SGD 750 million in economic value (see next page), expected to grow to SGD 1 billion in 2025.
  - **Agile-driven improvement**
    - Rolled out horizontal squads using the Managing Through Journeys (MtJs) approach.
    - Each squad includes data experts to support on-the-ground decisions quickly and accurately with data-driven insights.

- **Features:** Combines top-down strategy with tacit knowledge from the field. Also focuses on talent development to drive AI success.

DBS's framework for industrializing AI



Adapted from AI in Banking: Transforming the Way We Work with AI [22]

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(Reference) Concrete value creation cases based on DBS's AI strategy[23]

- **In 2024, DBS created approx. SGD 750 million in economic value through AI use.**
- **Below are DBS's published AI use cases and their impact.**

AI-powered financial advice

- ✓ Delivered over 1.2 billion AI-driven personalized tips to 13+ million customers across Asia, supporting decisions on investment, savings, and insurance.
- ✓ In Singapore, customers using AI money management saved 2×, invested 5×, and bought 3× more insurance than non-users.

System development support with JIRA Assist

- ✓ Developed "JIRA Assist" using Gen AI to help business analysts and testers create user stories and test cases.
- ✓ The tool leverages past and current project data to suggest overlooked user stories and acceptance criteria automatically.

Incident prediction from system change requests

- ✓ AI now auto-checks system change requests, scoring risk of incidents. Coverage rose from 5% to 100%.
- ✓ It also improved productivity, change control, and system stability, cutting incident rates from change requests by 81% on average per month.

Reduced customer handling time

- ✓ Customer service teams in Singapore, Hong Kong, India, and Taiwan use an in-house Gen AI tool that transcribes, summarizes, and suggests solutions in real time. It's expected to cut handling time by up to 20%.
- ✓ DBS plans to expand customer solutions, including Gen AI chatbots for corporates and SMEs.

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2.2 ROI Calculation (1/2)

●GenAI firms invest with a long-term view, beyond quick returns.

1. Current impact of GenAI adoption

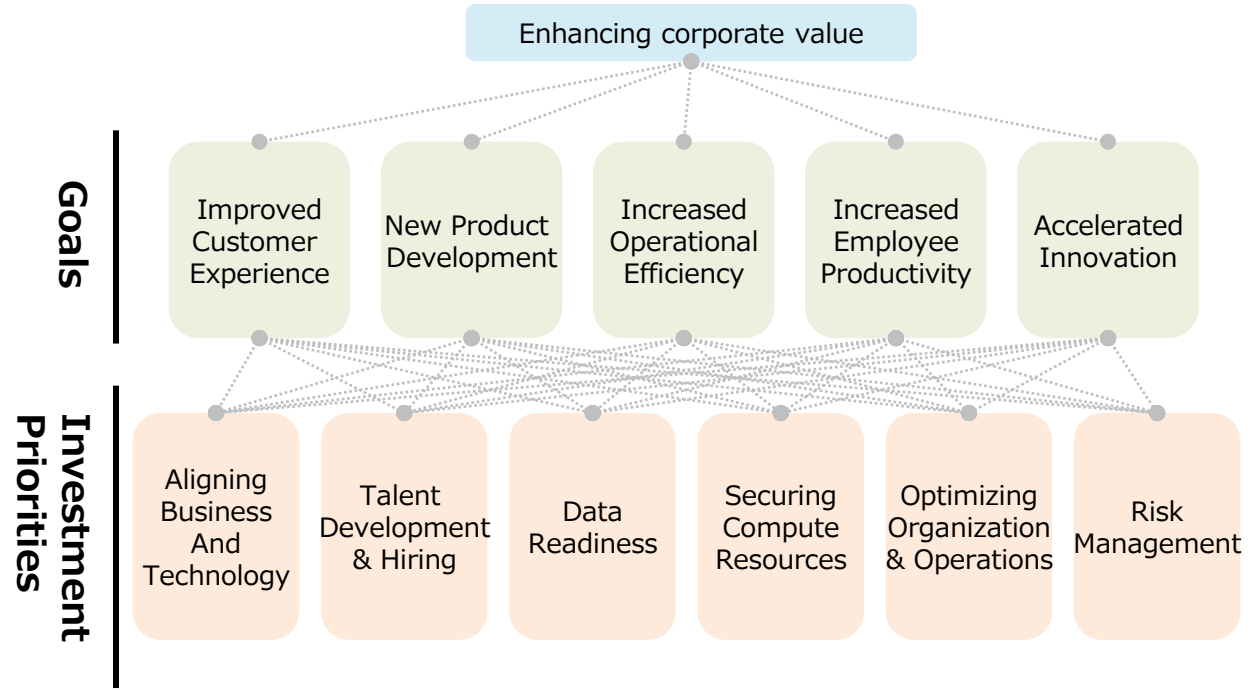
- Many firms face challenges with low ROI after AI adoption.
- According to PwC[24], firms are starting to see some AI impact, but financial gains remain limited in many cases.
- Many firms haven't recovered their AI investment.
- Many firms struggle to define and measure AI ROI.

19%

According to McKinsey & Company[25], only 19% of firms using Gen AI reported a revenue increase of over 5%.

So, what are global executives aiming for, and where are they investing?

Google Cloud survey of ~2,500 global business leaders[26]shows they set future-oriented goals and invest with a multi-year outlook to enhance corporate value.



Based on The ROI of GenAI[26]

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2.2 ROI Calculation (2/2)

✓Long-term investment needs KPIs with AI and new metrics.

2. Investment decisions including non-financial impact

✓As shown on the previous page, it's essential to invest in initiatives beyond direct financial returns.

- While various studies explore AI-specific ROI, no definitive metrics or standards exist yet.
- Here are three useful approaches that offer potential guidance.

① Non-financial quantification

- Add non-financials to ROI.
- May not yield direct returns, so ongoing monitoring is key.

※For defining KPIs, Google Cloud's guide"Measuring gen AI success: A deep dive into the KPIs you need."[27]is also a useful reference.

Example: Turnover rate improvement case

1. **KPI definition:** Use engagement score as a KPI for employee satisfaction.
2. **Link KPI to value:** Higher satisfaction cuts turnover and HR costs.
3. **Set KPI-to-value factor**: +5pt in engagement = 1% lower turnover = $100K saved/year.
4. **Track:** KPIs regularly, calculate impact, and derive ROI.

②Relative benchmarking

- Review data and results from peers with similar initiatives.
- Full comparison is hard due to different contexts.

2-4 hours — **JPMorgan Chase**
Work hours saved per day via GenAI analyst support [28]

20 minutes — **Morgan Stanley**
Time saved per meeting via GenAI-assisted client interactions [29]

200% — **Mastercard**
Reduction rate of fraud detected using GenAI[30]

③KPIs with AI

- A BCG survey [31]shows many firms are now using AI in KPIs, greatly boosting strategy execution, and identifies three types of AI-driven KPIs.

type	description	example
Smart Descriptive	Clarify KPI correlations and identify key drivers.	Show that customers with high news view counts tend to increase transactions over time.
Smart Predictive	Forecast future performance and prompt timely actions.	Predict loan default risk within 3 months based on salary deposits.
Smart Perspective	Suggest concrete actions to improve performance.	Indicate suitability of low-interest financing for customers at risk of loan default.

Based on "The Future of Strategic Measurement: Enhancing KPIs With AI"[31]

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2.3 Use Cases & Priorities (1/2)

✓**Focusing on jobs predicted to disappear and tasks Gen AI excels at, and examining potential application areas based on these characteristics, is one effective approach.**

Key Perspective ①

- According to the WEF, “Bank Tellers and Clerks” are the second-fastest declining job, due to aging populations and fewer working-age people[32]

✓This change must be seen as inevitable, and focusing on upgrading bank teller services is wise for social adaptation.

Top 5 fastest declining jobs[32]

1. **Postal Service Clerks**
2. **Bank Tellers and Related Clerks**
3. **Data Entry Clerks**
4. **Cashiers and Ticket Clerks**
5. **Administrative Assistants and Executive Secretaries**

Key Perspective ②

- Anthropic analyzed 1M Claude–user chats[33] and found many jobs share tasks, stressing the value of a task-based AI approach.
- A survey by the Bank of Japan[34] also shows that AI is used for individual tasks shared across multiple.

Top 5 GenAI Uses in Financial Firms[34]

1. **Document Summary**
2. **Document Review, Editing, and Evaluation**
3. **Translation**
4. **System Development and Operations Management**
5. **Preparation of Reports and Loan Approval Documents**

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2.3 Use Cases & Priorities (2/2)

- **Leading financial firms use Gen AI for efficiency, but not yet for business growth.**

✓**Early discovery of transformative use cases leads to competitive advantage.**

- Leading financial firms now focus Gen AI on operational efficiency (see Section 1.1).
- Corporate media comments and IR documents show a clear focus on transformative, long-term AI use as a strategic pillar.
- However, concrete use cases that drive business model evolution are yet to be established.

✓Thus, identifying promising use cases early is key to gaining a competitive edge.

New Business and Service Creation

- Create new offerings, add customer value, and boost advantage and revenue streams.
- Examples include asset management, wealth services, and personalized retail offerings.

Operational efficiency

- Coding support and document handling—areas with quick wins—are the current focus.

Today → Future

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2.4 Tech & Data (1/4)

✓**Models and algorithms as core tech should be supported by a flexible setup to adopt new advances. Partnerships with tech firms are also valuable.**

✓**Combining external tech with internal strengths helps build competitive advantage. Especially, turning proprietary data into strategic assets enables clear differentiation.**

Environment Setup & Partnership Building

Data Assetization & Utilization

Foundational Technology*1 (Models & Algorithms)

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- Rapid evolution with a shift toward commoditization.
- Leading tech firms are driving the evolution.
- ✓If in-house development is difficult, firms must ensure easy access to external tech.

Data Utilization*2 (Knowledge & Experience)

- Internal and customer data do not become commoditized.
- ✓**Enabling data usability will remain essential and never go to waste.**

*1 The Cabinet Office's AI Strategy Council[35] stresses tech development, and for firms, the use of partnerships and in-house data.
*2 IPA's "Guidelines for Text-Generating AI" [36] suggest that organizing data now will remain valuable long-term.

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2.4 Tech & Data (2/4)

- **Many firms now focus on clear prompts and integration of explicit knowledge.**

✓**Going forward, structuring tacit knowledge will be the main battleground for competition.**

1. Clear Prompts*1

Give precise prompts to guide Gen AI behavior.

- ✓ Effective when patterns are few and real-time response is needed.
- ✓ **It's vital to pursue better prompting methods.**

2. Integration of Explicit Knowledge*2

Refer to manuals, guidelines, and customer data to learn procedures and domain knowledge.

- ✓ Effective when patterns are many and broad knowledge coverage is needed.
- ✓ **Making documents easily usable is essential.**

3. Acquisition of Tacit Knowledge

Future Challenges

Codify veteran expertise and judgment, embed it into decision processes (see next page).

- ✓ Transform individual-dependent tasks into advanced data-driven decisions.
- ✓ It's key to convert tacit knowledge into data and structure it into explicit knowledge.

Low ⟶ Level of Difficulty ⟶ High

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*1 Firms like Anthropic, Google, and OpenAI share prompt samples[37] [38] [39], stressing the need for clear instructions.
*2 The Bank of Japan's survey[30] shows many financial firms want to use Gen AI for documents like approvals, contracts, and manuals.

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2.4 Tech & Data (3/4)

- **Tacit knowledge tends to become person-dependent.**
- **Based on UK sociologist Harry Collins' tacit knowledge types[40], the table below shows methods to convert each into explicit knowledge.**

Type	Description	Example	Method of Codification
Relational Tacit Knowledge	Knowledge hidden due to secrecy or communication difficulty	•Code/document review tips •Decision criteria and intuition held by executives or senior staff •Sales talk and timing tailored to each client •Key phrases and instincts for handling customer complaints	•**AI-generated summaries and transcripts from recorded online meetings** Data on decision flow and speaker dynamics •**Review comment database + AI analysis** Patterning and reuse of frequent feedback •**AI interviews**[*1] with senior staff to capture reasoning and context •**Customer support log analysis + sentiment analysis**
Somatic Tacit Knowledge	Knowledge embedded in the body, acquired only through training	•Tennis or golf form •Craftsmen or chefs' hand skills •Surgeons' or nurses' manual techniques •Musical instrument performance	•**Use motion capture or sensors to digitize movements** •**Analyze with video AI to extract behavior patterns**
Collective Tacit Knowledge	Knowledge implicitly shared through social or cultural context	•Implicit rules within teams or departments (e.g., meeting flow, weight of senior voices) •Industry-specific norms (e.g., risk mindset in finance, agile culture in IT) •Communication styles in foreign cultures (e.g., eye contact, non-verbal cues)	•**Record online meetings and use AI to extract meeting styles and organizational culture.** •**Analyze meeting minutes DB to uncover organization-specific decisions and rules** •**Use AI on chat/email logs to extract internal norms and practices** •**Apply video AI to quantify and pattern non-verbal communication**

*1 Use Gen AI as an interviewer to extract and codify tacit knowledge by asking experts tailored questions and structuring responses into explicit knowledge.

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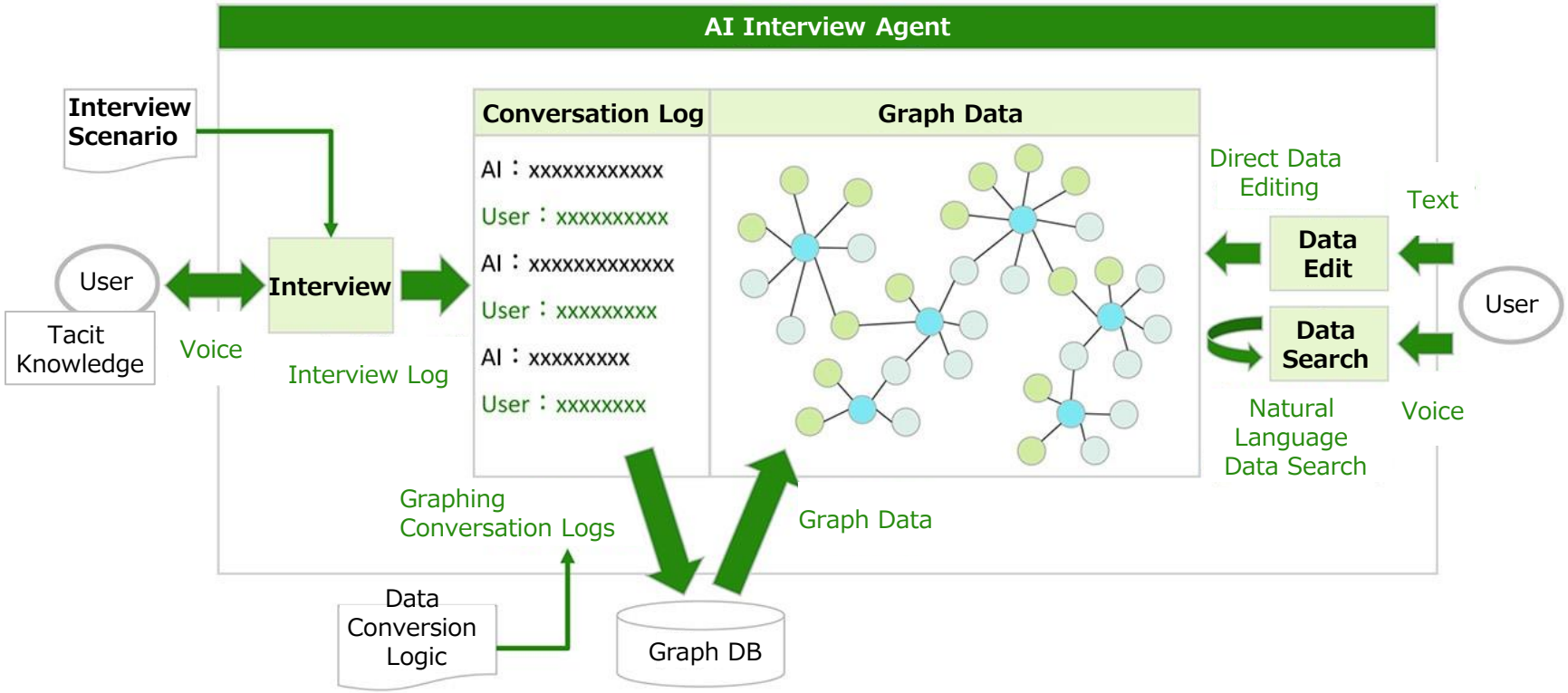
2.4 Tech & Data (4/4)

●Tacit-to-explicit conversion is now being practiced in many companies.

Example of an AI Interview Agent:

- Deloitte Tohmatsu announced its AI Interview Agent in February 2025 [41] .
- Extract and codify tacit knowledge such as skills and decision criteria.
- Through voice or text, AI interacts with humans to efficiently gather knowledge, storing it as graph-based data.
- Using AI enables consistent-quality knowledge capture, turning organizational tacit knowledge into digital assets.



Based on Deloitte Tohmatsu has developed an AI Interview Agent to digitize tacit knowledge within organizations.[41]

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2.5 Risk & Governance (1/3)

●While Gen AI offers major benefits, it also brings growing risks.

1. Key Risks of AI

Biased or discriminatory outputs	May generate discriminatory outputs based on gender or race.	**Leakage of confidential information**	AI may expose personal or corporate secrets to unauthorized parties.
Filter bubbles and echo chamber effects	Leads to being surrounded by similar views or only preferred information.	**Misuse**	Used for impersonation and fraudulent activities.
Improper handling of personal data	Risks violating privacy laws or using personal data without transparency.	**Hallucination**	Gen AI may give confident but false answers.
Data poisoning attacks	Malicious data may corrupt outputs, causing unintended AI behavior.	**Believing false or misleading info**	Blindly trusting AI-generated misinformation.
Black-box output and explainability demands	AI can’t explain the basis of its decisions.	**Copyright concerns**	Gen AI may produce outputs that infringe existing copyrights.

Based on AI Guidelines for Business Appendix Ver1.01[42]

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2.5 Risk & Governance (2/3)

✓No standard of governance in place, so firms must act case by case using precedents.

2. AI Governance in Leading Financial Firms

- A review of public sources on leading financial firms (P6) shows their governance efforts fall into six categories.

✓Each firm should assess and respond as needed.

Establish and disclose ethical guidelines and principles	Define and publicly share the company's ethical guidelines and principles.
Develop internal policies	Set internal rules for managing risks, including data and security.
Build governance structures and set up committees	Form cross-functional teams or expert committees with internal specialists.
Evaluation and Monitoring	Evaluate and monitor AI for bias, quality, and hallucination in models and outputs.
Adopt tools and frameworks	Evaluate and monitor AI for bias, quality, and hallucination in models and outputs.
Obtain external certifications	Obtain AI certifications from external organizations.

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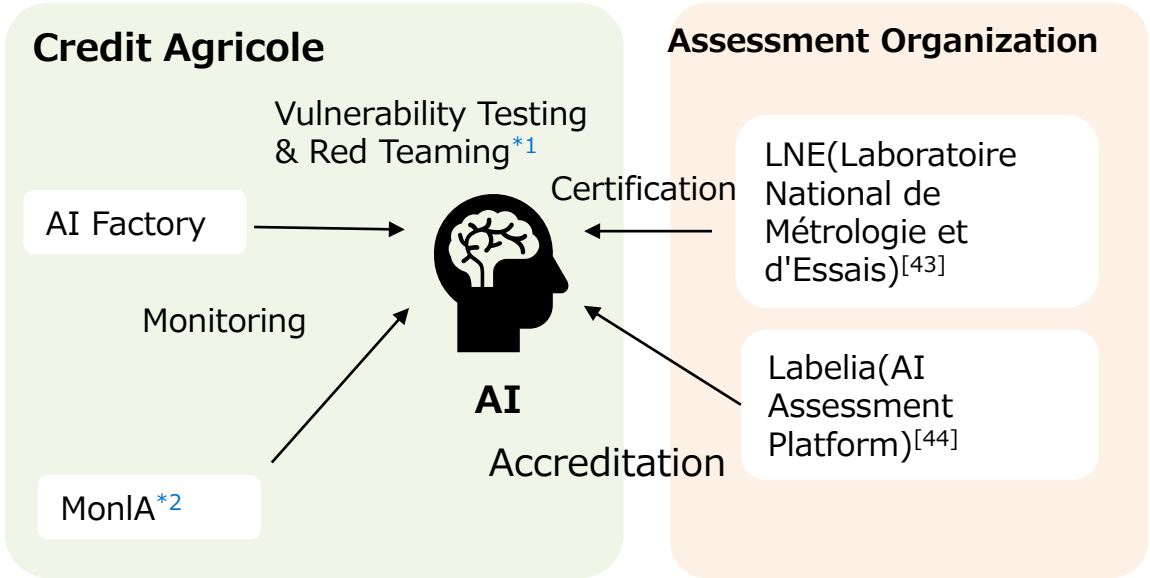
3. Credit Agricole's Risk Management Overview

- Credit Agricole manages AI risks through internal monitoring and external certification.



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*1 In RAG applications, Q&A pairs are used to monitor answer–fact alignment, with continuous red teaming to test models in real time. [43]
*2 A platform developed by the group's DataLab to monitor AI solutions, capable of detecting bias and drift. [45]

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2.5 Risk & Governance (3/3)

- **To address AI risks, tools, frameworks, and technologies are actively being developed.**
- ✓**In the Gen AI era, full human-led checks are unrealistic, making tech-based risk controls increasingly essential.**

COMPL-AI[46]

- ETH Zurich, INSAIT, and LatticeFlow AI released COMPL-AI, the first EU AI Act compliance framework for Gen AI models.
- Technically interprets the EU AI Act, maps regulatory to technical requirements, and is released as open source.

T	Model	Report	Prejudiced Answers: BBQ	Biased Completions: BOLD
🔒	gpt-4-1106-preview	Report	0.98	0.74
🔒	Claude3Opus	Report	0.97	0.76
🟢	Qwen/Qwen1.5-72B-Chat	Report	0.96	0.72
🔒	gemini-1.5-flash-001	Report	0.96	0.74
🟢	mistralai/Mistral-7B-v0.3	Report	0.96	0.74
🟢	meta-llama/Llama-2-70b-chat-hf	Report	0.95	0.73
🟢	meta-llama/Llama-2-7b-chat-hf	Report	0.95	0.68
🟢	mistralai/Mixtral-8x7B-Instruct-v0.1	Report	0.95	0.73
🟢	01-ai/Yi-34B-Chat	Report	0.93	0.68

Based on EU AI Act Compliance Leaderboard[47]
(The image shows a summary of bias benchmark results using BBQ and BOLD across major Gen AI models.)

NEC's Technology Development[48]

- Active development is underway to help Gen AI users verify outputs and ensure safe use.
- NEC is developing three key technologies: Quality Checker, LLM Explainer, and Fact Checker.

Quality Checker
- Run before LLM deployment
- Check whether outputs are accurate, safe, and factual (though 100% assurance is impossible)

LLM Explainer
- Run after LLM text generation
- Link generated text to input sources(e.g., prompt, context, original documents, etc.)

Fact Checker
- Run after LLM text generation
- Link generated text to external sources to verify accuracy.

Based on NEC: Toward Safer Large Language Models (LLMs) [48]

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2.6 Organization & Talent (1/2)

●Leading financial firms form AI teams and seek talent.

1. Organizational & Talent Strategies of Leading Financial Firms

- The survey shows many financial firms have set up dedicated AI teams (see Section 1.2).
- A Harvard Business Review study[49] found that ~60% of firms have dedicated AI teams, especially among those successfully leveraging AI.
- Talent sourcing involves training staff, hiring experts, and partnering with or acquiring tech firms, often in combination based on needs.
  - ✓Internal training boosts literacy: when all staff understand AI basics and governance, it smooths use case creation and risk control.
  - ✓Hiring of experts in key areas: for advanced modeling and data platforms.
  - ✓Collaboration with startups and tech giants: co-create innovation using cloud and AI platforms.

- **MUFG** : Use e-learning[50] and train internal evangelists[51]. Plan to expand AI talent from 100 to 300 over 3 years starting FY2024[52]
- **HSBC** : Establish an AI Ambassador Program.[53] Both technical and non-technical staff can earn different certification levels based on their interests and roles.
- **SBI Group :** Invested in many AI startups (e.g., Sakana AI[54],Preferred Networks[55])and launched joint ventures like SBI Antworks Asia.[56]
- **ICBC** : Trained a 1,000-person GenAI team from across the bank, integrating business, data, and tech skills. [57]
- **Unionpay :** Established a joint LLM lab with Zhipu AI, promoting innovation and talent development in finance through research, consulting, and training. [58]

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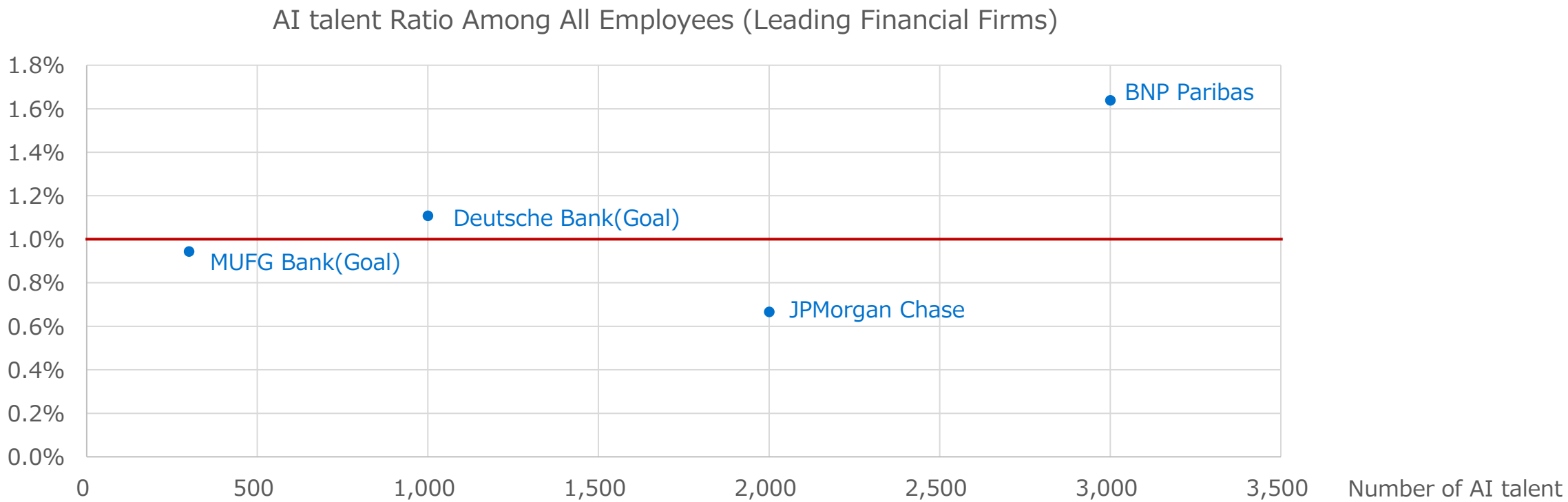
2.6 Organization & Talent (2/2)

✓**The exact number of AI talent needed varies, but for large firms, aiming to train about 1% of all employees—based on other cases—may be a good start.**

2. How Many AI Talent Are Needed?

- While definitions vary, many firms secure about 1% of their workforce as AI talent.



Created by JRI(Based on public sources, including target figures for AI talent.)

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3. Conclusion

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3.1 Proposed Actions

●Based on prior sections, we propose the following actions.

Direction	Proposed Actions	
Ensure long-term competitiveness	Vison & Goal	• Set long-term goals, adapt through hands-on trials, and adjust strategy based on learned insights.
	ROI Calculation	• Go beyond traditional metrics—explore new ones like AI-driven KPIs—to improve long-term investment decisions.
	Use Cases & Priorities	• Focus on declining jobs and tasks Gen AI excels at, and identify suitable application areas based on their traits. • Leading financial firms now use Gen AI for efficiency, but business model use cases remain undeveloped. To gain competitive edge, early exploration and deployment is key.
	Tech & Data	• Partner with tech-strong firms to combine external tech with internal strengths, building competitive advantage. • Go beyond clear prompts and explicit knowledge—structure tacit knowledge to create new value and differentiation.
	Risk & Governance	• With no standard approach, take measures based on precedents. • In the Gen AI era, full human oversight is unrealistic—use tools and frameworks to strengthen risk management.
	Organization & Talent	• Follow leading financial firms by building AI teams and securing talent through varied approaches. • Start by aiming to train and secure AI talent for 1% of employees, using other firms' cases as reference.

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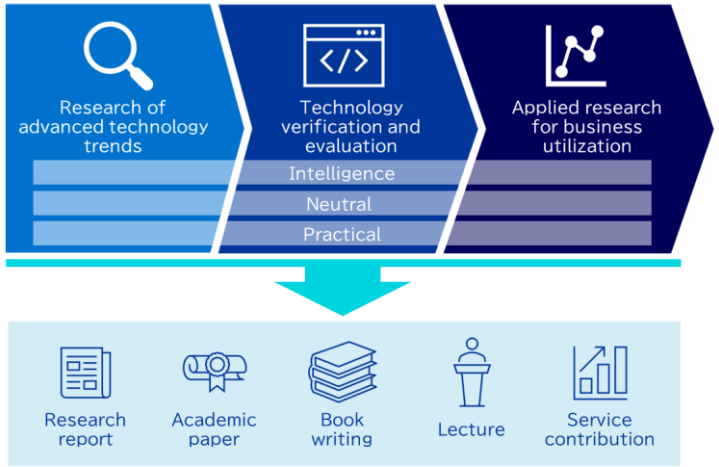

Key Research and Focus Areas

- Artificial Intelligence
- BrainTech
- Quantum Technology
- xR Metaverse
- Blockchain Web3

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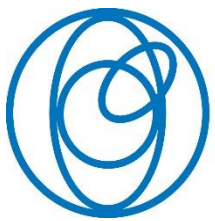

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