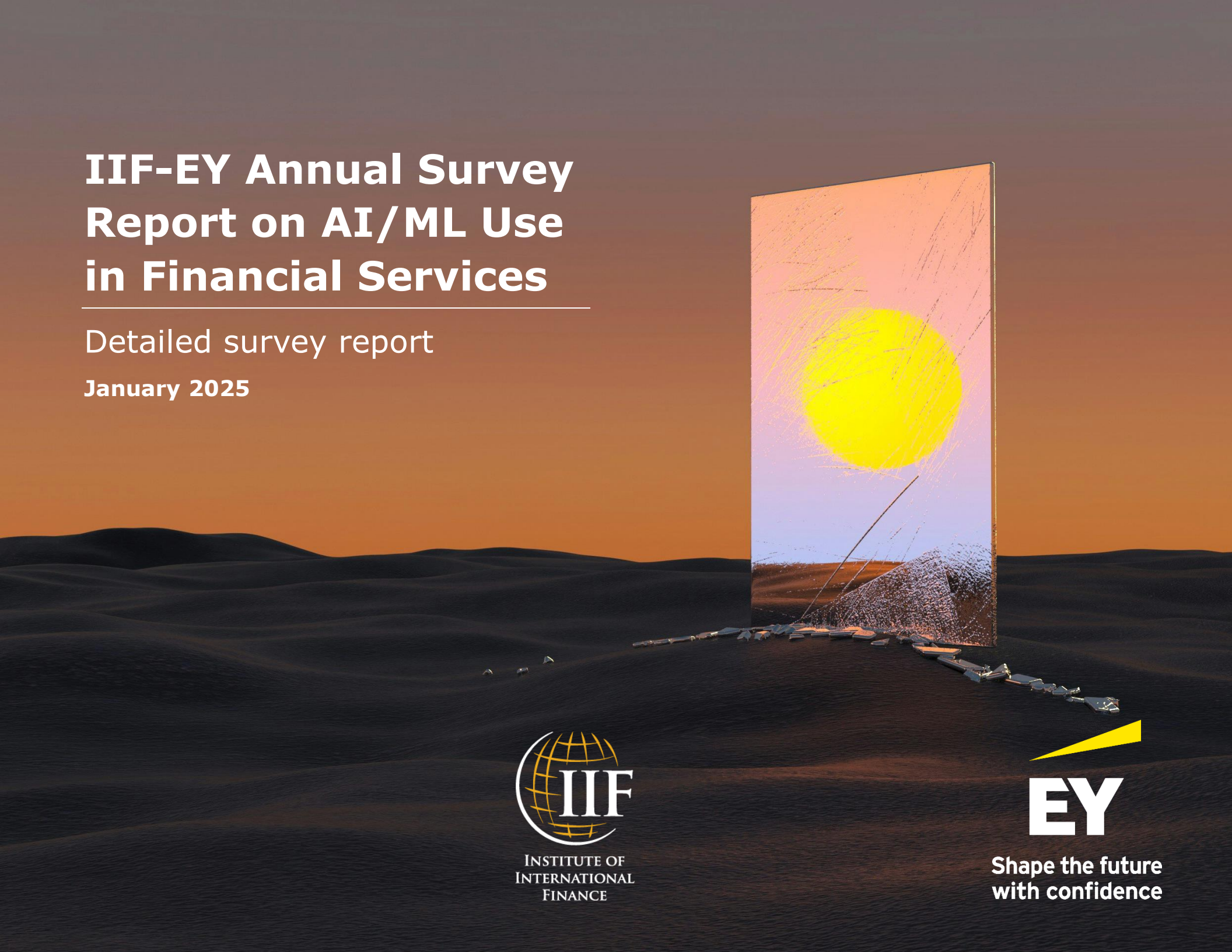
IIF-EY Annual Survey Report on AI/ML Use in Financial Services

Detailed survey report

January 2025



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I

Introduction and Executive Summary

Artificial Intelligence (AI) continues to be a top strategic focus for the financial services industry. Firms continue to ramp up their investments significantly while also strengthening internal governance and controls over AI combining for a conservative but concerted approach. The rapid and broad deployment of Generative Artificial Intelligence (GenAI) created a step-change over the last two years. Market participants, policymakers, and consumers have explored the technology as various sectors make large investments in development and adoption. The question of how and where to generate significant value from GenAI remains open for many financial service firms; however, decades of experience with predictive AI and Machine Learning (ML) in finance—with applications in credit risk, fraud prevention, and anti-money laundering to name a few—positions the industry well as it carefully evaluates the path forward.

In this report, the sixth out of a series that started in 2018, the Institute of International Finance (IIF) and Ernst & Young Global Services Limited (EY) explore the latest AI/ML trends in financial services with data from our annual survey of IIF member firms. The 2024 survey focused on:

1. Development, Applications and Use Cases
2. AI/ML Governance and Oversight
3. Third-Party Models
4. Regulatory and Supervisory Engagement
5. Generative AI / Large Language Models (LLMs)

While other sectors of the economy race ahead with GenAI broadly, financial institutions are maintaining a steady but cautious approach with the overwhelming majority of use cases in production continuing to be found in internal-facing rather than customer-facing applications.

Beyond GenAI and LLMs, financial institutions are continuing to carefully employ classical/predictive AI tools (88% have use cases in production), under well-established governance and controls, which the industry has used for years. These include training data control, model validation, testing, ongoing performance monitoring, "human-in-the-loop" controls, bias management, "kill switches" and third-party AI risk management.

Data and infrastructure like cloud computing are fundamental components of the AI value chain. The results of this year's survey show that data quality and data availability are the biggest challenges for further AI adoption in the financial industry. On the cloud computing and other services that tend to be provided by third parties, we found that 84% of respondents have dedicated infrastructure and/or platforms in place to enable AI/ML development/deployment, and 94% of respondents expect this number to increase further in the next months.

Other components that affect the deployment of AI include the regulatory environment institutions have to navigate. This year's responses show that regulators are mostly focused on transparency, explainability, and bias; and that more than half of the policy developments around the globe fall under a principles-based approach.

The 2024 IIF-EY Annual Survey on AI/ML Use in Financial Services captures the views of 56 participating institutions including global systemically important banks (G-SIBs), international banks, national banks, insurers, and other financial institutions across eight (8) regions.

Key findings and highlights from this year's survey include:

01 Development, applications and use cases

- **The vast majority of financial institutions are accelerating their AI/ML adoption, supported by robust infrastructure and significant year-over-year investment growth.**
  - 88% of survey respondents are using AI/ML in production today, with an additional 8% of the remaining institutions having pilot projects or near-term plans to adopt
  - 100% of survey respondents indicated increased investment in AI/ML in 2024
  - 50% of respondents increased investment by greater than 25% from 2023 to 2024
  - The most common predictive AI application uses are found within Risk, Fraud, Operations, and Compliance functions
- **Data quality and availability gaps remain the biggest challenges for further adoption of AI in production.**
  - The top two challenges for deploying AI are data quality and data availability

02 AI/ML governance and oversight

- **Effective AI/ML governance is a priority for financial institutions, with C-suite oversight, human-in-the-loop systems and safeguards becoming standard practices.**
  - 74% of respondents either have or are planning to appoint a C-suite manager responsible for AI/ML ethics and governance, an increase of 8% in comparison to last year
  - The Chief Risk Officer and Chief Data Officer Functions are most commonly responsible for overseeing AI governance initiatives
  - Consistent with previous reports, safeguards built into the AI/ML applications include:
    - 87% utilize ongoing performance monitoring
    - 85% have "human in the loop" controls
    - 70% utilize Kill switches / Hard blocks
  - 96% of institutions have in-place or intend to implement feedback mechanisms or controls to correct AI/ML models
  - 61% utilize data quality validation to assess AI/ML model robustness
  - 54% of respondents use or plan to use privacy-enhancing techniques (PET) for cross-border data sharing in AI/ML solutions

		○ 73% of institutions have a process for review and approval of AI/ML use cases with 29% noting enhancements needed to the process ○ In addition to Risk Management Frameworks and other techniques for deploying AI responsibly, 62% of institutions have firmwide policy governing AI/ML use
03	Third-party models	• **The use of third-party AI/ML models continues to increase** ○ 94% of respondents expect the use of third-party AI/ML solutions to increase in the next 12 months ○ 85% of respondents (up from 78% in last year's survey) utilize the same validation requirements for third party and internally developed models, although many respondents flagged that the validation is actually performed on third party models is less thorough for various reasons ○ 84% of respondents have dedicated infrastructure and/or platforms in place to enable AI/ML development/deployment (e.g., model ops/DevOps)
04	Regulatory and Supervisory Engagement	• **Engagement with regulators continues to increase in every region** ○ 70% of respondents have engaged with or are planning to engage with regulators on the topic of AI ○ Transparency, explainability and bias are the most common topics raised by regulators ○ 73% of institutions note regulatory developments in their jurisdiction may impact their adoption of AI/ML ▪ The majority of these policy developments (54%) fall under a principles-based approach ▪ 25% of respondents have a voluntary and principles-based approach ○ 69% of all respondents said their institution sees their regulator/supervisor as sufficiently equipped to understand and direct the path forward on AI/ML, a sharp increase from 2023 results
05	Generative AI (GenAI) / Large Language Models (LLMs)	• **The use of GenAI has become mainstream; however, most of its use cases in the financial industry are internal** ○ 89% of respondents are using GenAI today with close to 50% with active use cases in full scale production ○ 80% of institutions are currently using or piloting GenAI for internal (non-customer facing) uses, and less than 11% of GenAI use cases are external facing ○ Over 50% expect significant expansion in the use of GenAI Models over the next 12 months ○ 80% of respondents highlighted Hallucinations and 74% Data confidentiality/privacy as key risks associated with the use of GenAI

Section

II

Past Reports, 2024 Survey Methodology and Participants

II.A. Past reports

As noted above, the IIF published several reports on the use of AI/ML between 2018 and 2020. Starting in 2022, the IIF and EY began jointly publishing reports on AI/ML.

In March 2018, the IIF published the *Machine Learning in Credit Risk* report, which surveyed a globally diverse group of firms on their applications, motivations, experiences and challenges in applying machine learning to credit risk management. This survey was conducted again the following year, leading to the publication of the second edition, *Machine Learning in Credit Risk 2019*, in July 2019. Additionally, the *Machine Learning in Anti-Money Laundering* report was published in October 2018, of which many survey respondents also participated in the credit risk report.

Through the publication of the Machine Learning Thematic Series, the IIF has addressed common challenges in the use of ML for credit risk management and anti-money laundering (AML) activities. This includes key topics such as model explainability and the ethical implications of bias in ML, which have been discussed in IIF publications like *Explainability in Predictive Modeling* and *Bias and Ethical Implications in Machine Learning*.

In 2020, the IIF published the *Machine Learning Governance Summary Survey Report*, outlining how practices at surveyed IIF member firms related to the end-to-end governance of the ML development and implementation process. The report covered key areas such as foundational aspects, data and inputs to ML, governance mechanism, model validation, model implementation and ongoing monitoring.

In 2022, the IIF and EY jointly published the *Survey Report on Machine Learning — Uses in Credit Risk and Anti-Money Laundering Applications*. This report, based on survey results from 43 globally diverse institutions, assessed the adoption of machine learning in production, the realized benefits and challenges, the maturity of ML governance, regulatory engagement, model validation, safeguards against unfairness and bias, and the monitoring of ML models.

In 2023, the IIF and EY jointly published the *IIF-EY Annual Survey Report on AI/ML Use in Financial Services,* surveying 65 globally diverse financial institutions. The report expanded its scope beyond Credit Risk and Anti-Money Laundering and introduced use cases, risks, and impacts of Generative AI, as its adoption continued to grow. It also analyzed AI/ML governance and ethics, regulatory and supervisory engagement, and the use of third-party AI/ML models.

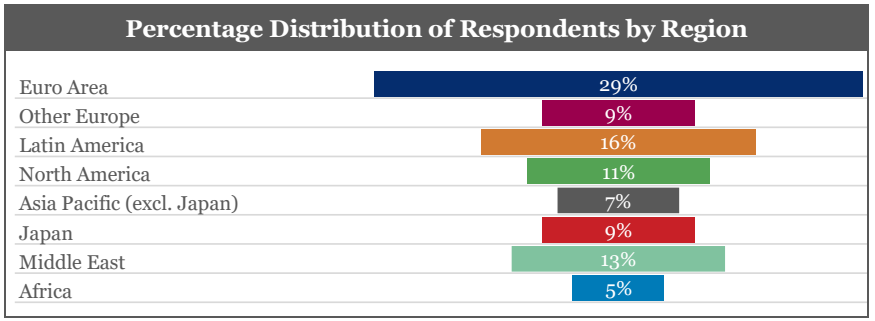
In 2024, we maintained several topics and questions from earlier editions to provide a timescale view on developments and applications.

II.B. 2024 survey methodology and participants

The IIF and EY staff surveyed a globally diverse group of 56 financial institutions in 2024 from June to August 2024. The survey included a mix of single/multiple-choice questions and rank-ordered questions, both of which encouraged more detailed commentary. In certain instances, institutions did not respond to all questions, affecting the overall distribution of responses. The survey results are based on a sample size of 56 participants and may not be fully representative of the global financial institution population. Given the rapidly evolving environment during the survey period, the results should be viewed as a snapshot in time.

In this report, Predictive AI is defined as "a term used to refer to classical AI; the use of statistical analysis and machine learning (ML) to identify patterns, anticipate behaviors and forecast upcoming events," while GenAI is defined as "the class of AI models that emulate the structures and characteristics of input data in order to generate derived synthetic content. This can include images, videos, audio, text and other digital content."

The sample included institutions from six continents, categorized by the location of their headquarters, although most operate in multiple jurisdictions. The study spans eight regions and includes nine different types of financial institutions.



II.C. Confidentiality

In recognition of the detailed insights provided by the 56 participating firms, this full report is confidential and is distributed only to the participating firms and selected authorities. A condensed version of the report will be made available to the public at the time of release.

Section

III

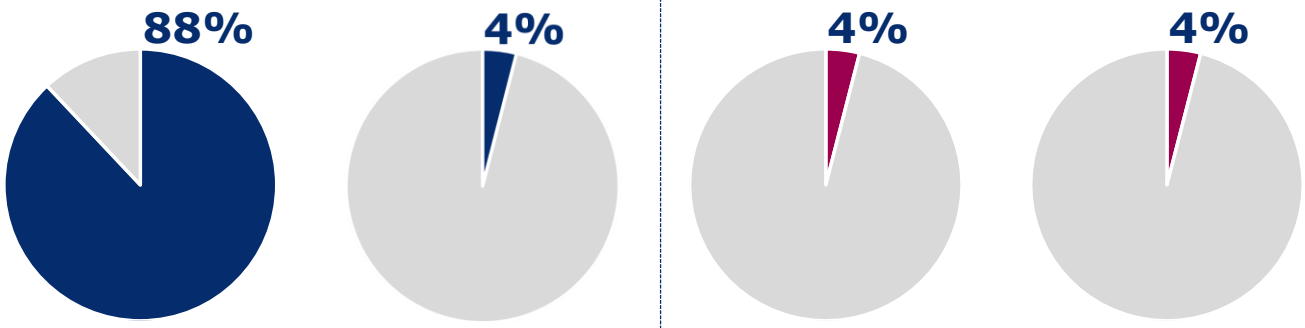
Development, Applications and Use Cases

As in prior years, survey results indicate widespread adoption of AI/ML usage across financial institutions. The following section highlights trends in development, Applications and Use Cases

Does your organization apply Predictive AI techniques in either production or pilot projects?

Ninety-two percent of survey respondents indicated that they are currently applying predictive AI/ML techniques whether in production (88%) or pilot projects (4%). In comparison to the responses received in 2023, institutions are still strongly focused on applying AI/ML use cases, with a slight increase in the percentage of institutions currently applying Predictive AI fully in production. Example use cases noted by respondents include claims fraud models, credit risk assessment, call retention propensity models, document processing, biometrical behavior and inquiry handling

92% of institutions are utilizing Predictive AI/ML



88% of respondents are applying predictive AI/ML techniques in production

4% of respondents are only experimenting with pilot projects

4% of respondents are planning for the foreseeable future

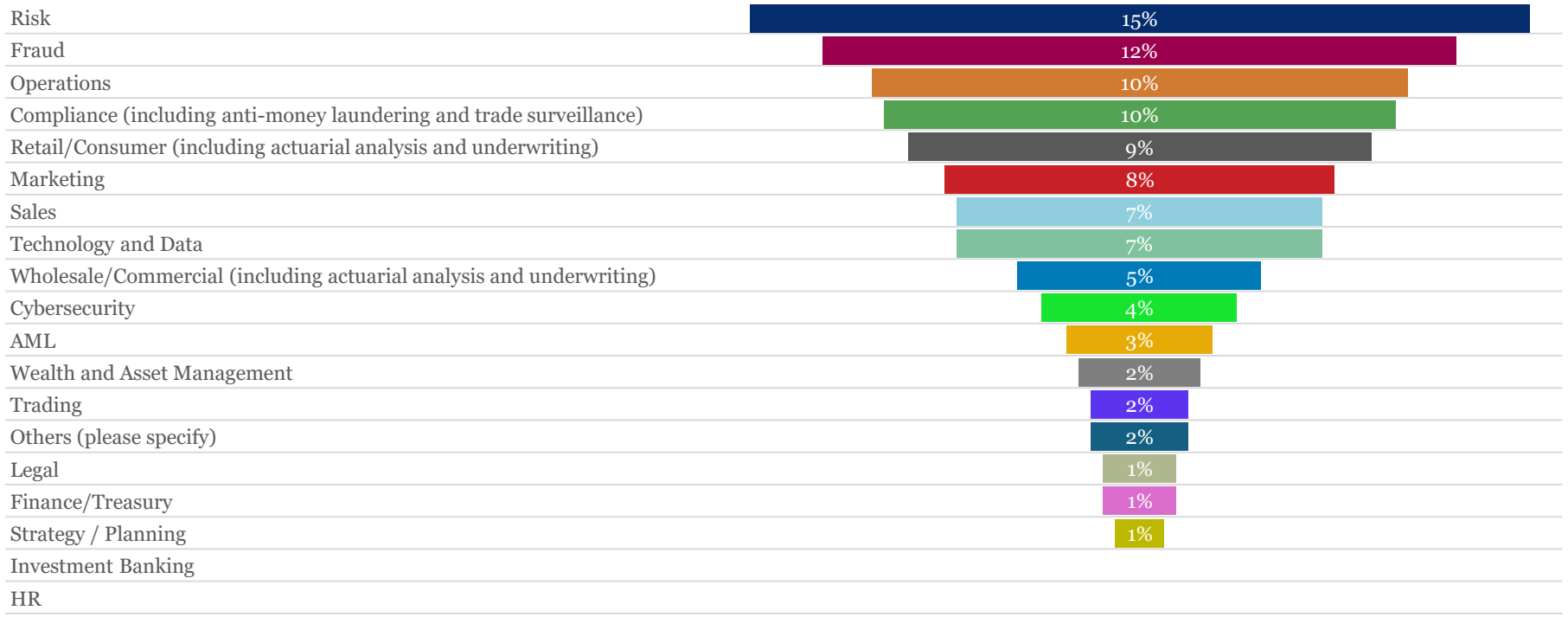
4% of respondents have no plans to

Which of the following functions have the most Predictive AI use cases at your firm? Select top 4 options

The top four use cases or areas where Predictive AI is deployed among respondent included Risk, Fraud, Operations, and Compliance, followed by Retail/Consumer, Technology and Data, Marketing and Sales. While the use of AI/ML does introduce additional risks (as further described in Section IV), 32 institutions indicated that they are using Predictive AI as a key risk management tool. Risk management use cases highlighted by survey respondents included transaction monitoring or communication surveillance, unstructured data analysis, anomaly detection and pattern recognition.

Though firms also indicated they use Predictive AI for AML, marketing, legal and others, those are still important use cases but not the main ones (see following page).

Overall top predictive AI use cases across survey respondents (by percentage of respondents, top 4 selected answers)



In which areas do you see Predictive AI usage increasing/becoming more relevant in the near future in your organization?

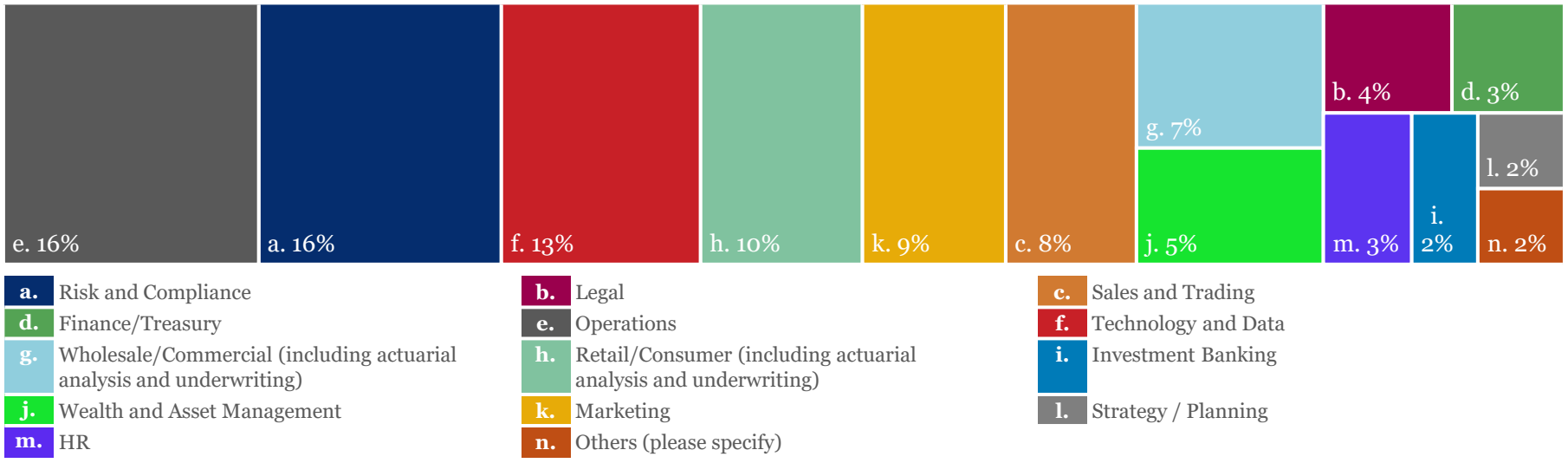
As evidenced by the responses to the survey questions above, there is already a widespread adoption of AI/ML at financial institutions, however, they continue to see opportunities to deploy additional use cases in the near term. Institutions chose Operations, Risk and Compliance, Technology and Data, and Retail/Consumer as the areas most likely to see Predictive AI usage increasing and becoming more relevant within the next 12–18 months. In comparison with the current top four use cases from Question 2, institutions are looking to expand Predictive AI usage particularly in the areas of Technology and Data and Retail/Consumer.

A Latin American Bank identified that the use of Predictive AI will increase for general bank functions and decision-making processes, as well as will improve risk management through a predictive approach. Furthermore, a Middle Eastern International Bank stated that Predictive AI will "enhance risk and compliance operations by leveraging advanced analytics to forecast potential risks and ensure compliance through real-time monitoring and predictive insights, thereby improving decision-making and reducing operational vulnerabilities."

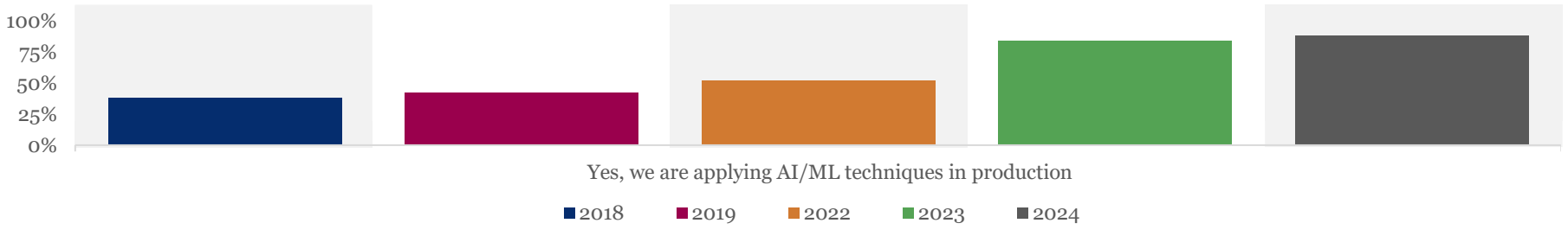
Count of institutions that selected an area with potential to increase in relevance in the near future (selected 1–5 in order of relevance, being 1 more relevant and 5 least relevant)

Area with potential to increase in relevance in Predictive AI in the next 12-18 months	Ranking				
	1	2	3	4	5
a. Risk and Compliance	12	8	8	3	7
b. Legal	2	2	0	2	2
c. Sales and Trading	3	4	5	7	2
d. Finance/Treasury	1	0	0	0	7
e. Operations	17	5	6	8	4
f. Technology and Data	5	13	8	6	1
g. Wholesale/Commercial (including actuarial analysis and underwriting)	2	2	8	1	4
h. Retail/Consumer (including actuarial analysis and underwriting)	7	6	1	10	1
i. Investment Banking	0	0	1	1	4
j. Wealth and Asset Management	0	4	4	4	1
k. Marketing	3	5	5	3	7
l. Strategy / Planning	0	0	1	2	1
m. HR	0	1	3	1	2
n. Others (please specify)	0	1	0	1	2

Areas of Predictive AI usage in the next 12–18 months (% of institutions who selected each response)



Application of AI/ML techniques in production or for pilot projects (by percentage of respondents)



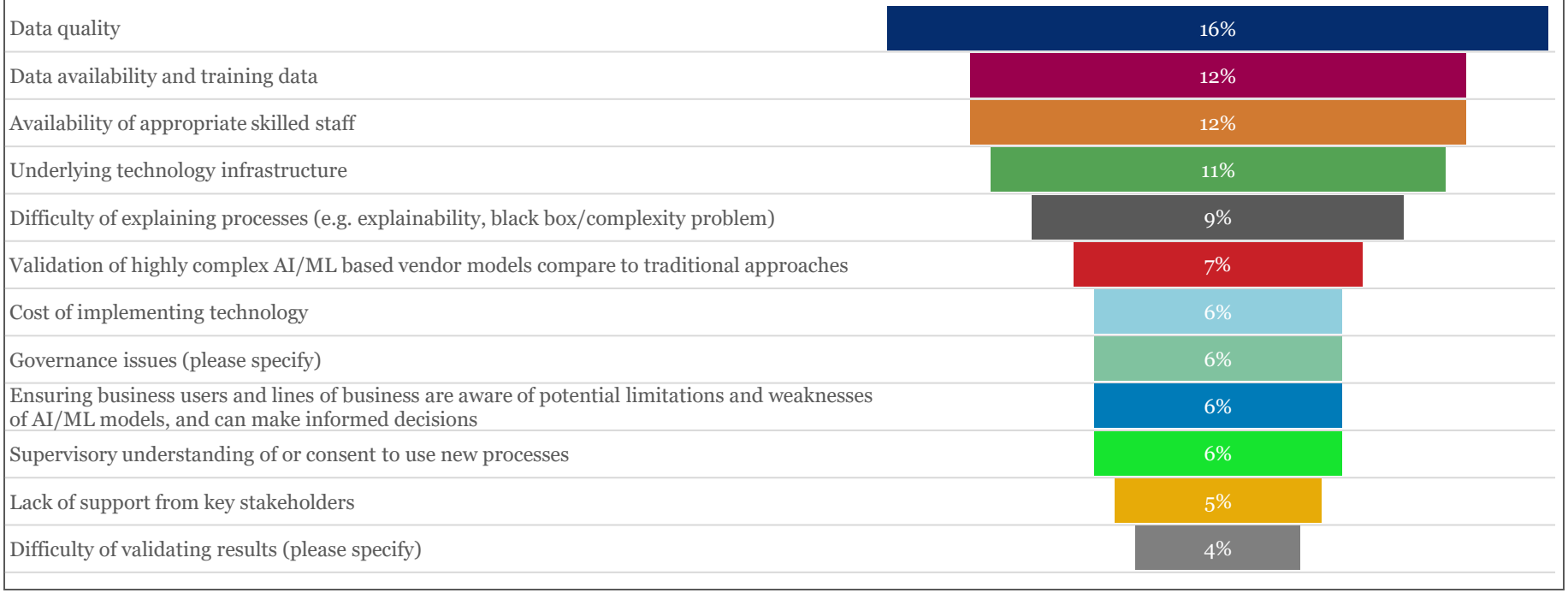
As shown in the table above, each survey since 2018 has shown a continued increase in the use of AI/ML in production. It should be noted that the 2018, 2019, and 2022 reports focused on ML use in credit risk and/or anti-money laundering, while the 2023 report is focused on AI/ML across a broader set of use cases. As a result, the increased proportion of respondents utilizing AI/ML in production may reflect the increased maturity of AI/ML use in financial services, the change in scope of the survey questions, or both.

What are the key challenges for launching AI/ML solutions in production?

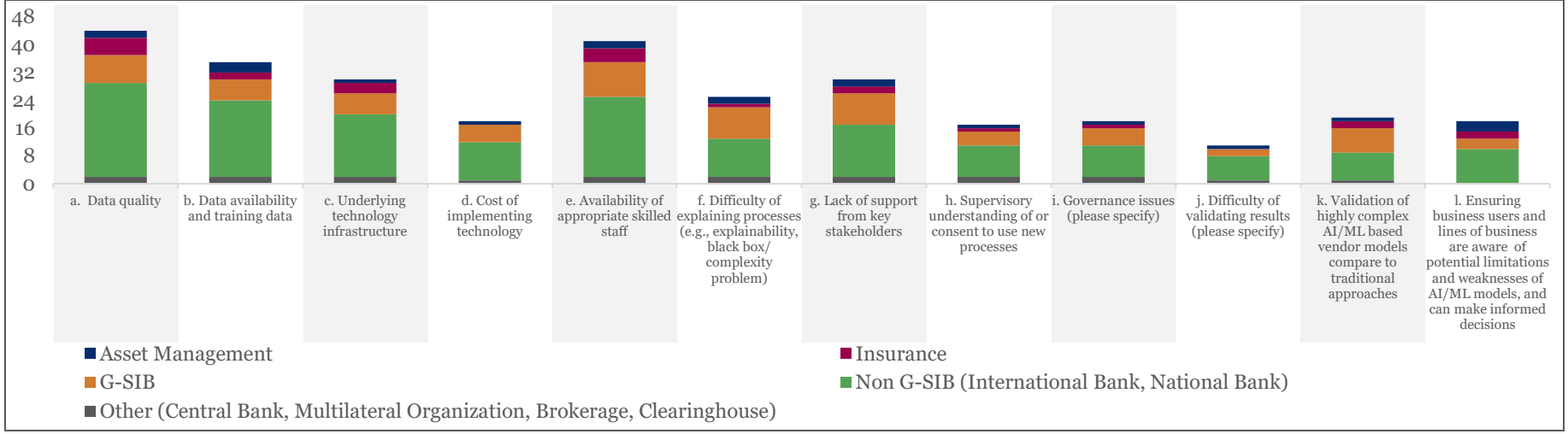
Despite the success of institutions in deploying AI/ML solutions in production, there are common challenges observed, including data quality, data availability, and the availability of appropriately skilled staff. Broadly speaking, data-related issues (e.g., quality, availability) and technology/infrastructure are highlighted as common challenges across organizations. As can be seen in the data below, all challenges are relatively equally flagged as a key challenge for launching AI/ML solutions in production.

While in the 2023 survey, supervisory understanding of or consent to use new processes was the second most common challenge highlighted by participants, this year's survey saw only 31% of respondents noting supervisors as a key challenge. A European International Bank specifically mentioned validating EU AI Act requirements with specifications identified by the European Committee for Electrotechnical Standardization as a challenge that their organization is currently facing. Similarly, two international institutions also noted difficulty in complying with multiple regulatory bodies and sectoral agencies.

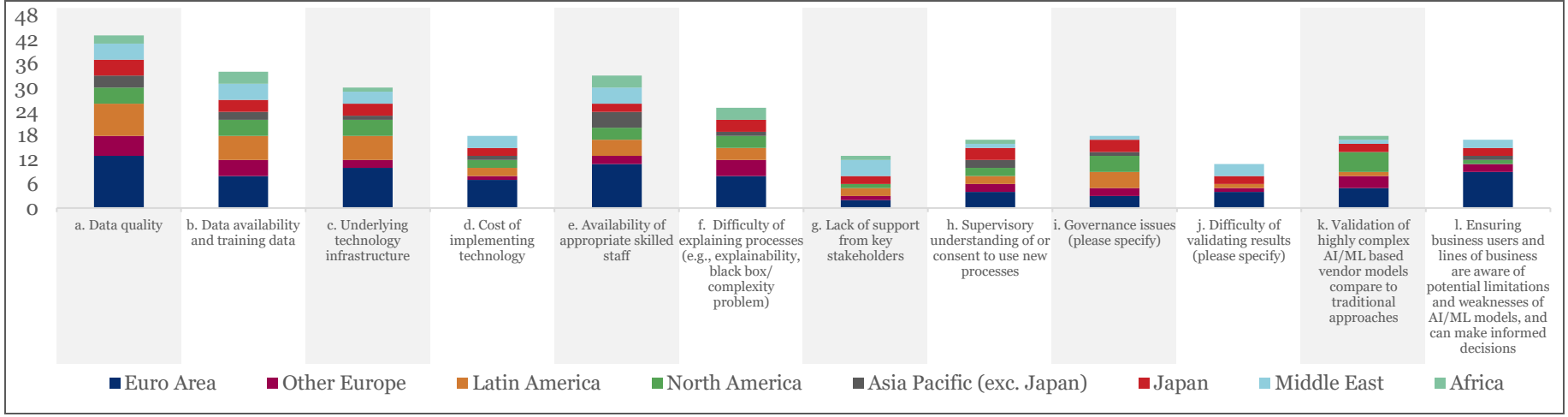
Key challenges for launching AI/ML solutions in production (by percentage of respondents)



Key challenges for launching AI/ML solutions in production, by institution type (by count of respondents)



Key challenges for launching AI/ML solutions in production, by region type (by count of respondents)



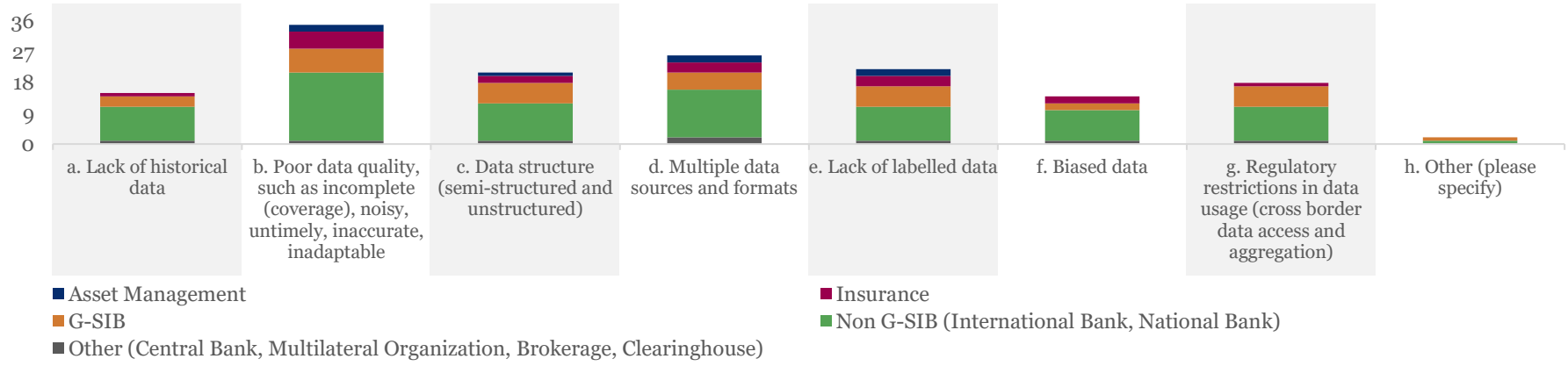
What type of data quality issues are key challenges?

Given the data challenges highlighted above, the survey included a follow up question on the specific data quality issues faced by institutions with poor data quality, multiple data sources and data structures as the most common challenges faced by institutions. A Middle Eastern International Bank noted that finding clean data for GenAI training data proves to be especially difficult for the institution. Furthermore, a North American G-SIB identified "use of proxy, synthesized, external data" as a way they are currently combatting data quality challenges in Predictive AI.

Key data quality challenges (by percentage of respondents)

a. Lack of historical data
b. Poor data quality, such as incomplete (coverage), noisy, untimely, inaccurate, inadaptable
c. Data structure (semi-structured and unstructured)
d. Multiple data sources and formats
e. Lack of labelled data
f. Biased data
g. Regulatory restrictions in data usage (cross border data access and aggregation)
h. Other (please specify)

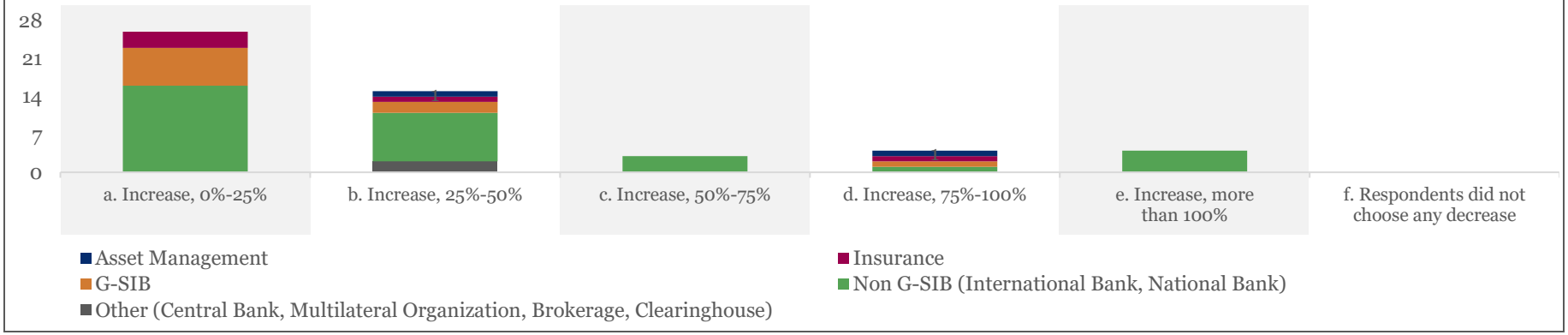
Key data quality challenges, by institution type (by count of respondents)



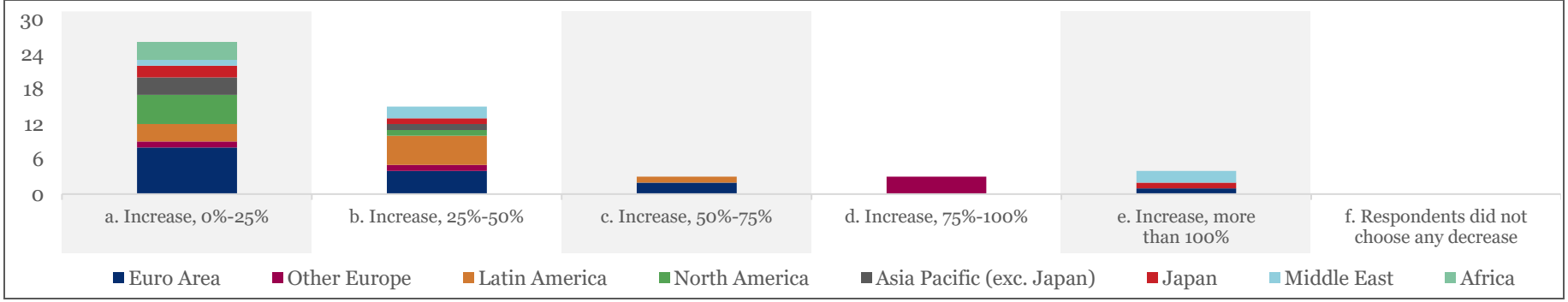
Indicate the approximate increase or decrease in investment in your institution in AI/ML for 2024 (including projected), when compared to 2023.

Despite the challenges in launching predictive AI in production highlighted above, all survey respondents indicated that they increased their investment in AI/ML in 2024, with the majority of respondents showing <50% increase in investment in AI/ML.

AI/ML investment expectations for 2024, by institution type (by count of respondents)



AI/ML investment expectations for 2024, by region type (by count of respondents)



Section

IV

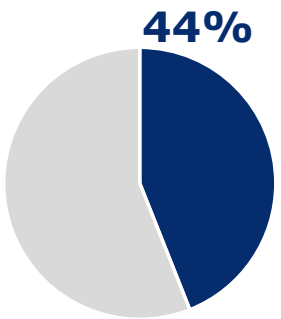
AI/ML Governance and Oversight

Survey results demonstrate AI/ML Governance and Oversight continues to be a key component of financial institutions' AI/ML strategy. Many organizations either have or are in the process of designating a C-Suite manager responsible for AI/ML Ethics. Further, the majority of respondents govern their AI applications through existing frameworks, have developed, or are in the process of developing new frameworks that complement existing ones.

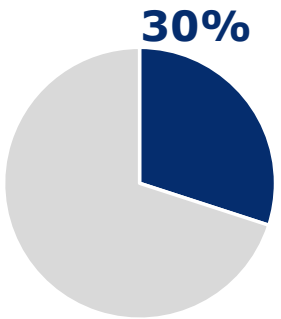
Has your organization appointed a C-suite manager responsible for AI/ML ethics and governance?

Survey results highlight that AI/ML is represented at the C-suite level at most financial institutions, where 74% of survey participants have or are planning to appoint a C-suite manager to be responsible for AI/ML ethics and governance. C-suite level representation proves to be of increasing importance to financial institutions, as the percentage has grown from 66% in the previous year's survey. Notably, all institutions that responded from the Asia Pacific region indicated that they have put a C-suite position in place. A European G-SIB noted that in addition to C-suite level governance, the Head of Environmental, Social and Governance at the institution has a voice in ethics-related AI/ML matters.

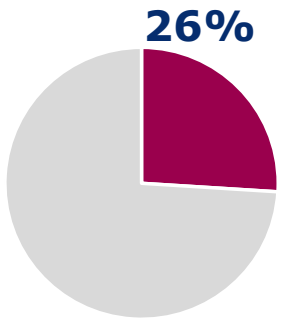
Percentage of institutions with a C-suite manager



44% of respondents have a C-suite manager aligned

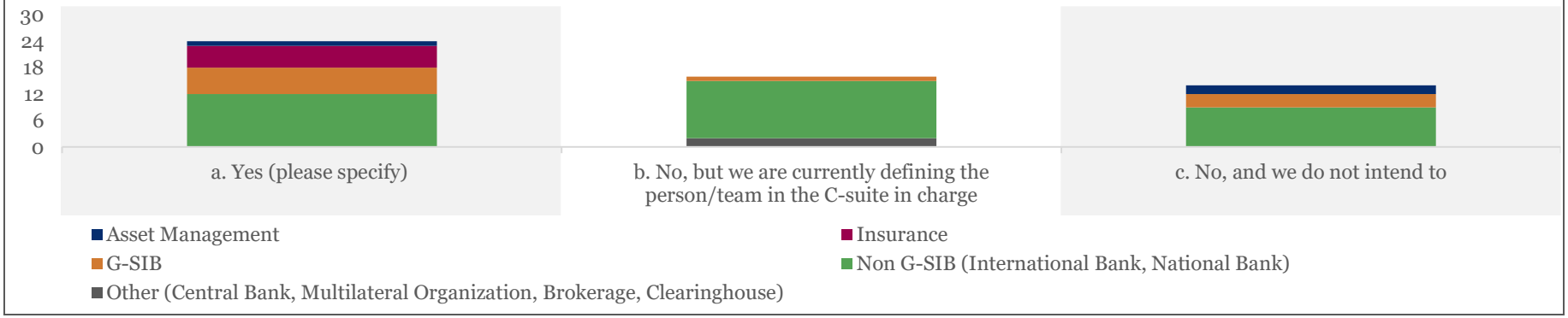


30% of respondents are currently defining the person/team in the C-suite in charge



26% of respondents do not intend to

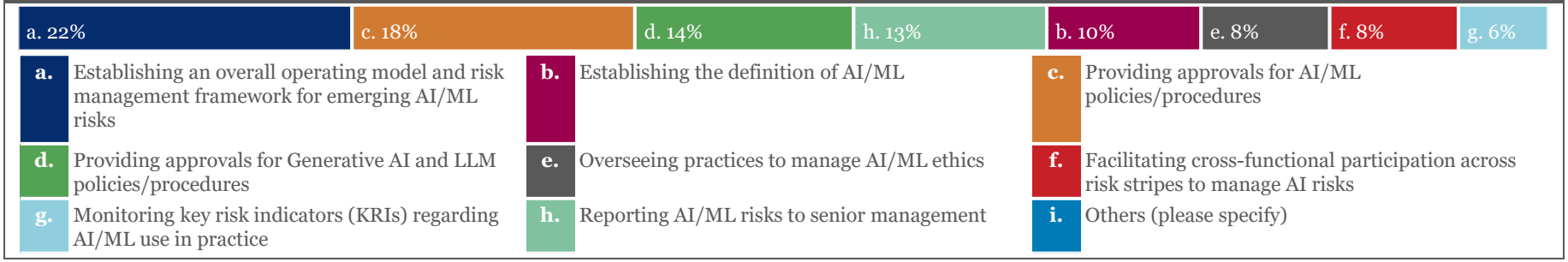
Percentage of institutions with a C-suite manager responsible for AI/ML ethics and governance, by institution type (by count of respondents)



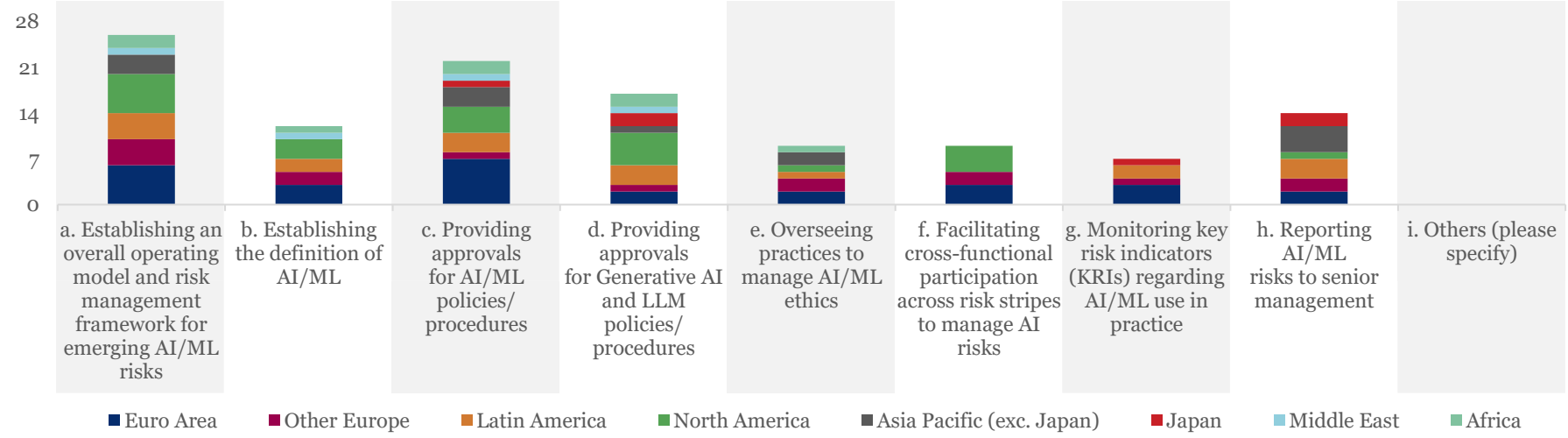
Is your executive committee directly involved in the following activities regarding AI/ML ethics and governance?

Eighty-one percent of respondents claimed their executive committees are shaping the operating model and risk framework for emerging AI/ML risks, followed by approving AI/ML procedures (69%), providing approvals for GenAI and LLM policies (53%) and reporting AI/ML risk to senior management (47%). One Asian International Bank, noted that it established a Responsible Data Use (RDU) committee responsible for developing an overall approach to AI/ML ethics and governance at the institution. The RDU reviews policies and oversees practices to manage AI/ML data ethics and regularly reports to the Board through an established governance structure.

Activities that executive committees are directly involved in regarding AI/ML ethics and governance (by percentage of respondents)



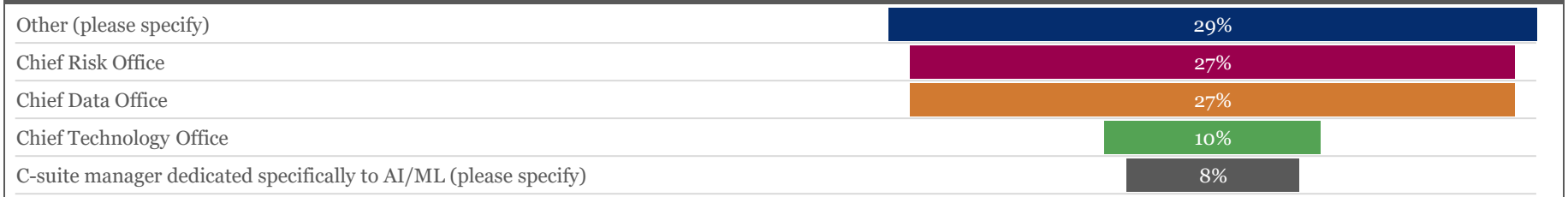
Activities that executive committees are directly involved in regarding AI/ML ethics and governance(by count of respondents)



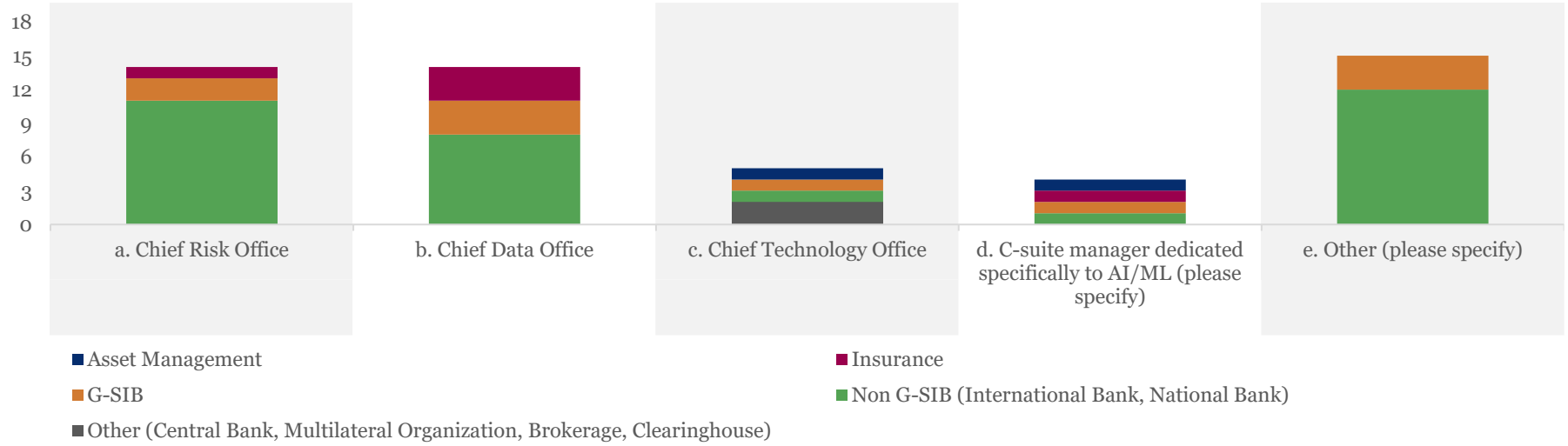
Which function oversees/chairs (or equivalent) AI/ML governance initiatives within your organization?

Based on survey responses, there continues to be a range of practice across the industry for ownership of AI/ML governance initiatives with The Chief Risk Office (27%) and Chief Data Office (27%) as the most common single functions noted. Additionally, 29% of institutions selected "other" function/officer overseeing governance initiatives, the majority of which noted some combination of the Chief Technology Officer, Chief Data Officer, Chief Risk Officer and Chief Information Officer.

Functions overseeing/chairing AI/ML governance initiatives (by percentage of respondents)



Functions overseeing/chairing AI/ML governance initiatives, by institution type (by count of respondents)



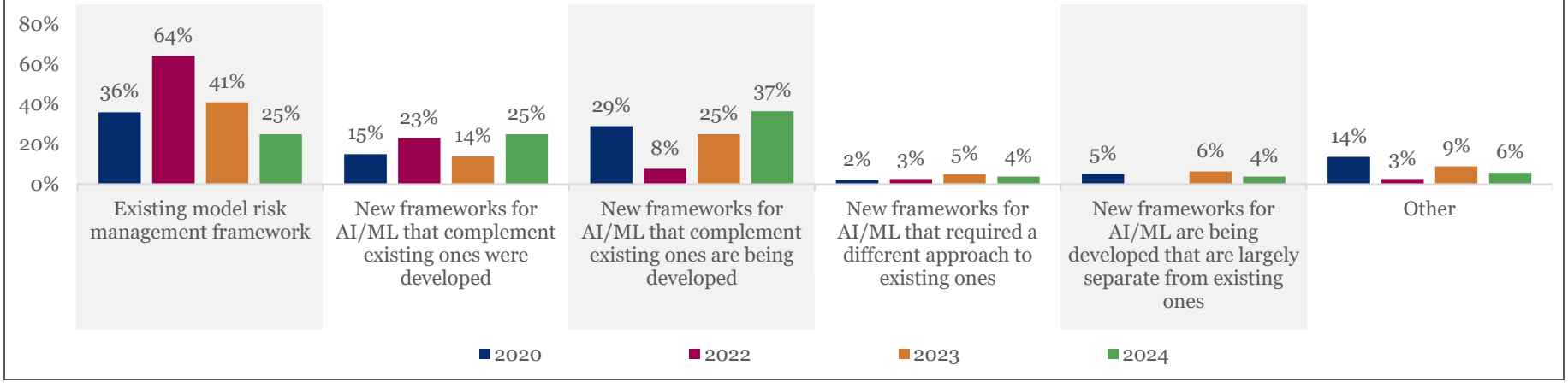
What is the risk framework governance process currently in place for AI/ML applications used by your organization?

Overall, the majority (87%) of total participants are either in the process of (37%) or have completed (25%) developing new frameworks for AI/ML applications that complement their existing frameworks, or have their AI/ML applications governed through an existing model risk management or enterprise risk function (ERM) framework (25%). This is similar to results found in last year's report where 54% of participants used a tollgate process.

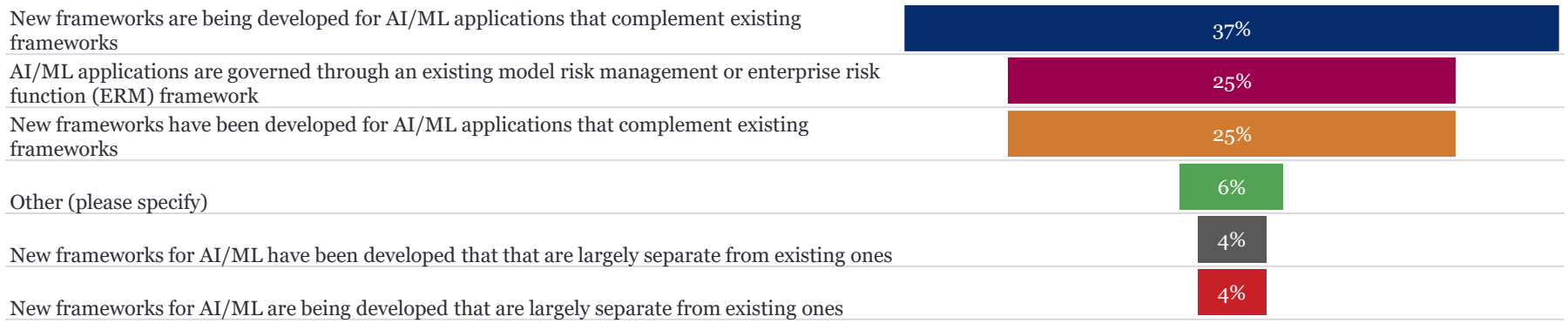
Similarly, most of the regional participants noted new frameworks are currently being developed that complement existing ones (37%), with 25% saying such frameworks have been fully developed). 24% of regional respondents govern their AI applications through existing frameworks. More than half of Euro Asia respondents (53%) are in the process of developing complementing frameworks to their existing ones for governance of AI/ML applications.

In comparison with previous years' responses, institutions are shifting toward the development of new risk frameworks for AI/ML to complement existing frameworks. Previously, most institutions selected that their existing model risk management frameworks are currently in place for AI/ML applications. This change over the years reflects that financial institutions are proactively working to adjust their risk management practices to account for the changes and differences observed between predictive AI models and frontier models, even without mandatory policy frameworks that oblige them to do so.

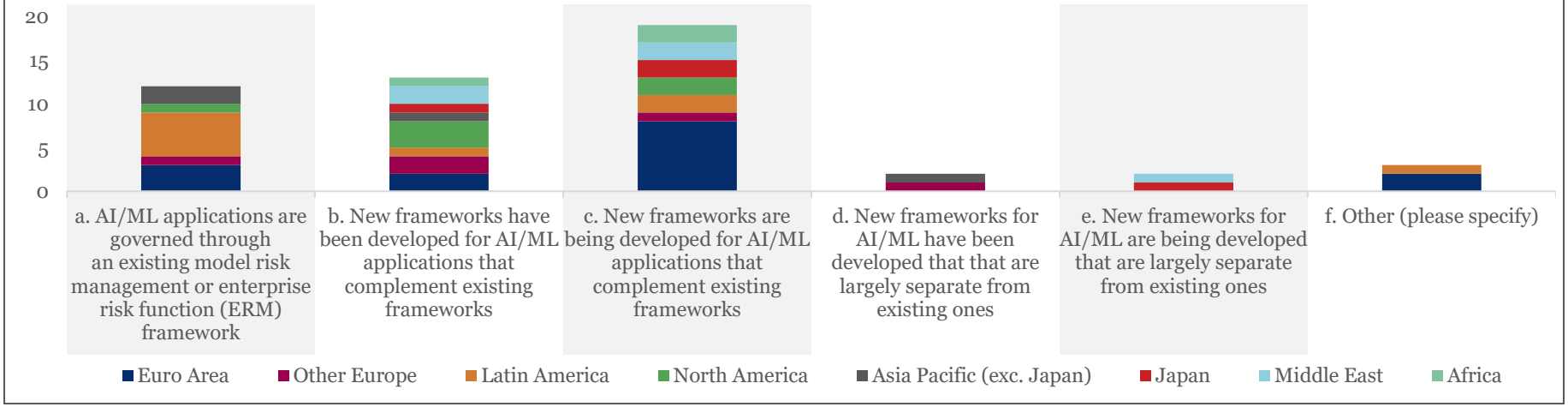
Comparison with past surveys: risk framework governance process currently in place for AI/ML applications used (by percentage of respondents)



Risk framework governance process currently in place for AI/ML applications used (by percentage of respondents)



Risk framework governance process currently in place for AI/ML applications used, by Region Type (by count of respondents)

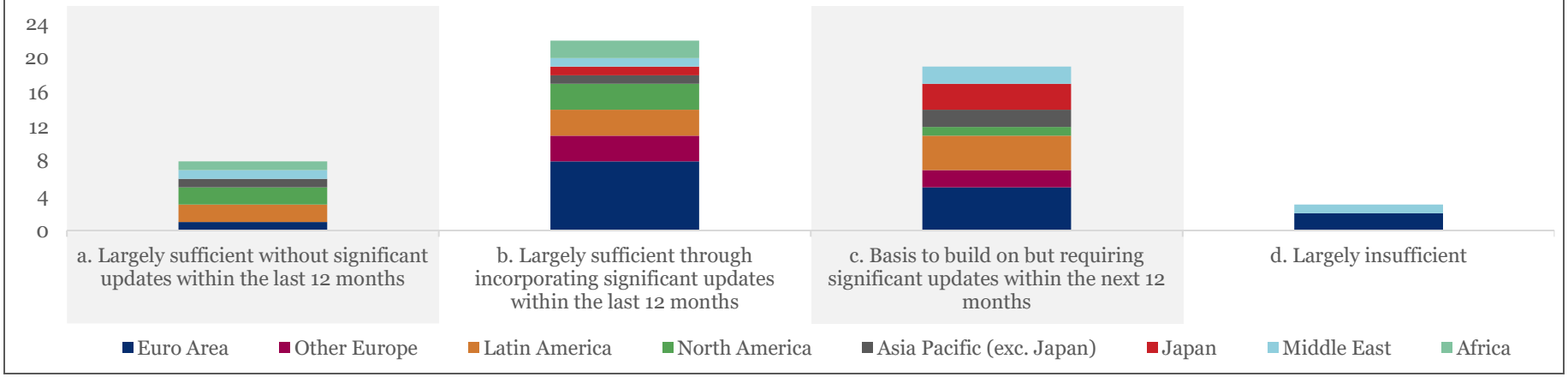


How does your institution view and/or leverage existing practices and approaches in model governance and data management to address the issues raised by the use of AI/ML?

Similarly to last year, a majority of participants either view their approaches in addressing AI/ML issues as largely sufficient through incorporating significant updates within the last 12 months, or have a basis to build on but require significant updates within the next 12 months (36%). About a fifth of participants combined claimed their approaches were largely sufficient without updates in the last 12 months (17%). Four institutions, all of which selected that their existing practices will need significant updates, commented specifically on the need to incorporate GenAI into model governance and data management.

Leveraging of existing practices and approaches in model governance and data management to address the issues raised by the use of AI/ML (by percentage of respondents)

Leveraging of existing practices and approaches in model governance and data management to address the issues raised by the use of AI/ML, by region type (by count of respondents)



What are the core principles defined by your organization for AI/ML development and use?

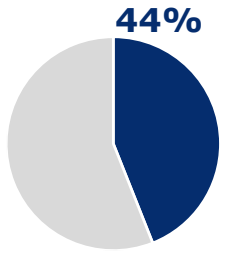
Safety and Security proved to be the core principle valued highest among institutions, followed by Privacy. Seven institutions, however, made clear that they value all the above principles as equally important, and that they are addressed through Responsible AI principles or risk management frameworks. Institutions also defined accuracy, robustness, and reliability as additional core principles considered for AI/ML development use within their organizations.

Ranking of core principles defined by organizations for AI/ML development and use (Selected 1–7 in order of relevance)	Ranking						
	1	2	3	4	5	6	7
a. Safety and Security	21	6	6	7	4	4	0
b. Transparency and explainability	4	7	14	10	6	6	1
c. Fairness / harmful bias prevention	8	11	10	12	5	2	0
d. Governance and Oversight	12	6	4	7	13	6	0
e. Accountability	5	5	6	3	9	19	1
f. Privacy	13	11	6	4	6	6	2
g. Others: (Please specify)	1	0	0	2	2	0	15

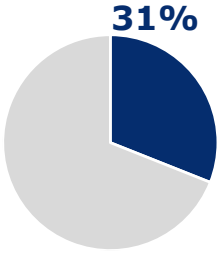
Does your organization have a process for review and approval of proposed Predictive AI or ML use cases?

As a group, many respondents (44%) said they have a process for review and approval of proposed Predictive AI or ML use cases, with 32% of the group saying their approval processes need changes for improved functioning and decision-making. About a quarter of the respondents (24%) say they do not have such processes since their use cases are evaluated on a case-by-case basis. Asia Pacific and North America were the only regions to have 100% of institutions with a process for review and approval but with no changes for improved functioning and decision-making needed.

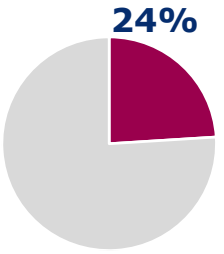
75% of respondents currently have processes for review and approval of proposed Predictive AI or ML use cases



Yes

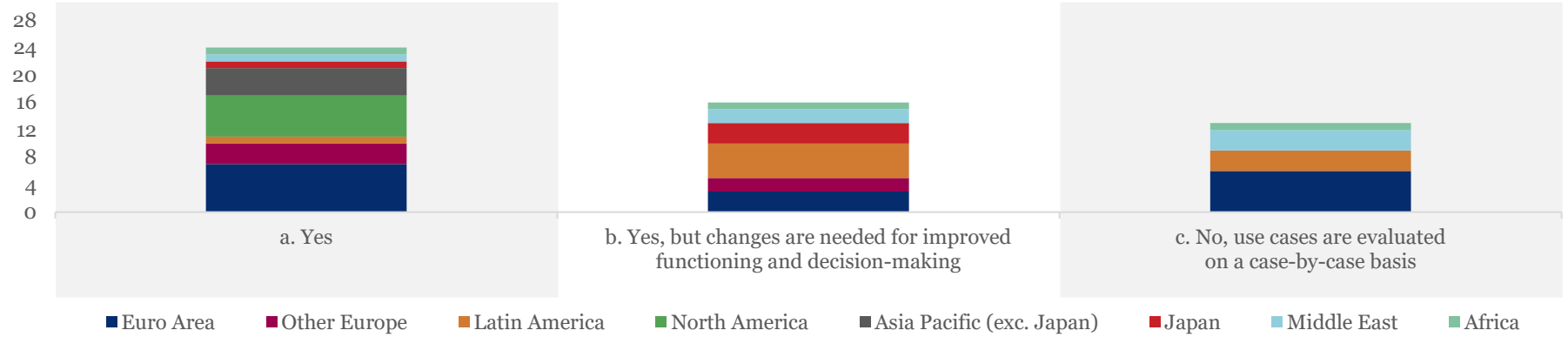


Changes are needed for improved functioning and decision-making



Use cases are evaluated on a case-by-case basis

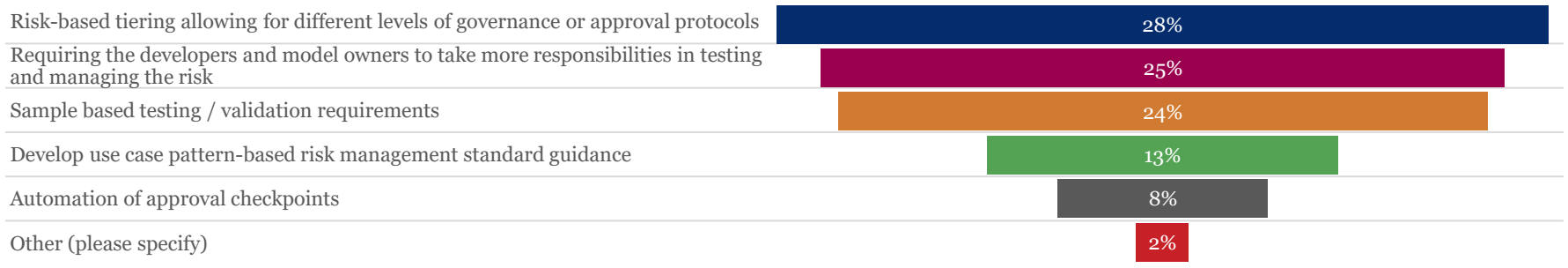
Review and approval processes of proposed Predictive AI or ML use cases, by region type (by count of respondents)



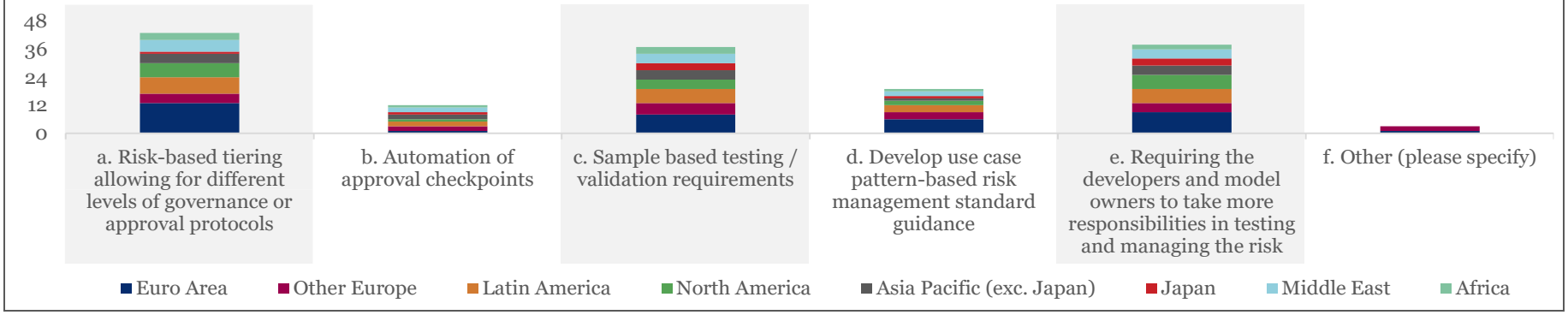
Does your organization use any of the following approaches to enable efficient governance and risk management of Predictive AI or ML use cases?

Most organizations either approached their governance and risk management of predictive AI or ML use cases by using either risk-based tiering for different levels of governance (28%), sample-based testing or validation requirements (24%), or by requiring developers or model owners to take ownership managing risk (25%). Other Europe and Euro Area are the only regions that claimed they use other approaches to enable governance and risk management that were not measured.

Approaches to enable efficient governance and risk management of Predictive AI or ML use cases (by percentage of respondents)



Approaches to Enable Efficient Governance and Risk Management of Predictive AI or ML Use Cases, by Region Type (by count of respondents)



What controls are in place in AI/ML applications to mitigate against AI/ML models producing unfairly biased or discriminatory outcomes? (Select top 4)

The most prevalent controls used to mitigate unfairly biased or discriminatory outcomes was audit, testing, controls and/or validation procedures or guidance for AI/ML use and implementation in practice, selected by 75% of respondents. In following, top controls included firmwide policy, code of conduct and regular reporting.

In addition to the controls listed, a European G-SIB identified that sensitive attributes such as gender and race are excluded entirely from model development. They measure variable importance and remove variables for model training, which is governed by a specific internal code of ethics detailing variable restrictions

Controls to mitigate against AI/ML models producing unfairly biased or discriminary outcomes, by top selected answer choice (by percentage of respondents)

a. Firm-wide policy governing AI/ML use

b. Firm has a code of ethics (or equivalent) defined at the institution level including specifics for AI/ML

c. Firm has regular reporting to either board or group risk committee (or equivalent) with ethical risks relating to AI/ML

d. Firm has audit, testing, controls, and/or validation procedures or guidance for AI/ML use and implementation in-practice

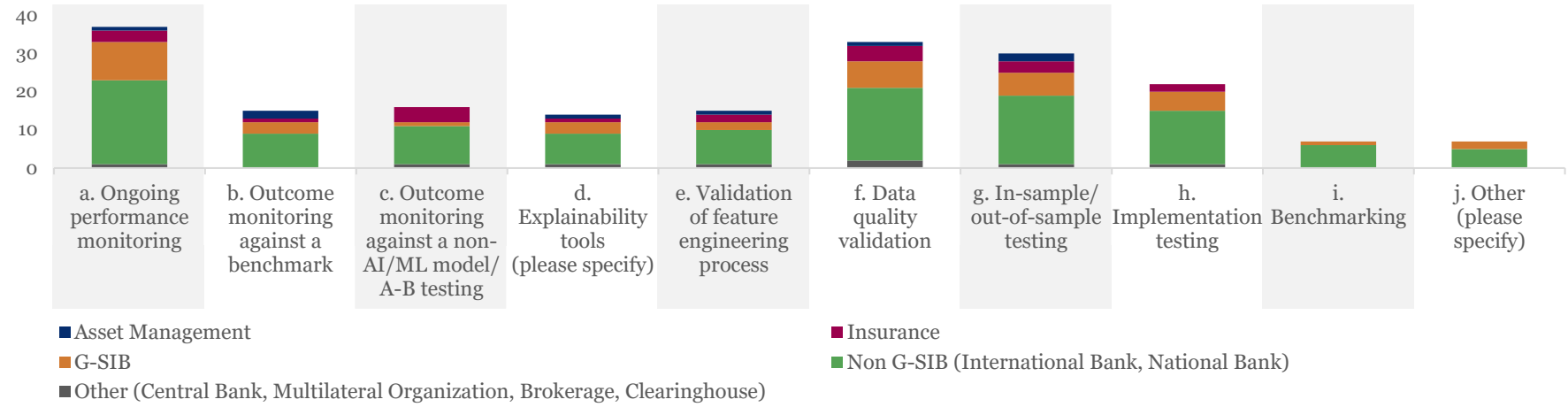
e. Firm has tactical controls in place (i.e., reject inference)

f. Any other approach (please describe)

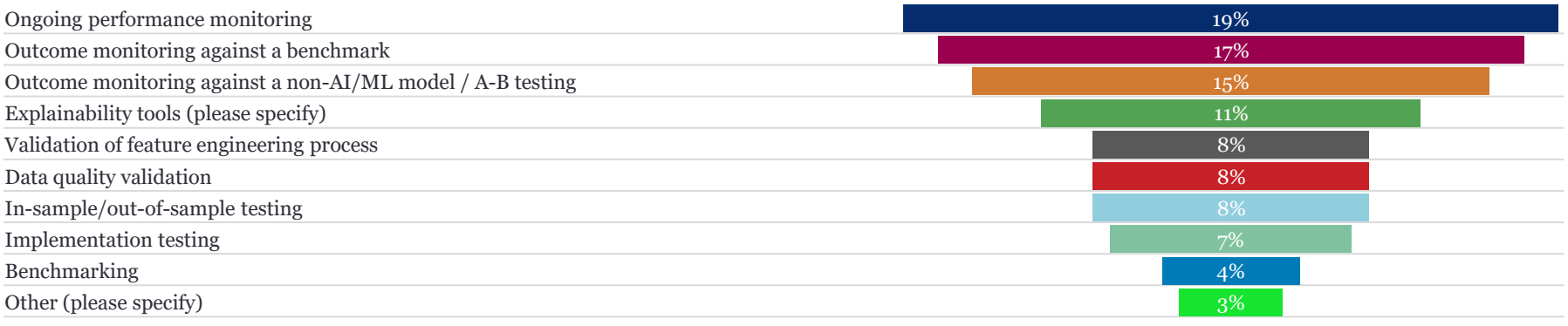
What model validation techniques are used to assess AI/ML model robustness? (Select top 4)

Ongoing performance monitoring, data quality validation, in-sample/out-of-sample testing, and implementation testing were the top four model validation techniques identified among participants to assess AI/ML model robustness. Some respondents also named transparency/explainability techniques such as Shapley values, Partial Dependence Plots (PDPs), sensitivity analysis, and LIME.

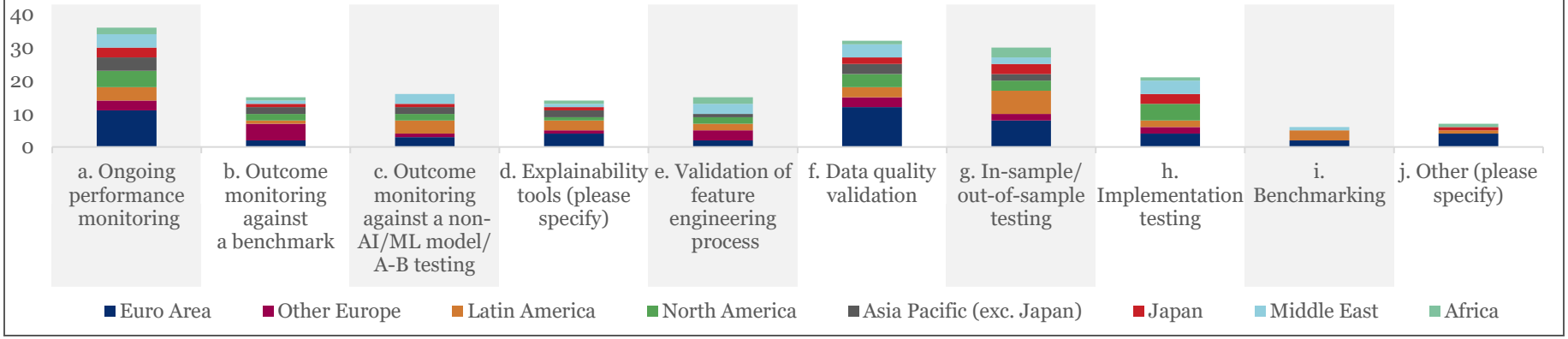
Model Validation Techniques to Assess AI/ML Model Robustness, by Institution Type (by count of respondents)



What model validation techniques are used to assess AI/ML model robustness?



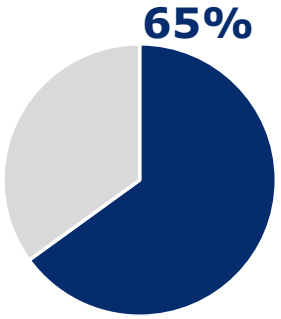
Model validation techniques to assess AI/ML model robustness, by region type (by count of respondents)



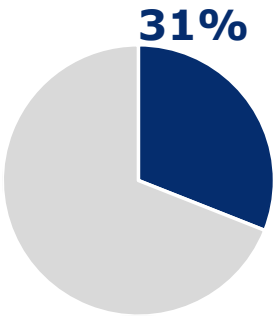
In production, are there any feedback mechanisms or controls in place for correcting the AI/ML model (ensuring outcomes are as expected)?

Survey results show that 96% of institutions have in-place or intend to implement feedback mechanisms or controls to correct AI/ML models. Increasing from 88% in the previous year's survey, institutions are continuing to place a strong focus on implementing. There are a variety of feedback mechanisms and controls in use, including regular model performance reviews/ongoing monitoring, KPI monitoring, humans-in-the-loop, and drift detection to ensure that outcomes are as expected. Notably, all institutions in the Middle East and North America indicated that they already have feedback mechanisms or controls in place.

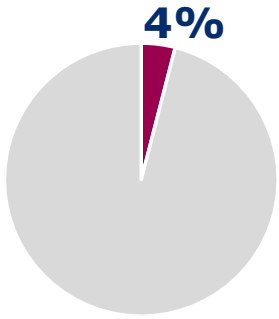
Most respondents already have or are currently defining feedback mechanisms



65% of respondents have feedback mechanisms or controls in place

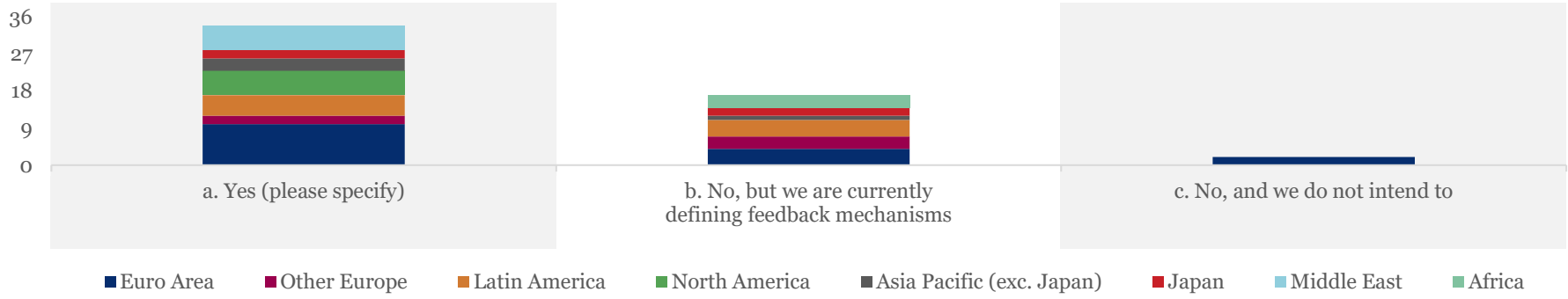


31% of respondents are currently defining feedback mechanisms



4% of respondents do not intend to

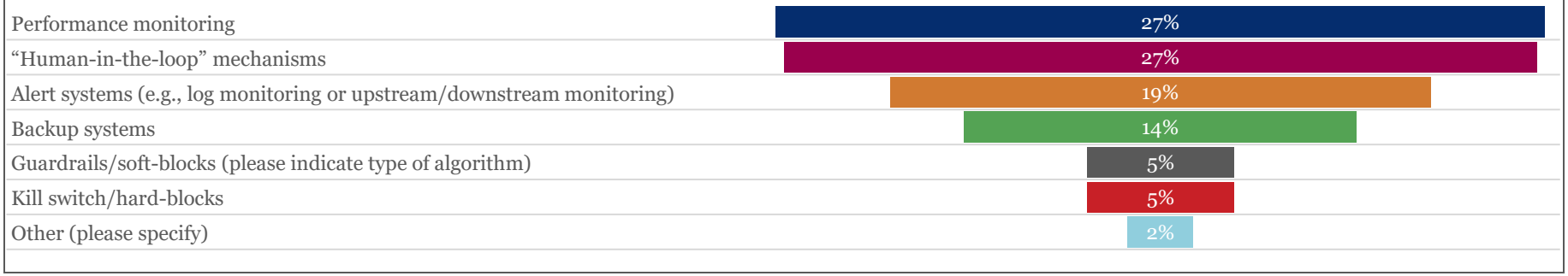
Feedback mechanisms or controls in production, by region type (by count of respondents)



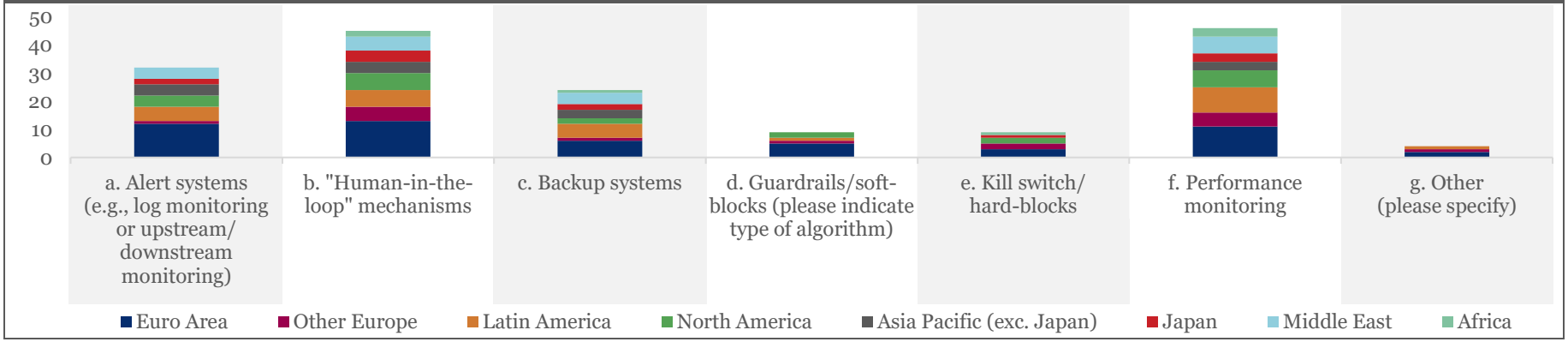
What safeguards are built into AI/ML applications?

"Human-in-the-loop" mechanisms and performance monitoring were the top two most selected safeguards that institutions are incorporating into their AI/ML applications. A Latin American National Bank indicated that their institution has a monitoring library for their production models, scoring outputs and alerting key stakeholders via Microsoft Teams and are in the process of developing an additional library which will monitor traditional models (such as regression and classification models). Additional safeguards mentioned included regular control sampling and content filtering. The prevalence of "Human-in-the-loop" controls suggests that while there is widespread adoption of AI/ML, it is not replacing the needs for humans to be involved in key processes that are complemented by the technology.

Safeguards built into AI/ML applications (by percentage of respondents)



Safeguards built into AI/ML applications, by region type (by count of respondents)

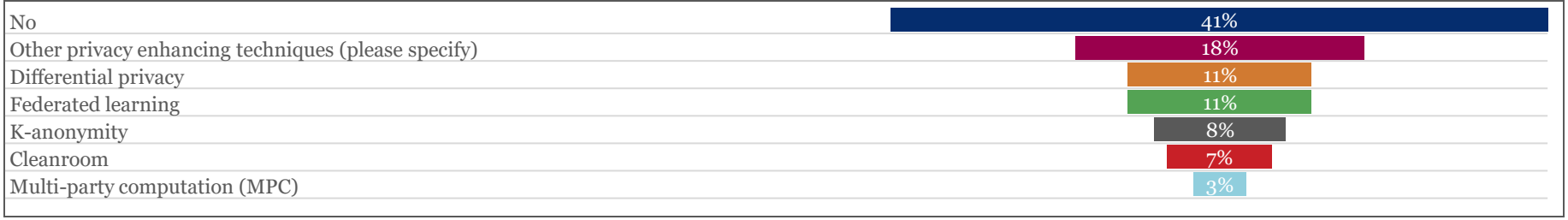


Does your organization use or plan to use the following privacy-enhancing techniques (PET) for cross-border data sharing in AI/ML solutions?

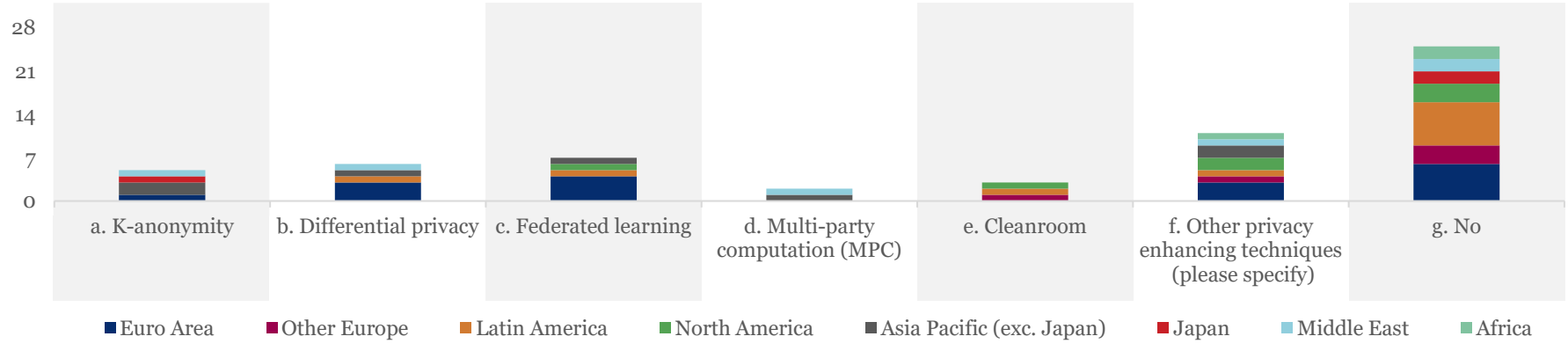
Fifty-four percent of survey respondents indicated that their institution use privacy-enhancing (PET) techniques for cross-border data sharing including Differential Privacy, Federated Learning, Cleanrooms, and K-anonymity. As an example, an Asian International Bank noted that they are using PET, and they "have a comprehensive multi-layered Data Security Framework for Analytics, that includes protection of data at rest at an attribute level based on a sensitivity classification. [They] also have data access, isolation and surveillance layers. Furthermore, [they] have governance processes in place to ensure cross-border analytics use-cases remain compliant with local data localization regulations."

The rationale varies as to why certain other institutions are not choosing to use PET. A Japanese International Bank responded that the institution avoids using PII within their AI/ML models, while a European G-SIB indicated that they do not yet have CTO-defined requirements for this type of functionality. Other institutions may have chosen this option because they only operate in one market.

Privacy-enhancing techniques (PET) for cross-border data sharing (by percentage of respondents)



Privacy-enhancing techniques (PET) for cross-border data sharing, by region type (by count of respondents)



Section

V

Third Party Models

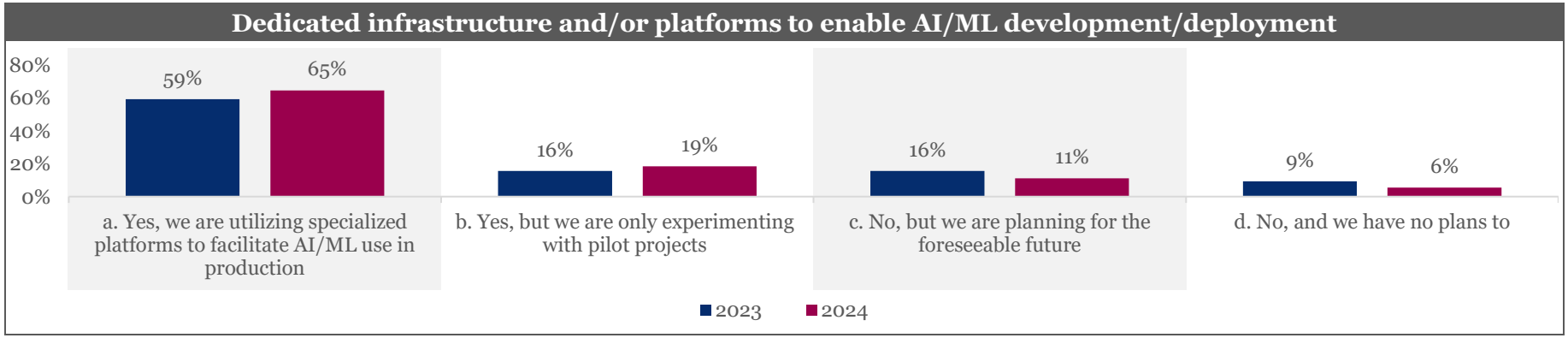
The growth of AI/ML has enabled organizations to utilize infrastructure and platforms to assist them with things like model development and deployment. Additionally, organizations are putting safeguards in place to protect themselves from the risks associated with third parties through utilizing internal risk management requirements, ensuring mechanisms are in place for data governance/privacy, and protecting their personally identifiable information (PII).

Does your organization have dedicated infrastructure and/or platforms in place to enable AI/ML development/deployment (e.g., model ops/DevOps)?

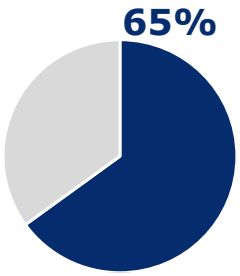
Eighty-four percent of respondents reported they have a dedicated infrastructure in place to enable AI/ML development and deployment where 65% of those respondents are utilizing specialized platforms to facilitate AI/ML use in production.

Regionally, Japan, Asia Pacific, North America and Other Europe regions are all utilizing infrastructure for their AI/ML development/deployment to some degree whether it is utilizing a specialized platform or experimenting with pilot projects.

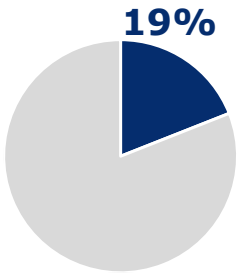
Since 2023, institutions have increasingly shifted toward utilizing specialized platforms to facilitate AI/ML use in production and experimenting with pilot projects. Fewer institutions are planning to have dedicated infrastructure and/or platforms in place, as they increasingly move toward production deployment or pilot project trials.



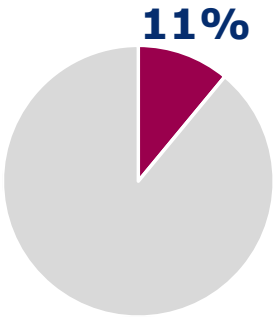
84% of respondents have dedicated infrastructure and/or platforms



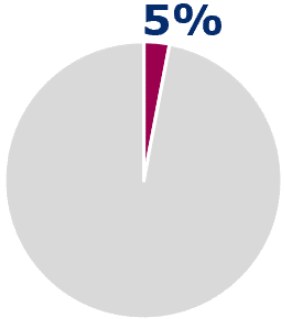
65% of respondents are utilizing specialized platforms to facilitate AI/ML use in production



19% of respondents are only experimenting with pilot projects

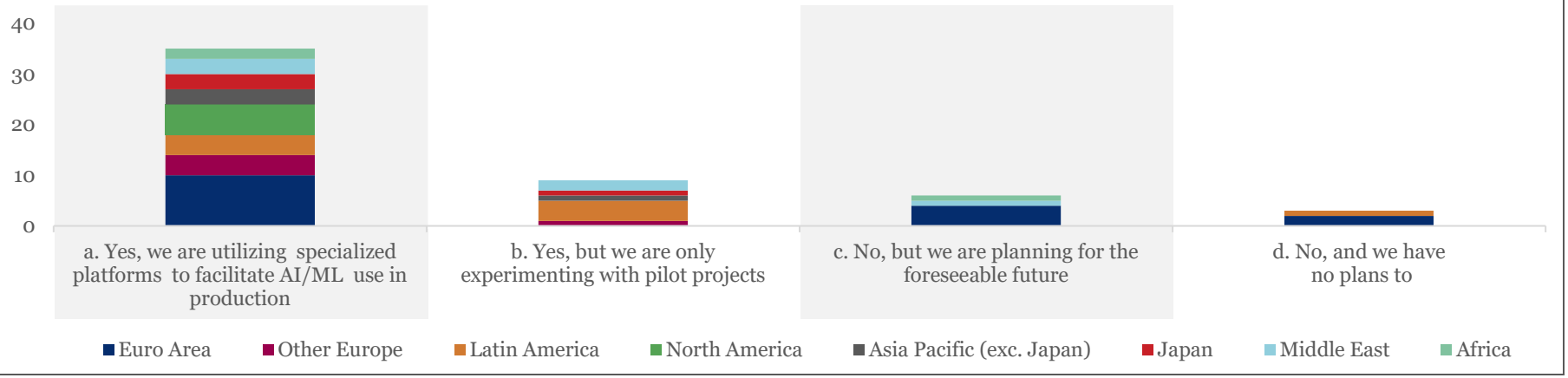


11% of respondents are planning for the foreseeable future



5% of respondents have no plans to

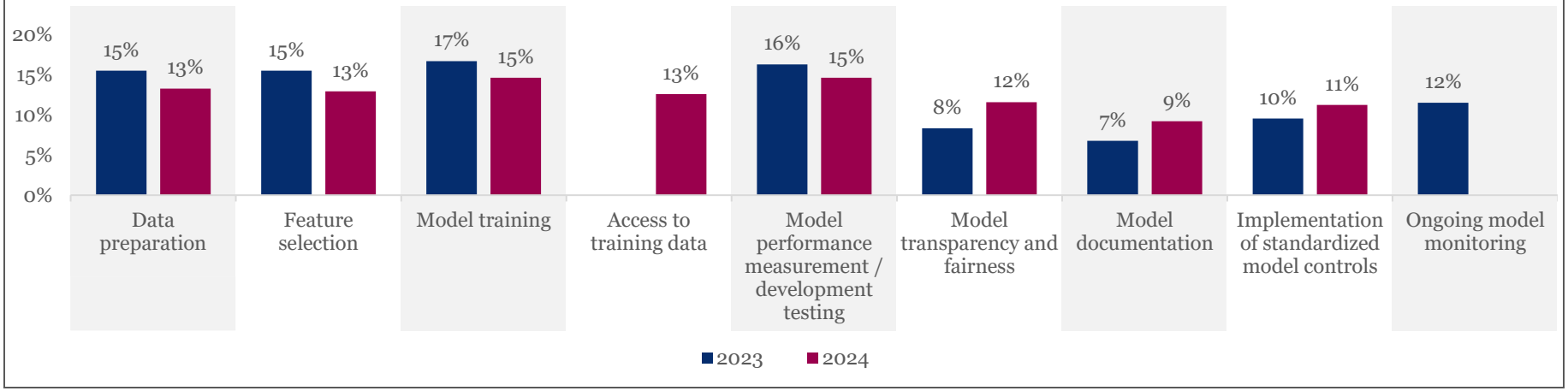
Dedicated infrastructure and/or platforms to enable AI/ML development/deployment, by region type (by count of respondents)



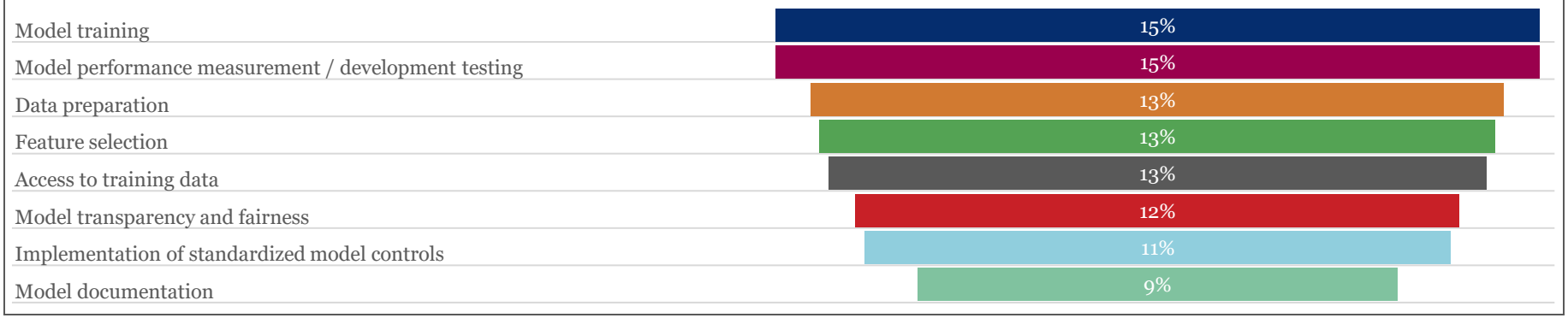
If yes, in which area(s) are the AI/ML model development/deployment platforms or infrastructure used for?

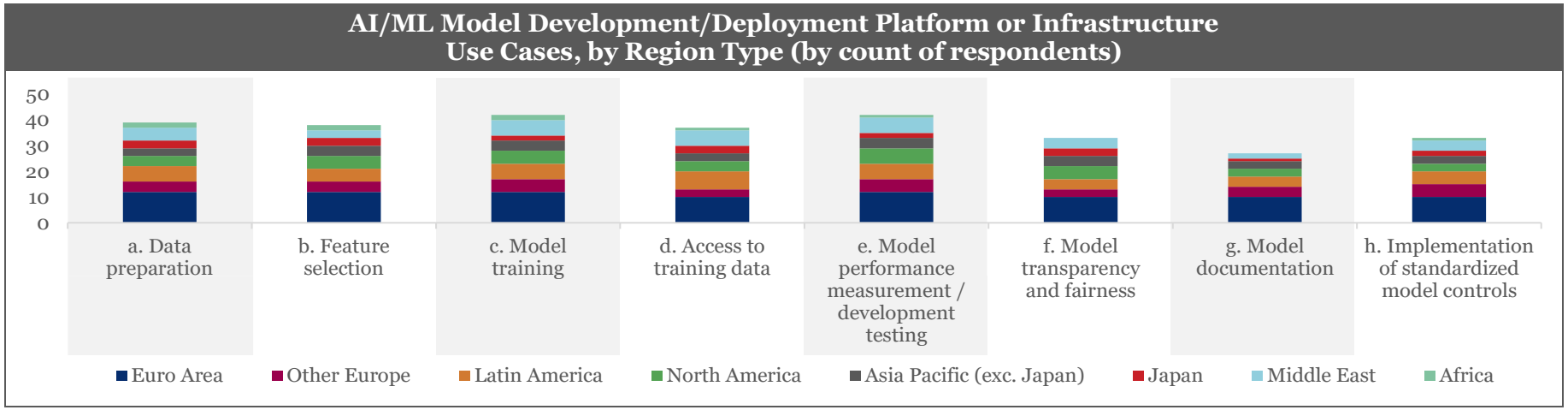
Participants' responses are fairly distributed across all areas, with some variations in specific aspects (e.g., *model performance measurement and development testing* and *model training* stand out, while model documentation receives less attention). Though slightly more distributed, the results of the 2024 survey are consistent with those of the 2023 survey, demonstrating that use cases continue to be varied across institutions.

AI/ML model development/deployment platform or infrastructure use cases by year (by percentage of respondents)



AI/ML model development/deployment platform or infrastructure use cases (by percentage of respondents)

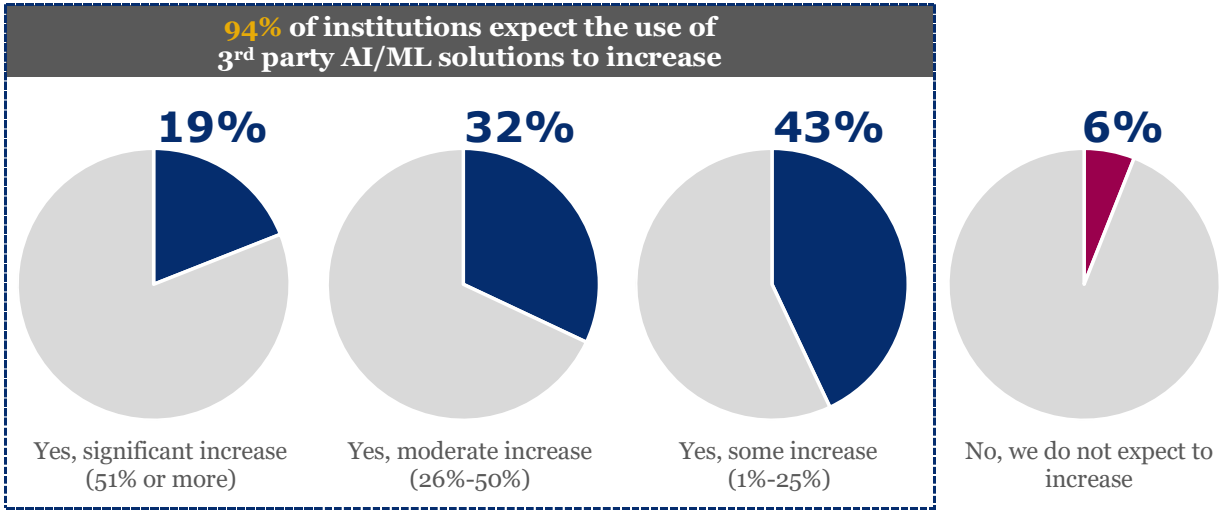




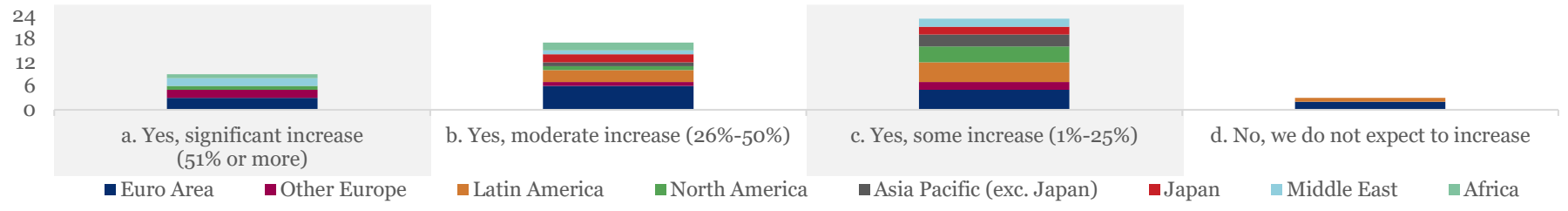
Do you expect the use of third-party AI/ML solutions to increase in the next 12 months?

Among the respondents, 94% expect the use of third-party AI/ML solutions to increase in the next 12 months. Of these, 43% anticipate a slight increase of 1%–25%, 32% predict a moderate increase of 26%–50%, and 19% foresee a significant rise of 51% or more.

These results are consistent with last year's responses as most regions were expecting a 10-25% increase in third-party AI/ML solutions in the next 12 months. They also portray an issue that has been flagged by international organizations like the International Monetary Fund (IMF) and the Financial Stability Board (FSB) in recent papers: a trend toward leveraging third parties for developing AI models, with its consequent considerations regarding concentration risks and competition.



Expected increase of third-party AI/ML solutions in the next 12 months, by region type (by count of respondents)

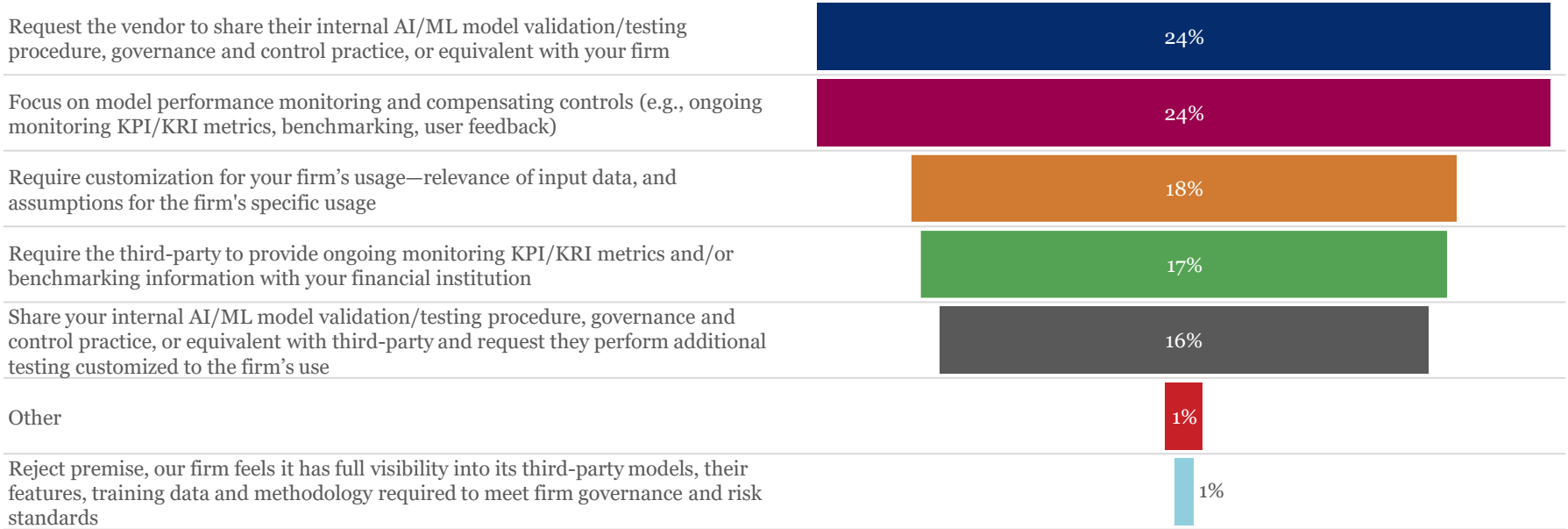


What approaches should be taken for third-party models to meet your institution's requirements for validation?

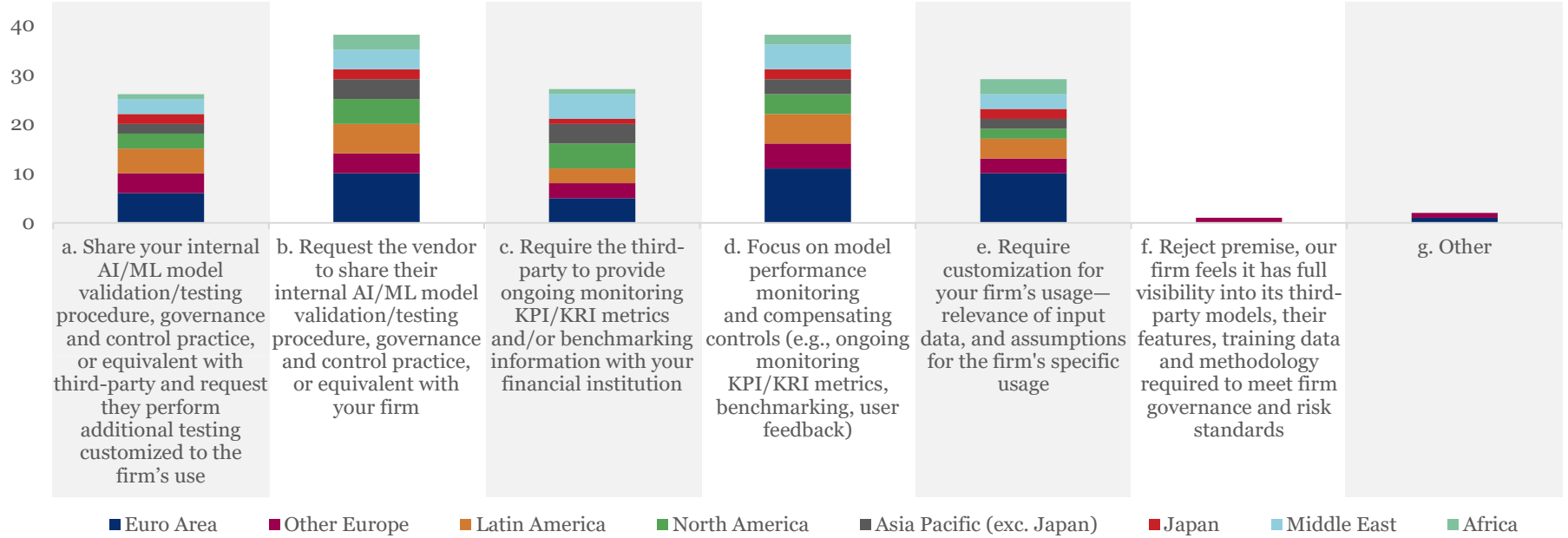
Out of all respondents surveyed, the top two approaches for third-party models to meet their institutions validation requirements are focused on model performance monitoring and compensating controls (24%) and requesting the vendor to share their internal AI/ML model validation/testing procedure, governance and control practice (24%). In comparison to the previous year's survey, the top two responses remain consistent, with most institutions either requesting the vendor to share additional evidence beyond their white papers or focusing on model performance and compensating controls.

These two main approaches show that FIs are continuously looking to provide a high level of validation to ensure models comply with a series of measures that could be characterized as "responsible AI." They are also aligned with the top approaches from the regions surveyed.

Approaches for third-party model validation to meet institutional requirements (by percentage of respondents)



Approaches for third-party model validation to meet institutional requirements, by region type (by count of respondents)



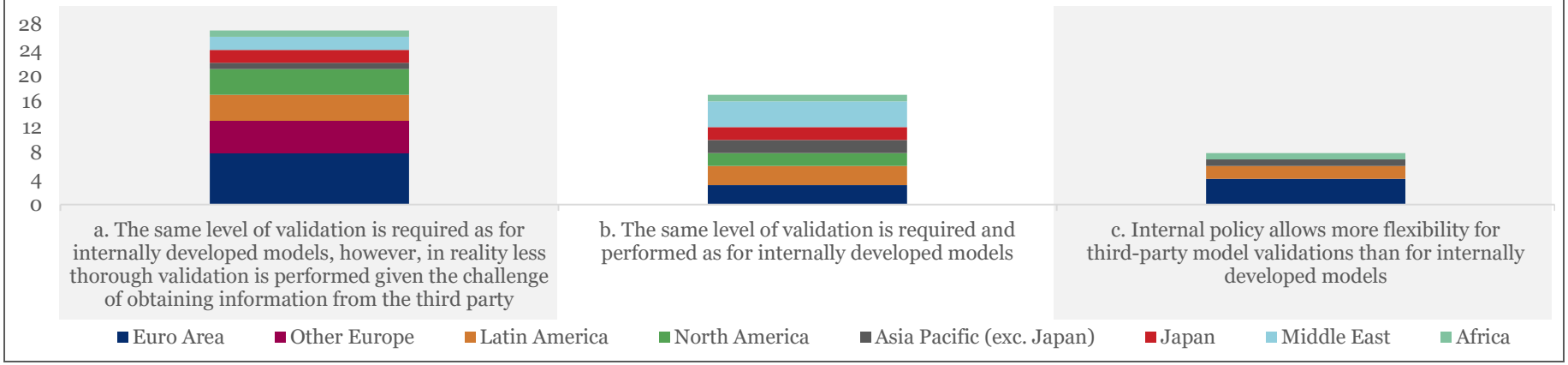
What is your validation requirement for third-party AI/ML models?

Model validation processes are important for an organization to manage third-party risk for their AI/ML models with 85% of respondents indicating that equal level of validation is required of third-party models as is required of internally developed models. However, the majority of that group of respondents flagged that in reality less thorough validation is actually performed because of constricted access to the information needed to validate the models, regulatory and contractual arrangements, and other reasons. This is generally consistent with the survey results in 2023 and points to a continued challenge from financial institutions to access information from their technology providers, which we have also heard in meetings with senior business and technology experts at IIF's member institutions.

Regionally, many of the regions surveyed have a mixed approach on validation requirements. However, Other Europe had 100% of respondents agree that they utilize the same level of validation as their internally developed models but find that a less thorough validation is performed given the difficulties of obtaining information from third parties.

Validation requirements for third-party AI/ML models (by percentage of respondents)

Validation requirements for third-party AI/ML models, by region type (by count of respondents)

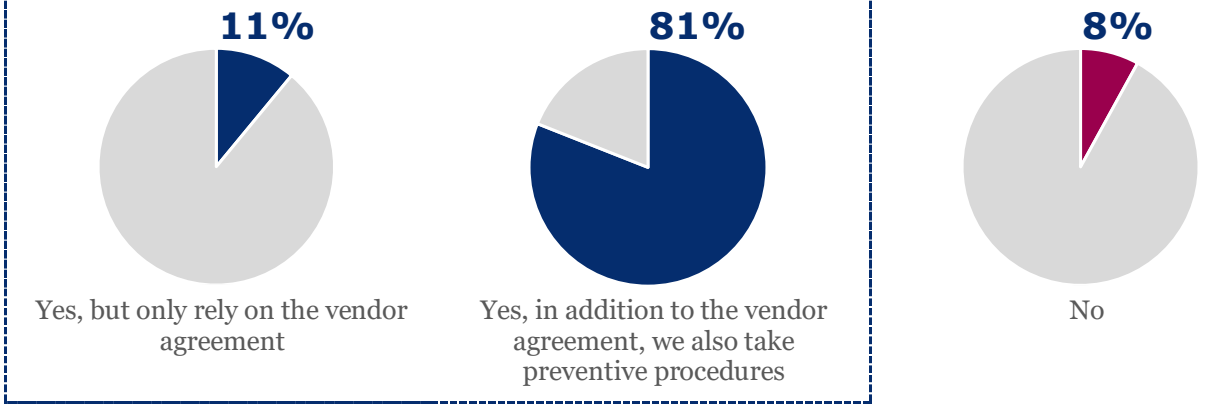


Is there a mechanism to ensure data governance and privacy when using third-party AI/ML applications?

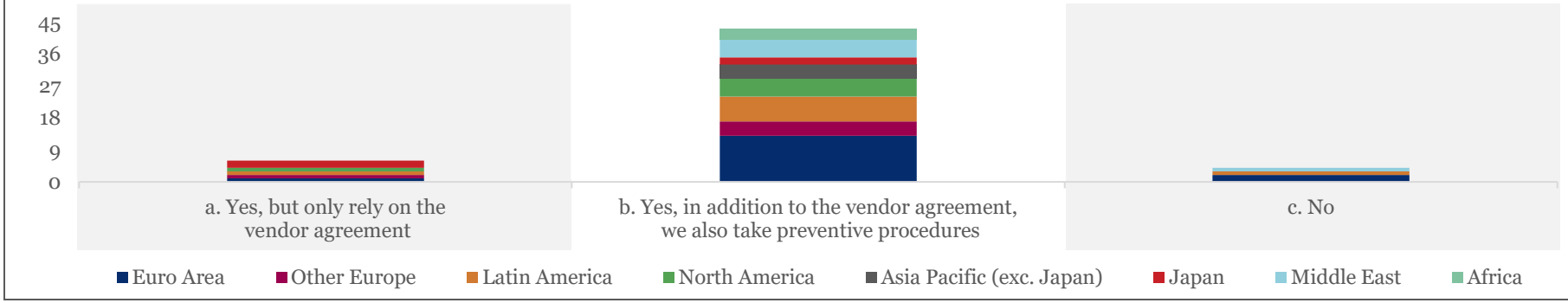
92% of all respondents surveyed have a mechanism in place to ensure data governance/privacy where 81% of those respondents also utilize preventive procedures to ensure data governance and privacy. With the expansion of AI/ML applications, it is becoming more essential to have a mechanism in place to ensure data is managed responsibly. In addition to a 3% increase from last year's results, it is worth noting that all respondents headquartered in Asia Pacific and Africa apply preventive procedures on top of the vendor agreement with the third-parties they interact with.

Notably, a Middle Eastern International Bank highlighted that they "must ensure compliance with internal and external policies and regulations." Additionally, all firms headquartered in Africa apply data governance and privacy mechanisms on top of the vendor agreement.

92% of respondents have a mechanism to ensure data governance and privacy when using third-party AI/ML applications



Data governance and privacy mechanisms for third-party AI/ML applications (by count of respondents)

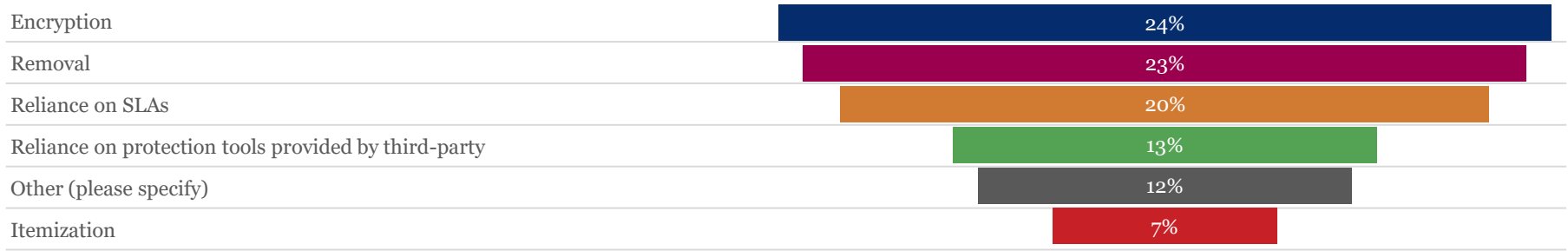


If additional preventative measures are taken, which of the following techniques are used to protect personally identifiable information (PII) when utilizing third-party AI/ML models?

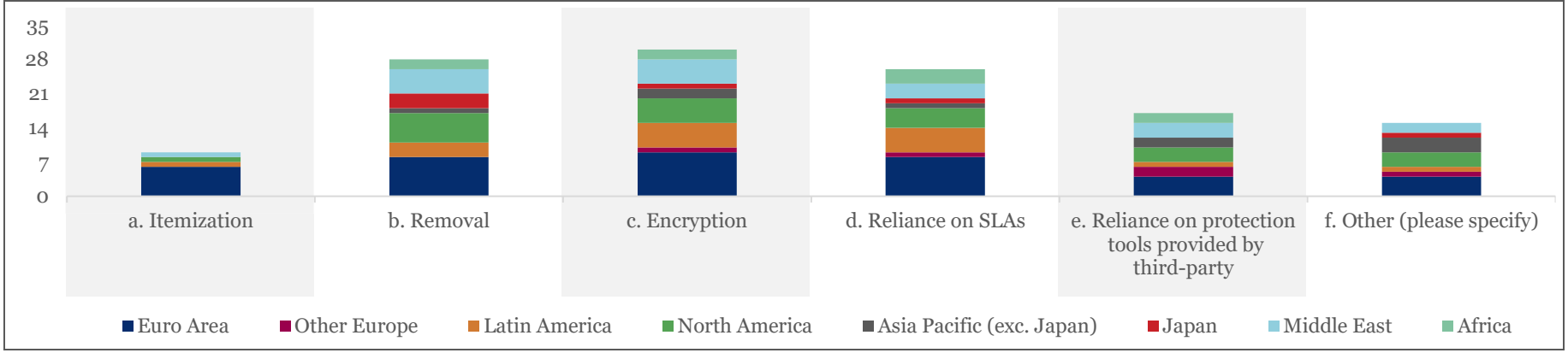
The top three techniques used to protect PII when utilizing third-party AI/ML models is encryption (24%), removal (23%), and reliance of Service Level Agreements (SLAs) (20%).

These top three techniques align with the top three techniques for the regions surveyed. Additionally, an Asian Pacific International Bank stated that their "third-party models will typically be run on premise with us managing the data pipelines."

Additional techniques for PII protection in third-party AI/ML models (by percentage of respondents)



Additional techniques for PII protection in third-party AI/ML models, by region type (by count of respondents)



Section

VI

Regulatory and Supervisory Engagement

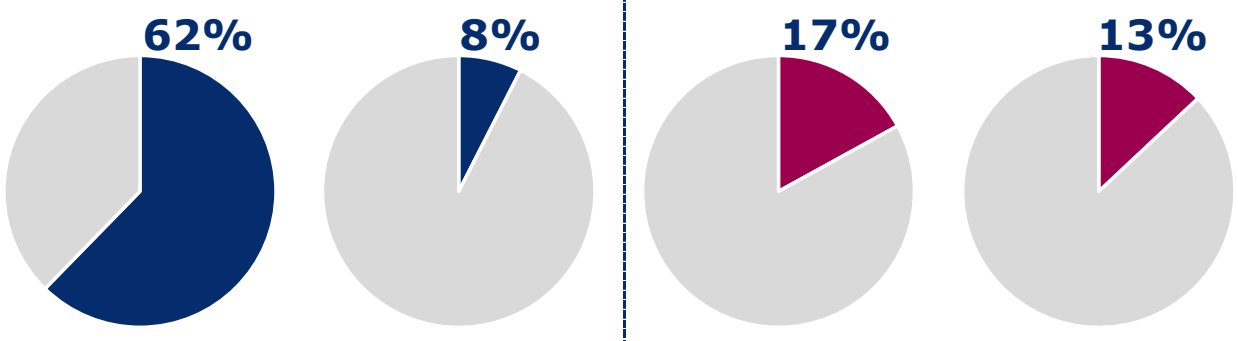
As AI/ML continues to expand, the public and private sectors are spending more time thinking about the technology, the different types of AI (Predictive AI, ML, GenAI, etc.), and the best way to align various approaches with policy and development objectives. While most regions and institutions are actively promoting the engagement between the public and private sectors to better advance their thinking, some jurisdictions are pursuing different paths. This year's responses regarding regulatory and supervisory engagement are consistent with those from the 2023 Report.

Have you engaged regulators/supervisors in the application of AI/ML techniques?

Eighty-seven percent of all respondents surveyed have either engaged financial and nonfinancial regulators/supervisors in their application of AI/ML techniques or plan to within the next 12 months.

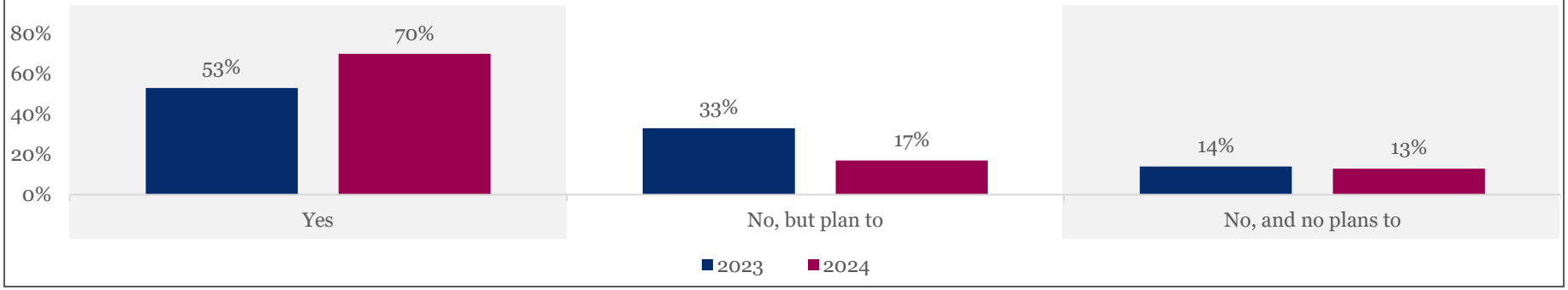
Though this number is similar to the results from 2023 if we group the responses of those who have already engaged with authorities and those who plan to do so, a difference emerges if we look only at the institutions that already engaged the authorities, in 2023 only 53% of the financial institutions had already engaged with authorities, whereas in 2024 this number grew to 70%. Demonstrating the material attention authorities are paying to policy approaches to AI.

70% of respondents actively engage with regulators/supervisors

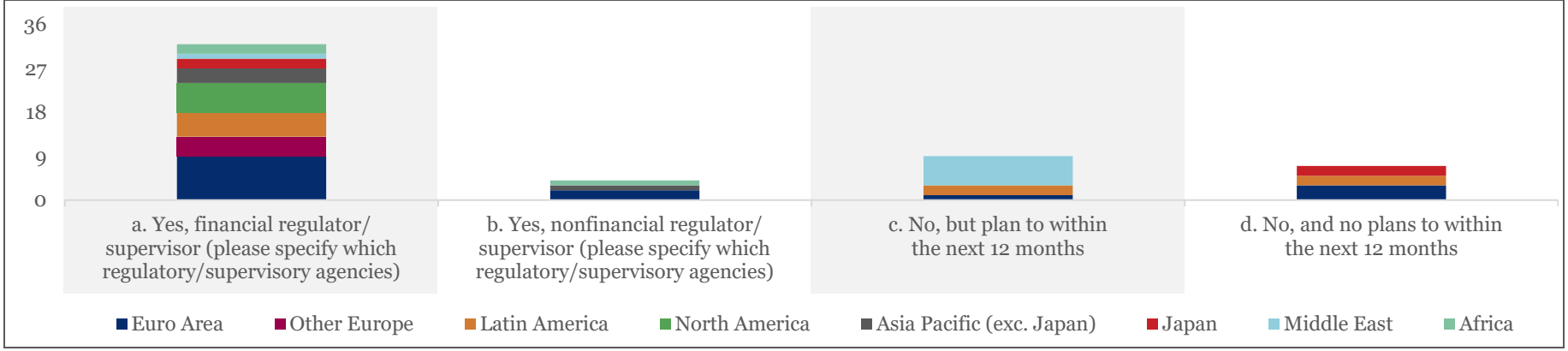


Regionally, the respondents from North America, Other Europe, Africa, and Asia Pacific are all engaging financial and nonfinancial regulators/supervisors in their AI/ML applications. Furthermore, all respondents from North America and Other Europe pointed out that their engagement has been with financial authorities. In the Middle East, all institutions but one said they haven't engaged with authorities on the use of AI/ML, but they expect to do so in the following 12 months.

Have you engaged regulators/supervisors in the application of AI/ML techniques?



Engagement with Regulators (by count of respondents)



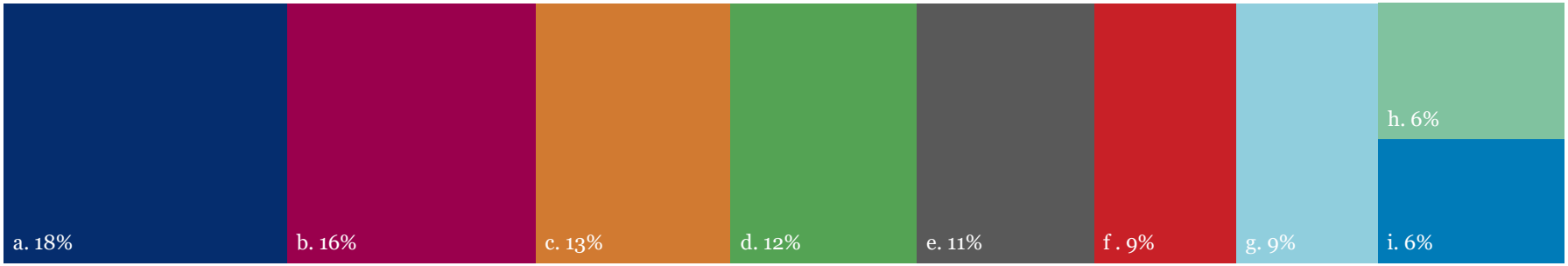
If yes, what are the common/key issues raised during the engagement on AI/ML models by your regulator/supervisor?

The responses spread across all the areas as expected. The four most common issues raised during engagement with regulators and supervisors are explainability/"black box" nature of some algorithms (18%), transparency (16%), bias and ethical issues related to the use of AI/ML (13%), and complexity (12%). These four common issues align with the regions and institutions surveyed. Additionally, a North American G-SIB reported "inventory management" as "Other issues". Other issues reported include "data privacy," "data quality validation," and issues related to controls and governance.

When compared to the responses received in 2023 to this same question, though the top response continues to be explainability and the "black box" nature of some algorithms, the second most selected option changed, from bias and ethical issues in 2023 to transparency in 2024.

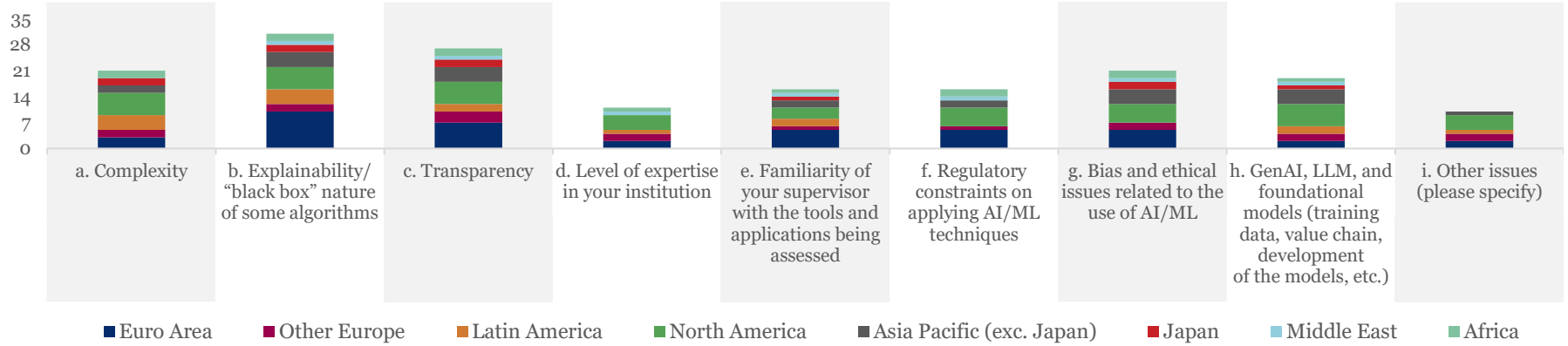
Comparing banks and non-banks, banks were aligned to the same four common issues across all respondents. Non-banks were more scattered in their responses with a mix of all issues being raised by regulators/supervisors during engagement on AI/ML models.

Key issues raised during engagement with regulators/supervisors on AI/ML models (by percentage of respondents)



a. Explainability/"black box" nature of some algorithms
b. Transparency
c. Bias and ethical issues related to the use of AI/ML
d. Complexity
e. GenAI, LLM, and foundational models (training data, value chain, development of the models, etc.
f. Familiarity of your supervisor with the tools and applications being assessed
g. Regulatory constraints on applying AI/ML techniques
h. Level of expertise in your institution
i. Other issues (please specify)

Key issues raised during engagement with regulators/supervisors on AI/ML models, by region type (by count of respondents)

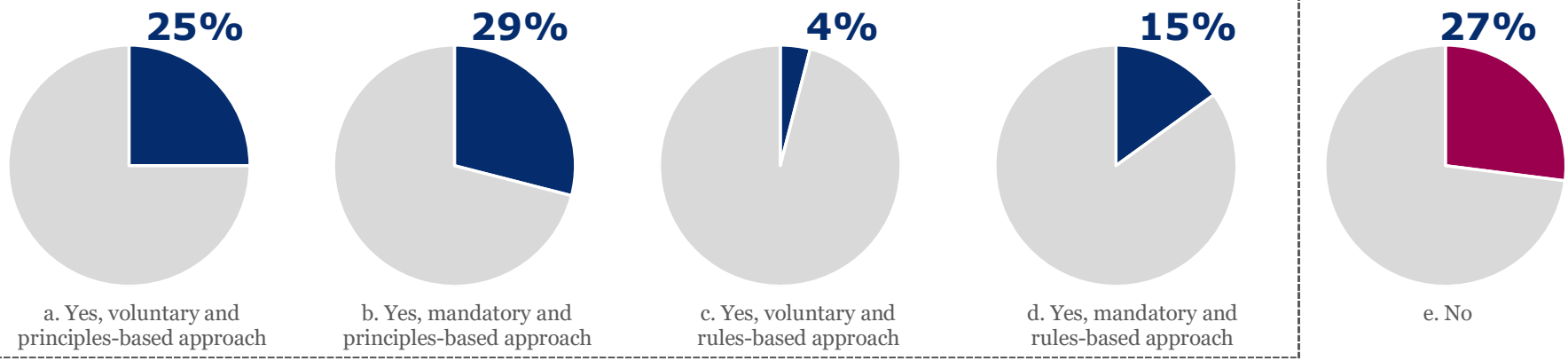


Are there any regulatory developments in your institution's home jurisdiction that could impact your adoption of AI/ML?

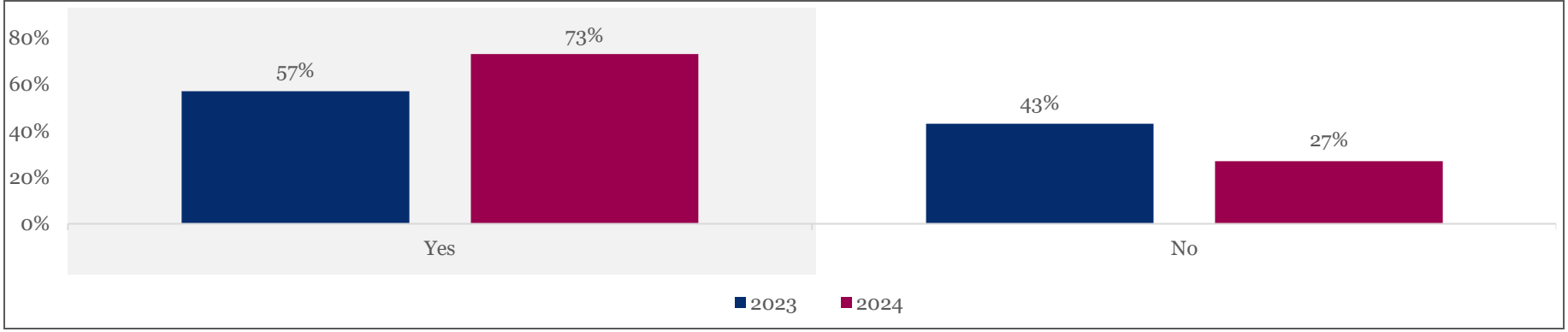
This year's responses show that 73% of institutions surveyed have regulatory developments that could have an impact on their AI adoption, reflecting evident increased attention from policymakers on AI. This is a steep increase in comparison to 2023, where about 57% of the institutions surveyed saw regulatory developments in their home jurisdiction that could impact their AI/ML adoption. However, the majority of these policy developments (54%) fall under a principles-based approach (whether mandatory or voluntary), and only 19% of the respondents are in a jurisdiction with a mandatory and rules-based approach, showing that principles-based approaches are the leading approach by authorities in this space. In detail, 29% of those respondents have a mandatory and principles-based approach, 25% of those respondents have a voluntary and principles-based approach, 15% of those respondents have a mandatory and rules-based approach, and 4% of those respondents have a voluntary and rules-based approach.

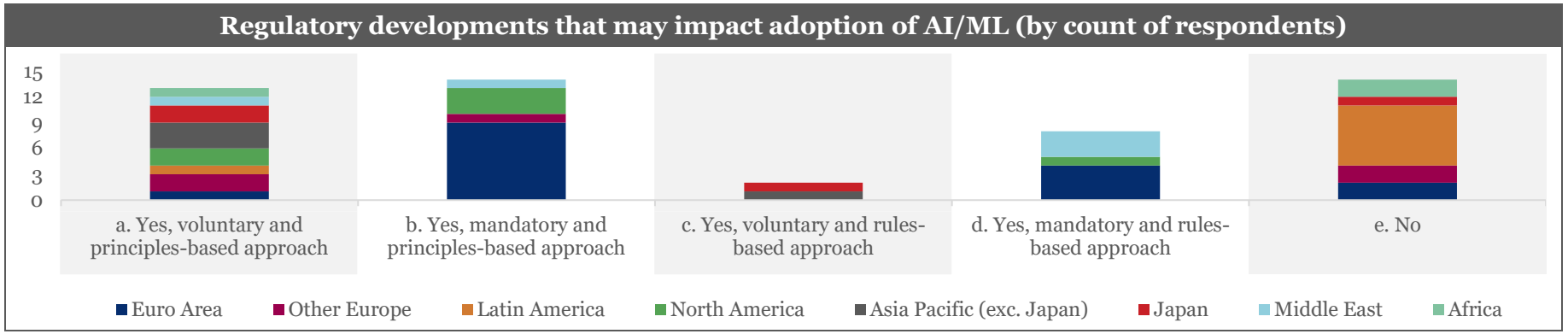
Regionally, most respondents from LAC and Africa indicated that there were no regulatory developments in their institution's home jurisdiction affecting AI/ML adoption. However, it is worth mentioning that countries in these and other regions are studying various approaches to govern AI, many of which are not based on creating regulation, but rather on promoting investments, data gathering efforts, and more. One institution noted that their 'local regulator is currently working on defining principles and potential future legislation regarding the use of AI.' These findings are consistent with the 2023 results for the region.

73% of institutions indicated there are regulatory developments that could impact the adoption of AI/ML



Are there any regulatory developments in your institution's home jurisdiction that could impact your adoption of AI/ML?

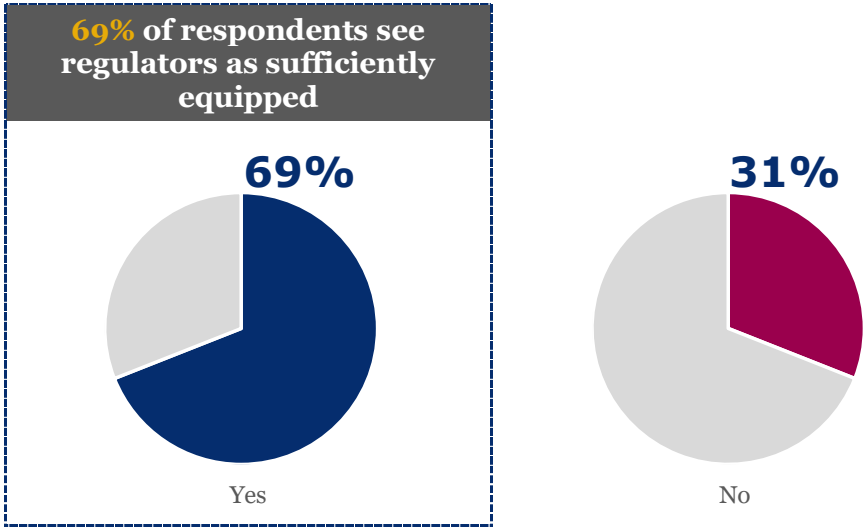




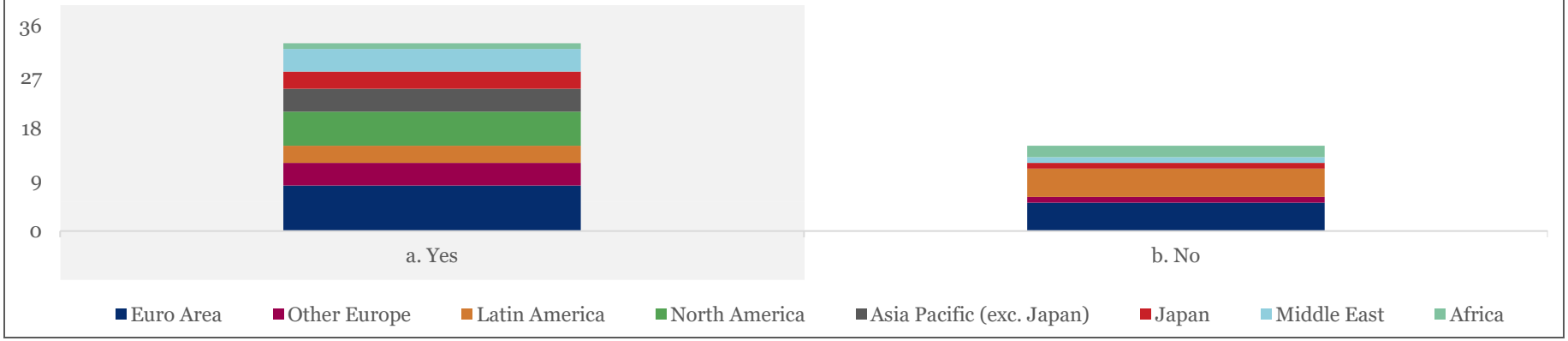
Does your institution see your regulator/supervisor as sufficiently equipped to understand and direct the path forward on AI/ML?

Sixty-nine percent of all respondents said their institution sees their regulator/supervisor as sufficiently equipped to understand and direct the path forward on AI/ML. The 2023 results were different with only 57% of respondents believing their regulators were sufficiently equipped to understand and direct the path forward on AI/ML. This indicates regulators are actively learning about this technology and the use cases the industry has been deploying for years, and a corresponding increase in trust and confidence with regulators/supervisors as AI/ML continues to grow and develop, the increased engagement between the public and private sectors to discuss approaches to AI could explain this change, at least partially.

In terms of regions, North America and Asia Pacific (excl. Japan) are fully aligned that their regulators/supervisors are sufficiently equipped to direct the path forward on AI/ML. While Africa and Latin America are leaning the opposite way — believing their regulators/supervisors are not equipped to understand and direct the path forward on AI/ML for their institutions. The Euro Area had a mix of both responses, but ultimately swayed toward feeling that their regulators/supervisors are sufficiently equipped to direct the path forward on AI/ML.



Does your institution see your regulator/supervisor as sufficiently equipped to understand and direct the path forward on AI/ML? (By Region Type, by count of respondents)



Section

VII

Generative AI (GenAI) / Large Language Models (LLMs)

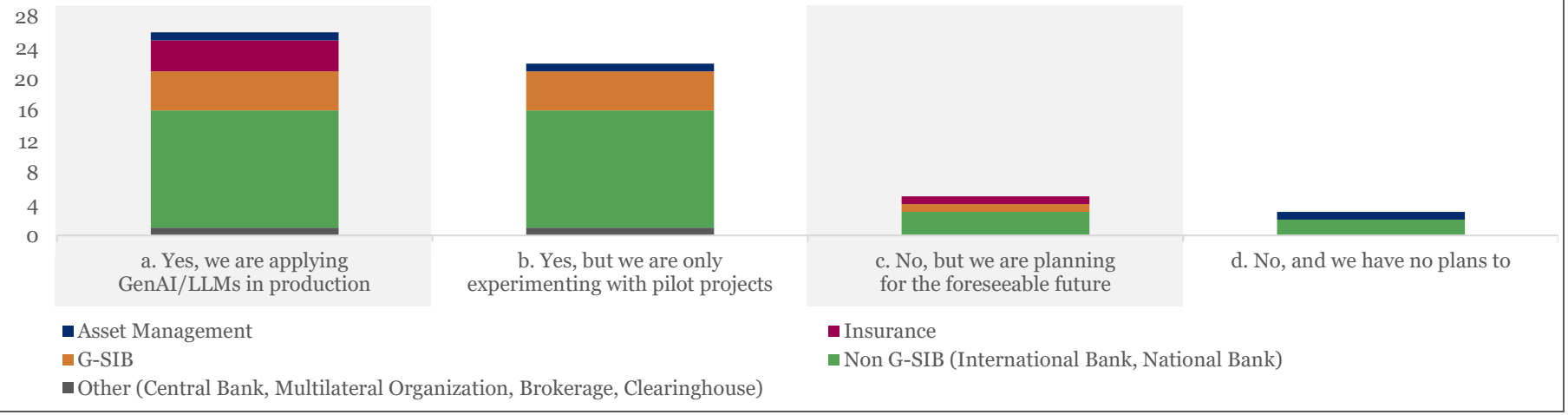
As financial institutions seek innovative ways to enhance operational efficiency, GenAI/LLM adoption continues to increase across the industry. Last year, the 2023 survey report indicated that 69% of institutions expected a significant to moderate increase in GenAI techniques, and this takeaway has held true. In 2024, 89% of survey respondents indicated that they are applying GenAI/LLM techniques in production or pilot projects. Notably, the percentage of institutions banning GenAI/LLM usage dropped 11% in 2023 to only 1% in 2024. The financial services sector is increasingly adopting GenAI, leveraging its advanced capabilities to generate value for the industry and its customers.

Does your organization apply GenAI/LLM techniques in either production or pilot projects?

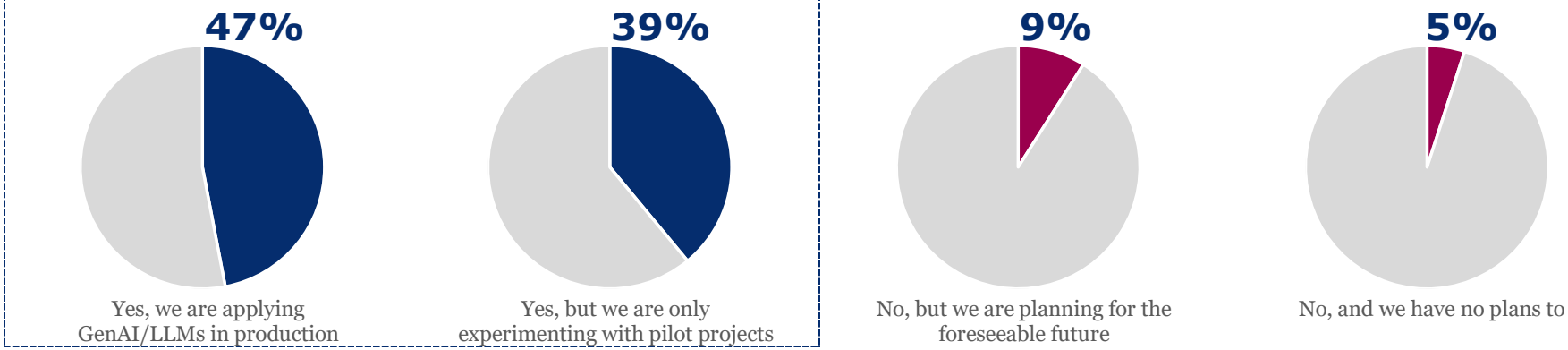
The majority of respondents from all regions and institutions are currently utilizing GenAI/LLM in production or pilot projects. International Banks also reported strong adoption of GenAI/LLM, with 48% of respondents indicating its use in production and 39% in pilot projects.

From a regional perspective, the region with the greatest proportion of financial institutions already using GenAI in production is Japan, while the region with the largest proportion of institutions piloting GenAI is North America.

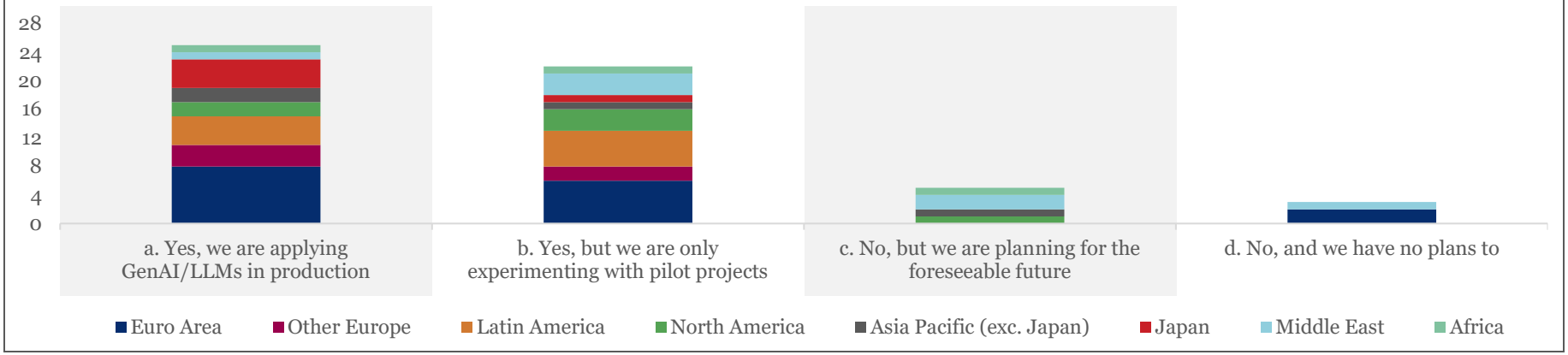
Application of GenAI/LLM techniques in production or pilot projects (by count of respondents)



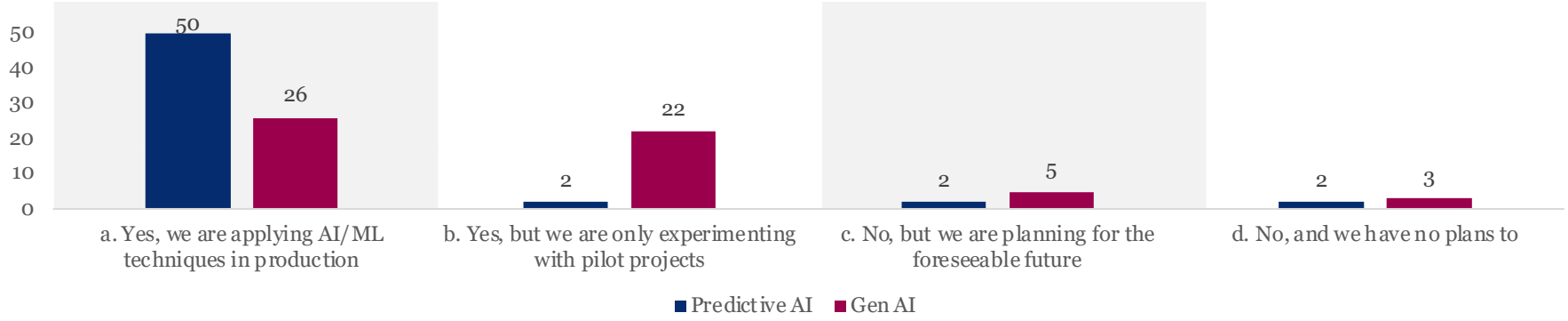
86% of respondents are applying GenAI/LLM techniques



Application of GenAI/LLM techniques in production or pilot projects, by region type (by count of respondents)



Does your organization apply AI techniques in either production or pilot projects? Predictive AI vs GenAI (by count of respondents)



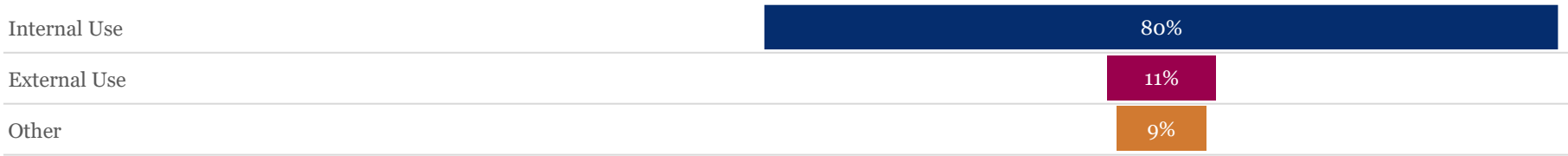
Where do you see GenAI/LLMs currently being used in your institution?

Eighty percent of the institutions surveyed are currently using or piloting GenAI for internal (non-customer facing) uses. Overall, more than half of the firms surveyed (54%) are currently using GenAI/LLMs predominantly for optimizing employee access and use of internal knowledge, followed by automating processes, systems, and operations (26%).

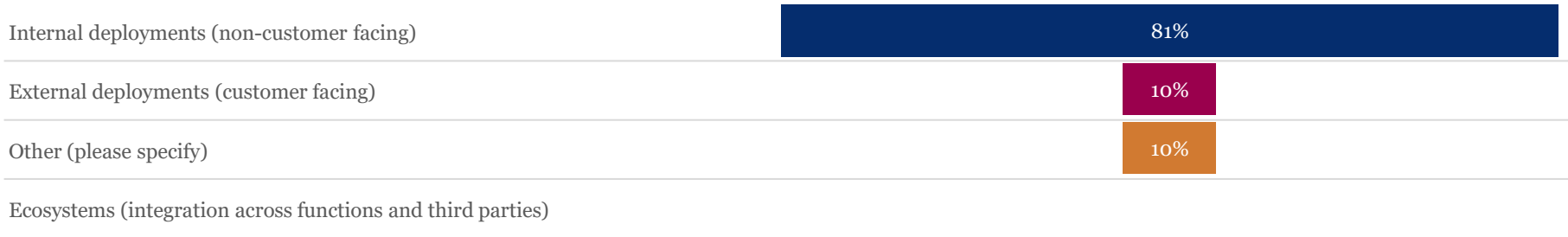
Usage of GenAI/LLM varies among respondents by institution type and region. For example, International and National banks are the only institutions that report using GenAI/LLM for customer-facing interfaces. Some of those institution types also use GenAI/LLM for external sales, marketing, and customer outreach. In contrast, surveyed G-SIBs are currently focusing on the internal application of GenAI/LLM practices and do not report external usage.

In 2023, 81% of institutions indicated that they see GenAI most likely to be used for internal use cases over the course of the next 12 months. Bringing us to today, this held true for the majority of institutions (63%), who currently have deployed GenAI/LLMs for internal use cases. With regards to external use cases, the percentage of institutions currently deploying Gen AI technology is 31% according to the 2024 survey results, greater than the 10% of institutions who had anticipated external use cases in 2023.

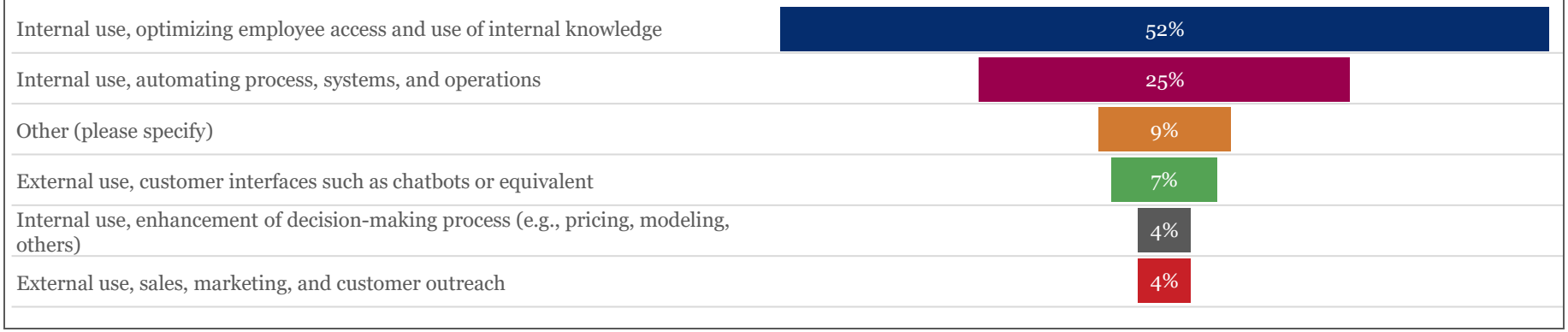
GenAI/LLM usage within institutions (by percentage of respondents)



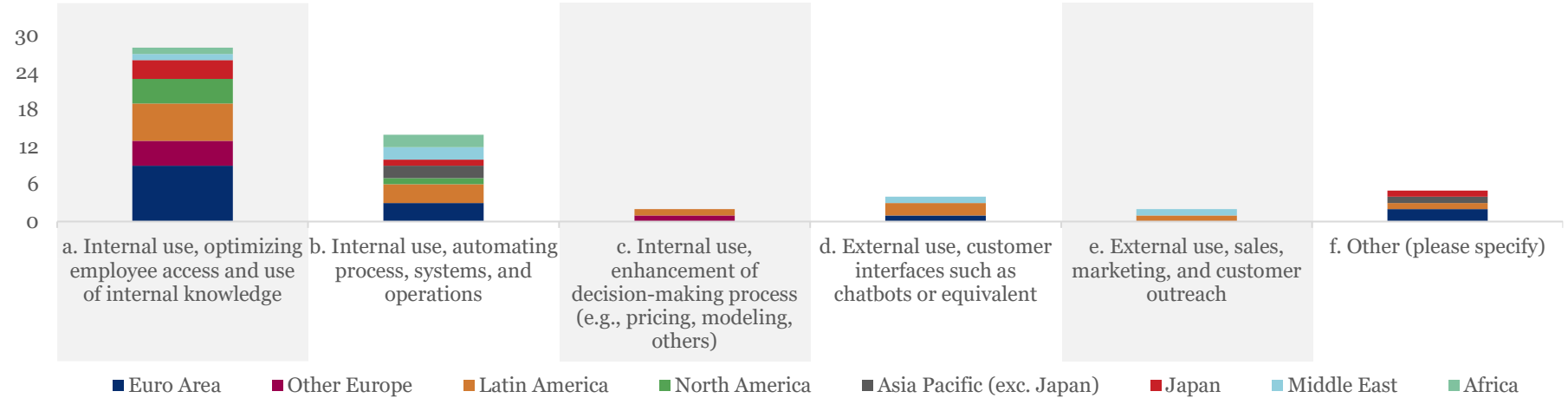
Institutional view on GenAI growth in the next 12 months from 2023 survey (by percentage of respondents)



Institutional view on GenAI currently in use from 2024 survey (by percentage of respondents)



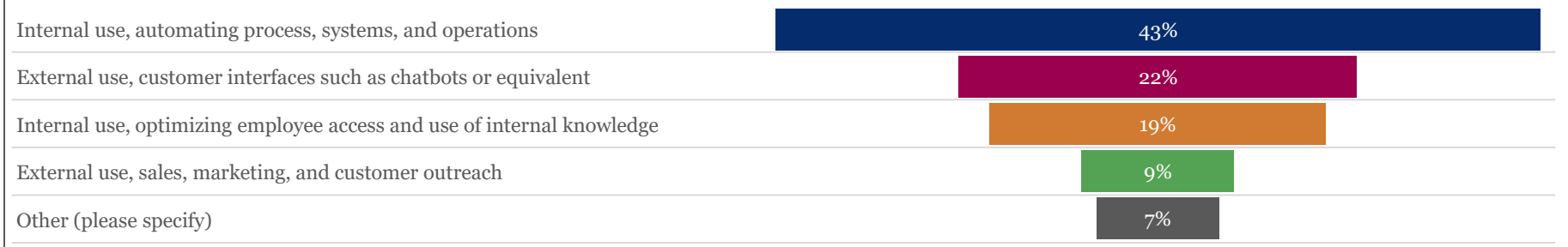
Institutional view on current use of GenAI/LLMs from 2024 survey, by region type (by count of respondents)



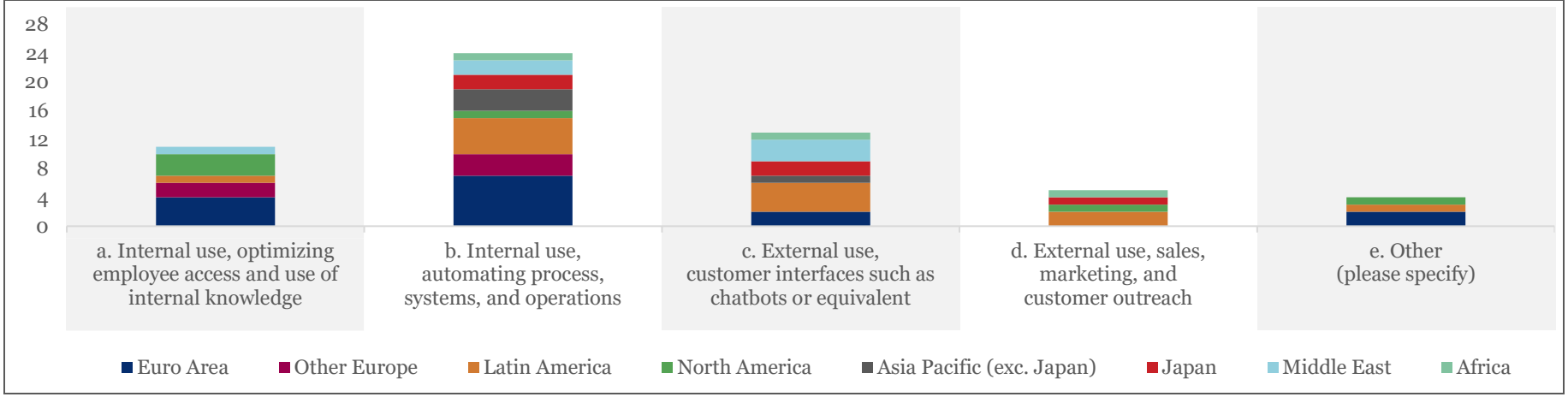
Where do you see GenAI/LLMs most likely to be used in your institution in the near future?

Among all respondents surveyed, 43% believe that over the next 12–18 months, GenAI/LLMs will continue to be most commonly used for internal processes, but for process automation and systems operations rather than the current focus on optimizing employee access and use of personal knowledge. Additionally, external usage, particularly for customer interfaces, is expected to grow during this period. If FIs continue to be as precise with their predictions as they were last in last year's survey, 2025 could be the year where external use cases of GenAI reach about 30% of the total inventory of GenAI use cases in finance. Notably, all respondents from "Other Europe" expect GenAI to increase only for internal uses in the next 12–18 months.

Institutional view on GenAI growth in the next 12 to 18 months (by percentage of respondents)



Institutional view on GenAI growth in the next 12 to 18 months, by region type (by count of respondents)

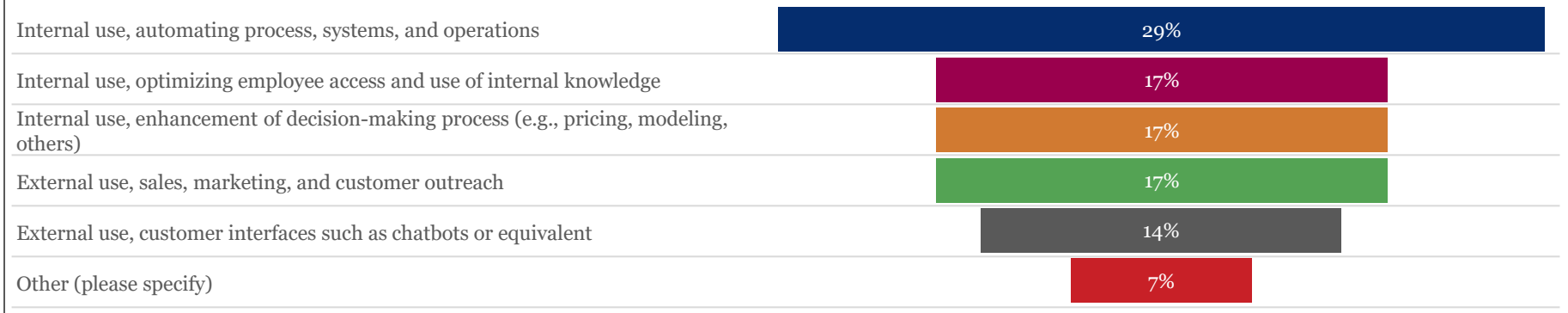


If free from concerns about third party model oversight, where could GenAI /LLM generate the greatest value in your institution?

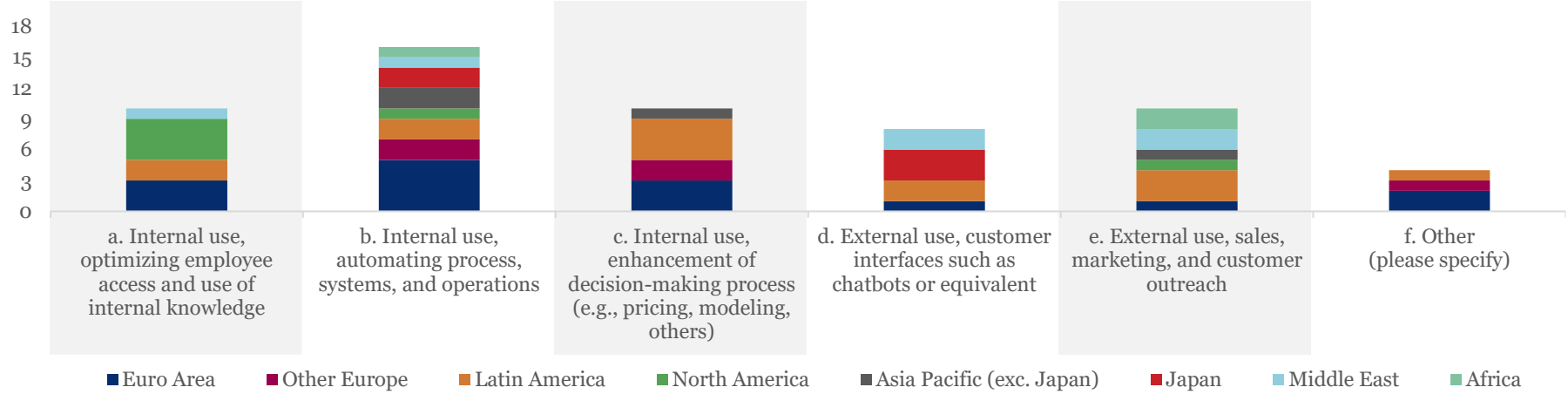
Given the option for third-party model free from concerns, institutions identified internal uses that allow automating processes, systems, and operations as the top value-generating use case for their organization. Interestingly, out of the following three top responses selected, only one of them is focused on external use cases — sales, marketing, and customer outreach, which seems to indicate that institutions are finding value in internal use cases that have been traditionally linked to efficiency and productivity gains.

Regional differences were marked in the responses received to this question. Many jurisdictions have half or more of its institutions agree on a use case that would generate the greatest value if free from concerns about third-party model oversight, and each is different for North America, Japan, and Africa: (1) Most respondents from North America chose internal use cases like optimizing employee access and use of internal knowledge as the top response; (2) most institutions headquartered in Japan see external use cases such as customer interfaces (i.e., chatbots and equivalents) as the top response; and (3) half of the responses from Africa agreed on external use cases such as sales, marketing, and customer outreach, to be the GenAI use case that could generate the greatest value if free from concerns about third party model oversight.

Where institutions see the greatest value from GenAI/LLM without concerns about third party model oversight (by percentage of respondents)



Where institutions see the greatest value from GenAI/LLM without concerns about third party model oversight, by region type (by count of respondents)

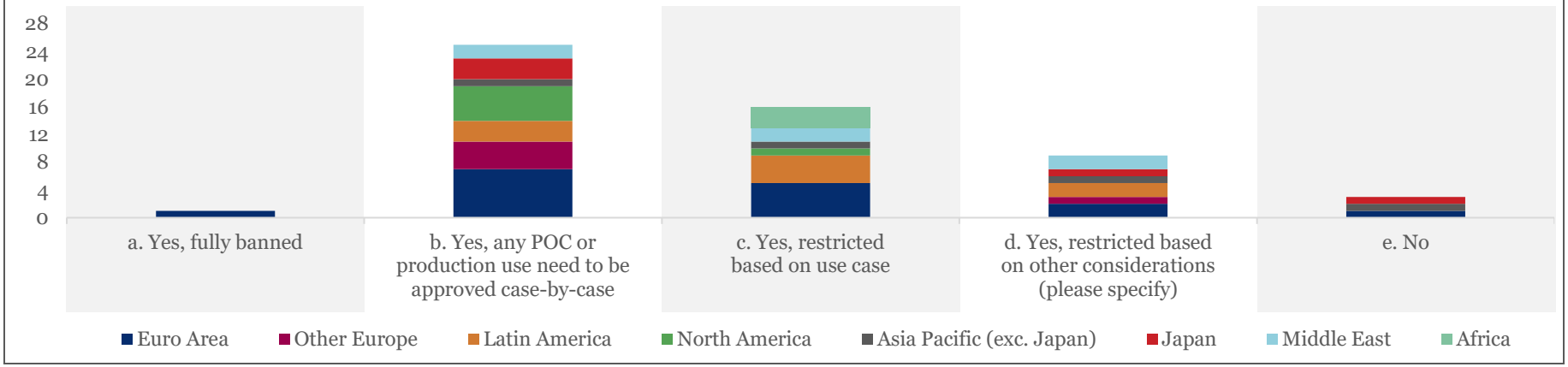


Does your institution restrict the use of GenAI/LLMs?

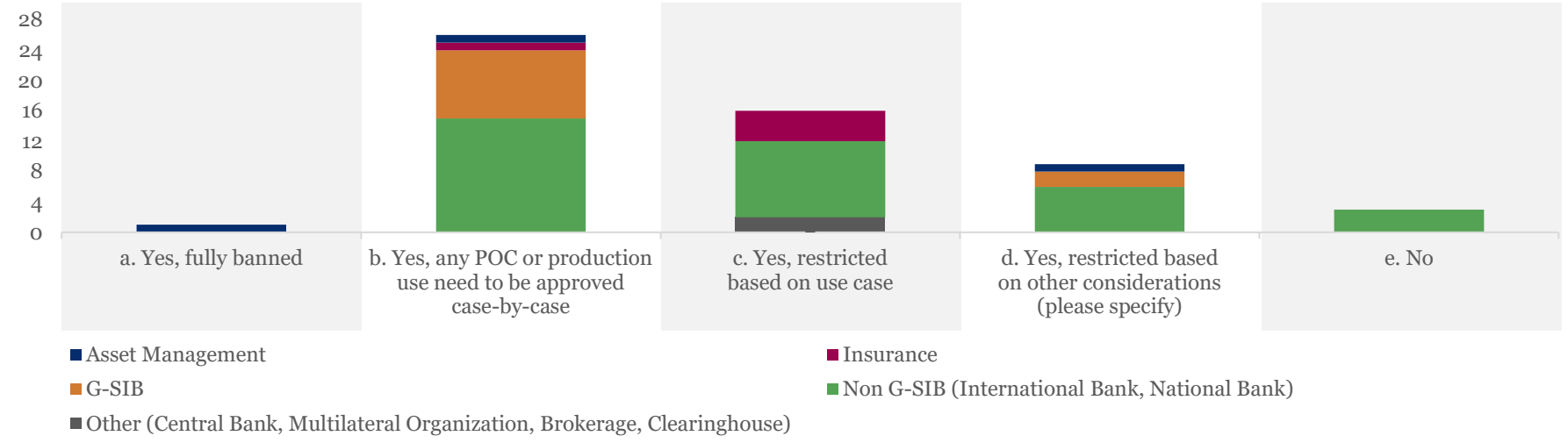
When compared with 2023, two points stand out. On the one hand, institutions that fully ban the use of GenAI/LLMs went down from 11% in 2023 to 2% in 2024, and the institutions that had no restrictions on the use of this technology also decreased dramatically, from 23% in 2023 to 5% in this year's survey.

This shows that, instead of positioning themselves in one extreme or the other, financial institutions have decided to move toward restricting the use of GenAI/LLMs based on case-by-case or based on use cases, which accounts for 76% of the 2024 sample. Case-by-case approval is most common among G-SIBs and Central Banks. In geographical terms, North America and Latin America lead with the highest number of institutions requiring case-by-case approval for GenAI/LLM use. Other considerations for restriction include relevant legislation (such as the EU Artificial Intelligence Act), compliance with internal institutional standards, or restrictions based upon preapproved models.

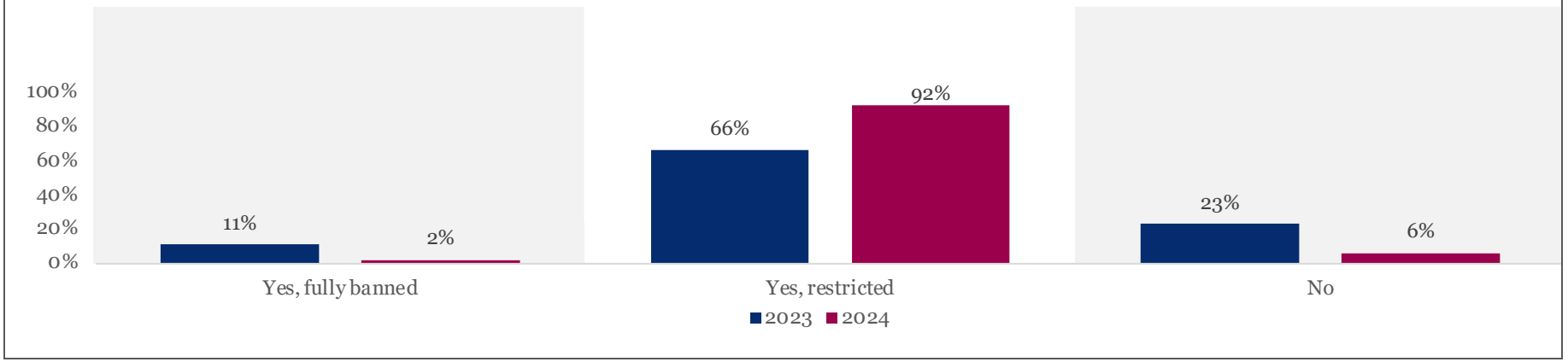
Restriction of GenAI/LLMs, by region type (by count of respondents)

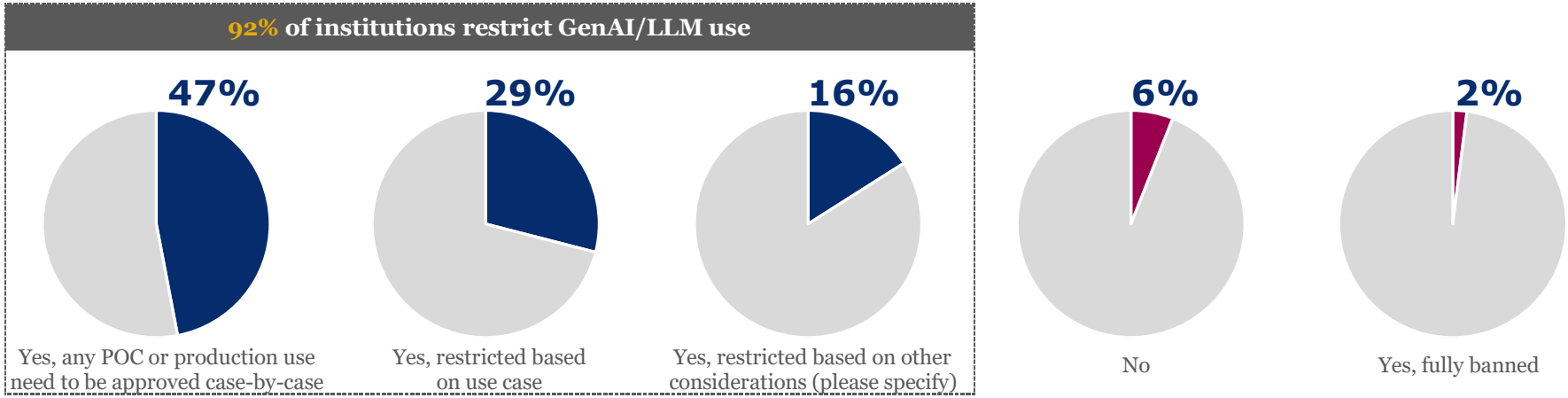


Restriction of GenAI/LLMs, by institution type (by count of respondents)



Does your institution restrict the use of GenAI/LLMs?

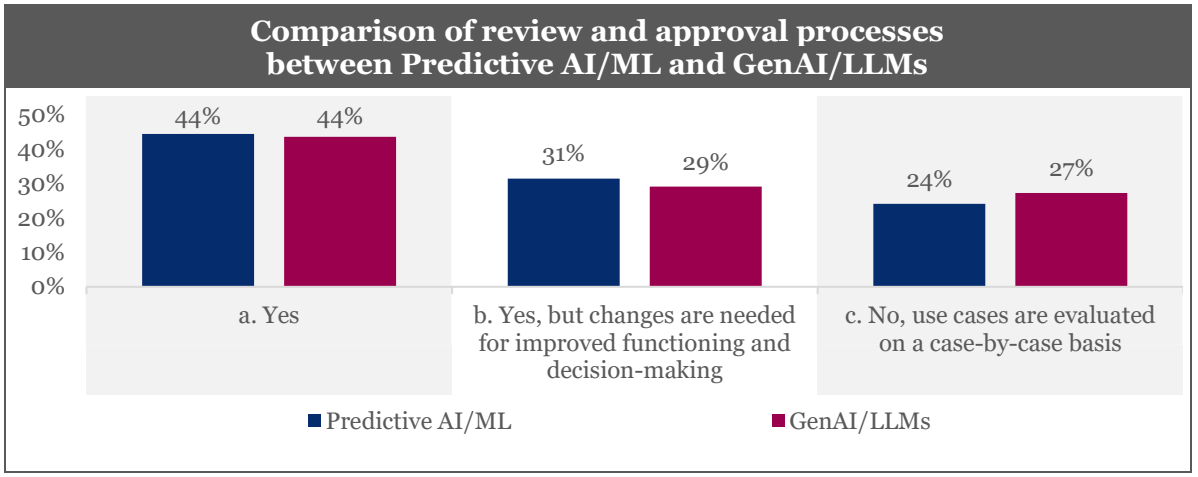




Does your organization have a process for review and approval of proposed GenAI/LLM use cases?

Comparatively speaking, the responses provided for the same question for Predictive AI vs. GenAI are consistent. This data shows that financial institutions are working in parallel to appropriately govern these two different sets of technology looking to deploy it in a responsible manner and leveraging the common areas they have and the knowledge they have gained from governing Predictive AI over the years.

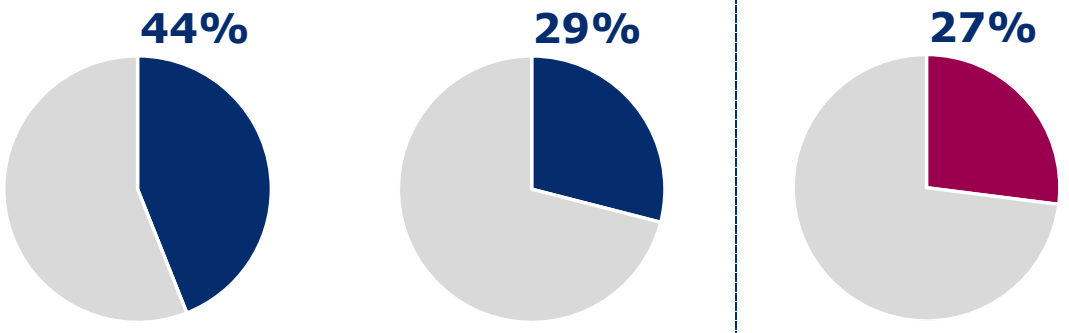
In comparison to an earlier survey question on review and approval of Predictive AI/ML use cases, institutions responded very similarly with the processes they have in place for GenAI. The responses suggest that while most institutions have a review process (75% and 73% accordingly), there is a recognized need for future enhancements to implement proposed GenAI/LLM use cases.



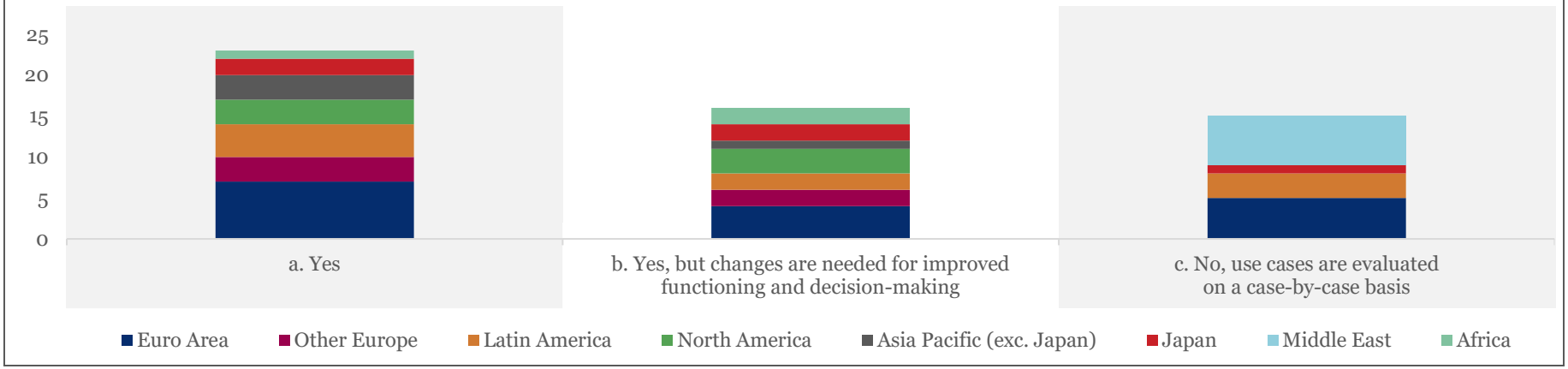
All respondents from Other Europe, North America, and Asia Pacific (excl. Japan) currently reported they have a review process for GenAI/LLM use cases, while all the respondents from the Middle East expressed they rely on case-by-case evaluation.

Among organization types, Insurance leads with 100% having a review process, and Other Institutions (Central Bank, Multilateral Organization, Brokerage, Clearinghouse) have the highest percentage evaluating on a case-by-case basis at 50%. An Asian International Bank stated that while they have review and approval processes for both Predictive AI/ML and GenAI/LLMs, the process for GenAI/LLMs is more stringent.

73% of institutions have a review and approval process for proposed GenAI/LLM use cases



Review and approval processes for GenAI/LLM use cases, by region type (by count of respondents)

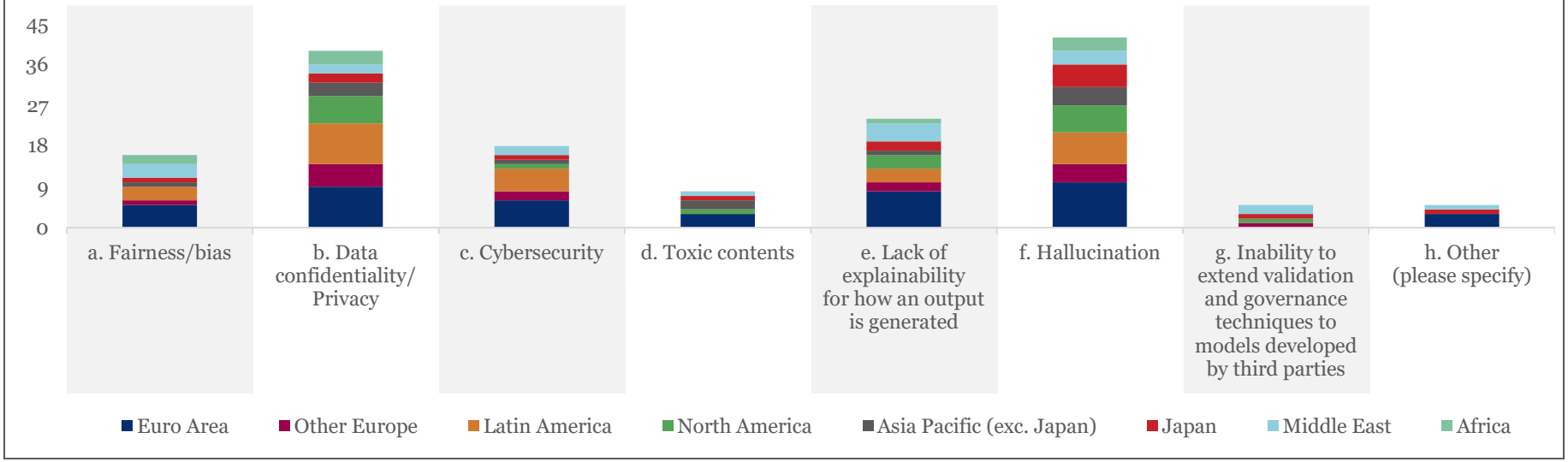


What are the top 3 risks/concerns in using GenAI/LLM applications?

Among all respondents, hallucination emerged as the top concern, with 43% survey participants reporting it. Data confidentiality/privacy is the second most cited issue, with 40% considering it a top concern. Lack of explainability and cybersecurity also raise concerns, with 46% and 33% of institutions reporting them, respectively. The inability to extend validation and governance techniques to third-party models was identified as the least concerning area of risk among survey participants.

In comparison to the 2023 survey, data confidentiality/privacy proved to be overwhelmingly the top concern by institutions. This year, institutions are more equally concerned with data confidentiality/privacy and hallucination.

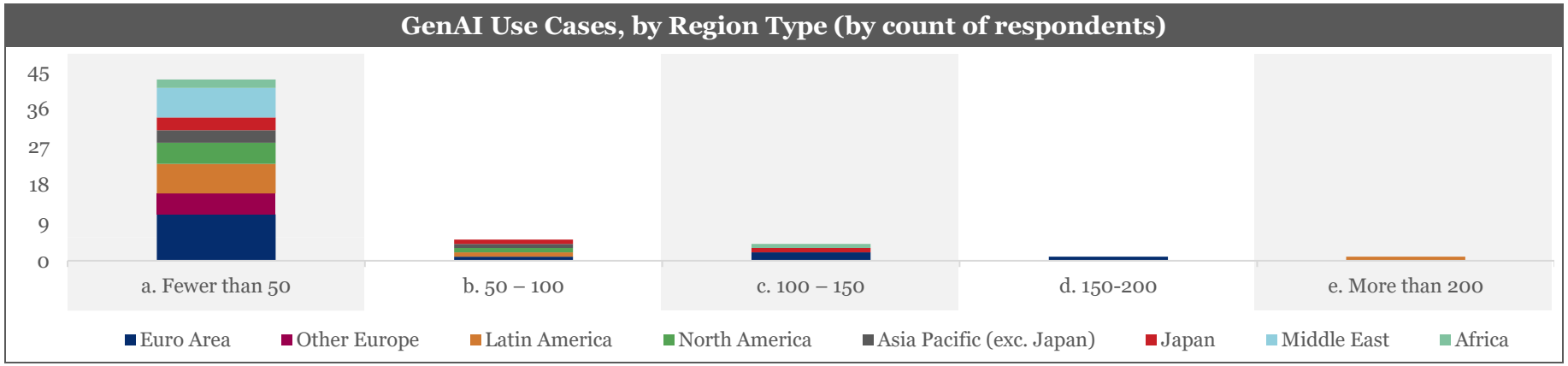
Top 3 risks/concerns in using GenAI/LLM applications, by region type (by count of respondents)



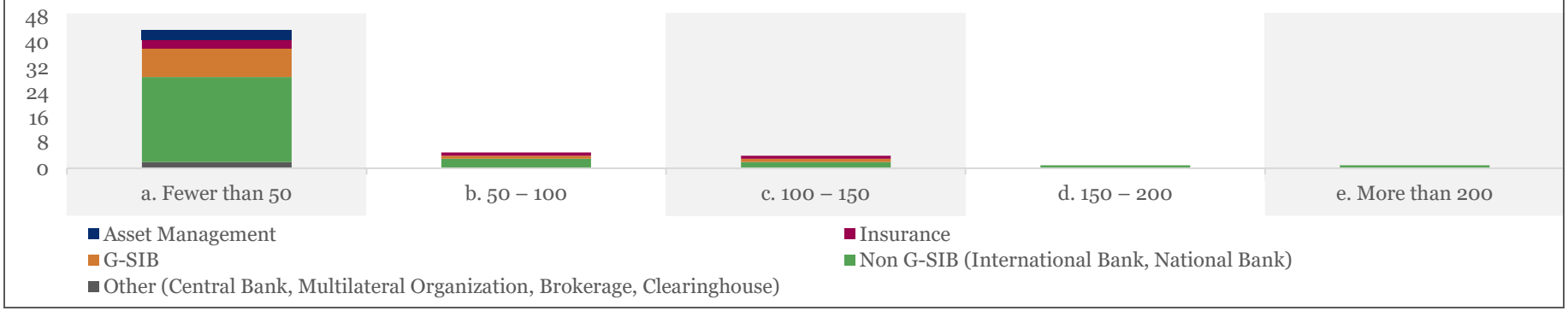
What are the top 3 risks/concerns in using GenAI/LLM applications? Select top 3 options, 1 being the highest	Ranking		
	1	2	3
a. Fairness/bias	7	6	3
b. Data confidentiality/Privacy	19	13	8
c. Cybersecurity	5	7	6
d. Toxic contents	1	2	5
e. Lack of explainability for how an output is generated	3	11	11
f. Hallucination	18	12	13
g. Inability to extend validation and governance techniques to models developed by third parties	0	2	3
h. Other (please specify)	2	0	3

How many GenAI/LLM use cases (production or POC) are there in your current inventory?

Only two respondents have greater than 150 GenAI/LLM use cases in their current inventories; an International Bank from Latin America was the only survey participant reporting an inventory of 200 or greater GenAI/LLM use cases, while an International Bank from the Euro Area was the only participant to report 150–200 cases. Additionally, all institutions from Other Europe and the Middle East reported having fewer than 50 GenAI use cases.



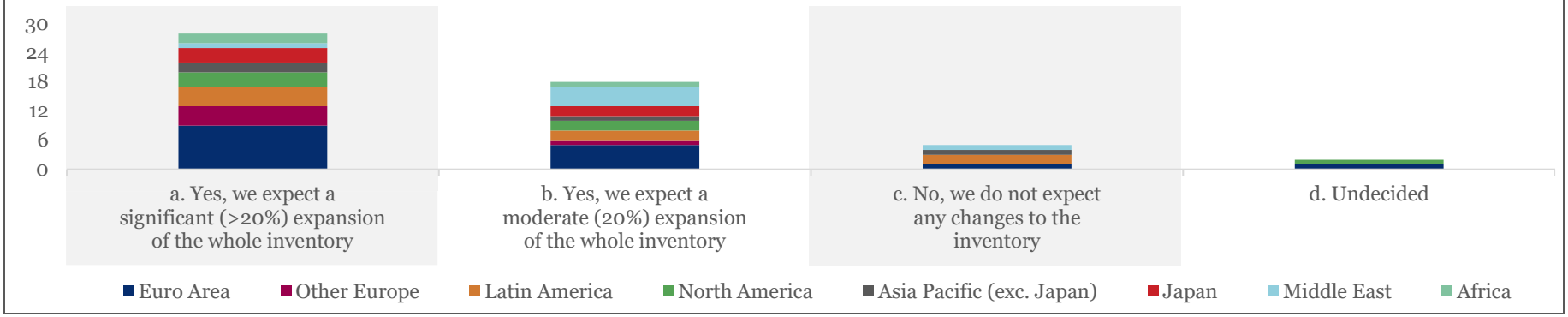
GenAI use cases, by institution type (by count of respondents)



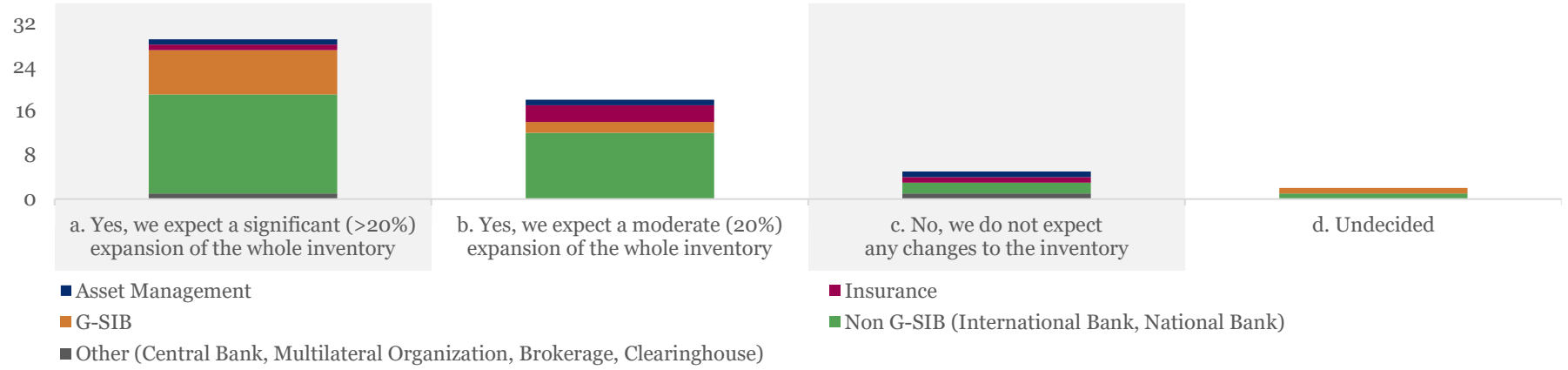
Do you expect your inventory (production or POC) to grow due to an increase in GenAI models in the next 12 months?

Eighty-seven percent of respondents anticipate an increase in their inventory of GenAI/LLM models in the next 12 months. A minority of institutions, predominantly located in Latin America, expect no changes to their inventory. Most G-SIBs expect a significant expansion of their GenAI model inventory. Only two participants, one G-SIB and one National Bank, are undecided in the direction of their inventory during this time. Consequently, the data suggests a clear intention among most institutions to implement GenAI/LLM use cases.

GenAI model inventory expected increase in the next 12 months, by region type (by count of respondents)



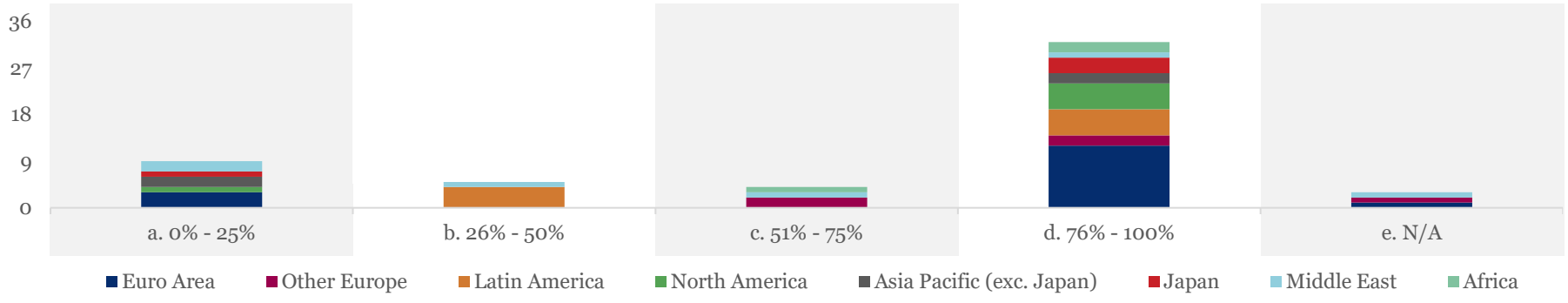
GenAI model inventory expected increase in the next 12 months, by institution type (by count of respondents)



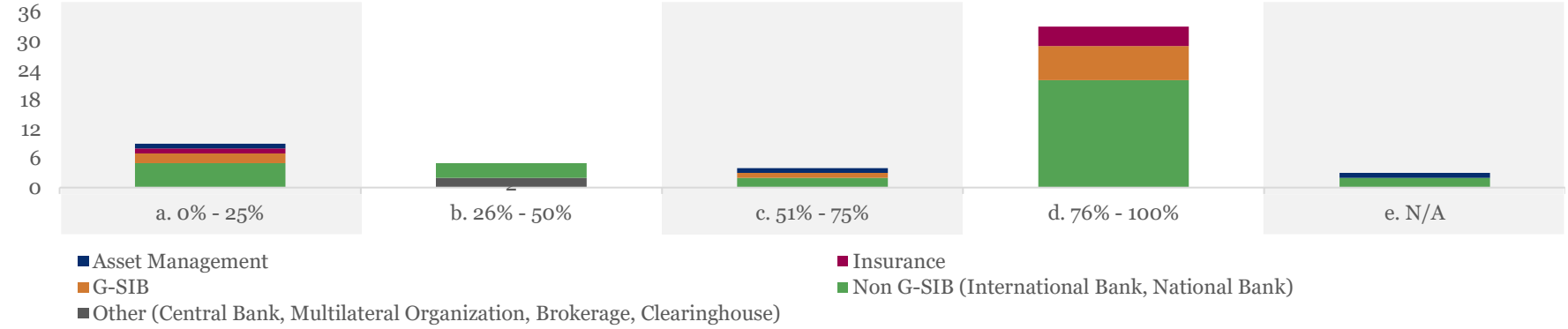
Approximately what percentage of your organization's GenAI/LLM use cases (production or POC) are based primarily on third-party models or technology?

Sixty-one percent of all organizations have reported 76%–100% of their GenAI/LLM use cases are based on third-party models or tech, with 17% of those organizations reporting a range of 0%–25%.

Percentage of GenAI/LLM use cases based primarily on third-party models or technology, by region type (by count of respondents)



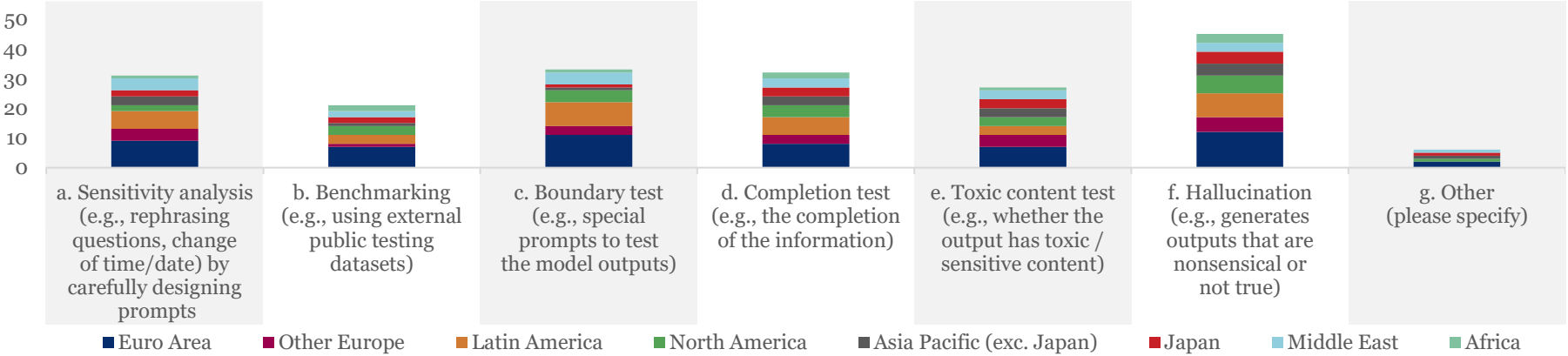
Percentage of GenAI/LLM use cases based primarily on third-party models or technology, by institution type (by count of respondents)



Which are the key tests for validating GenAI/LLM models that you expect from model developers/users?

Among a wide range of tests, hallucination tests (23%), completion tests (17%), and boundary tests (17%) are the most common that the survey participants expect the model developers/users to perform, followed by sensitivity testing, toxic content testing, and benchmarking in descending order. Other Europe and Africa were the only regions to have key tests for validating GenAI that were not measured by the survey.

Key tests for validating GenAI/LLM models, by region type (by count of respondents)

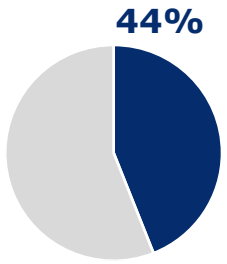


Does your organization use a process or approach to govern GenAI/LLM use cases that is different from the process or approach used to govern Predictive AI use cases?

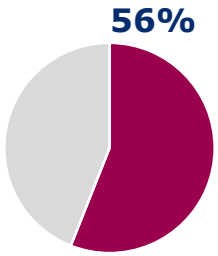
The data suggests a nuanced view of governance practices across organizations: a majority adhere to a uniform governance approach for Predictive AI and GenAI/LLM, yet a considerable number of organizations recognize the need for distinct governance methods, reflecting the diverse approaches in the field.

The differences by region are considerable. All the financial institutions surveyed and headquartered in the Middle East, and almost all of the respondents in the Euro Area and Africa use the same governance approach for predictive AI and for GenAI. But all the institutions from Other Europe, and most of the firms from North America and Latin America use different approaches to govern Predictive AI and GenAI.

44% use a different approach for GenAI/ LLM than Predictive AI

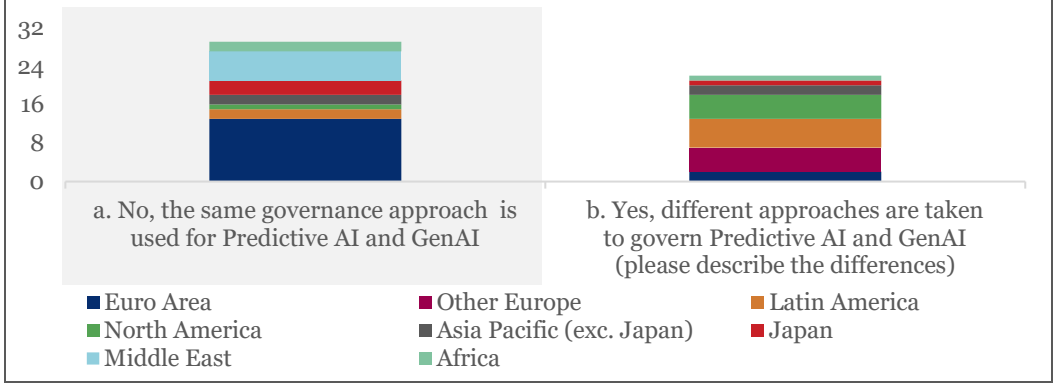


Yes, different approaches are taken to govern Predictive AI and GenAI (please describe the differences)



No, the same governance approach is used for Predictive AI and GenAI

GenAI/LLM vs. Predictive AI governance processes, by region type (by count of respondents)



Section

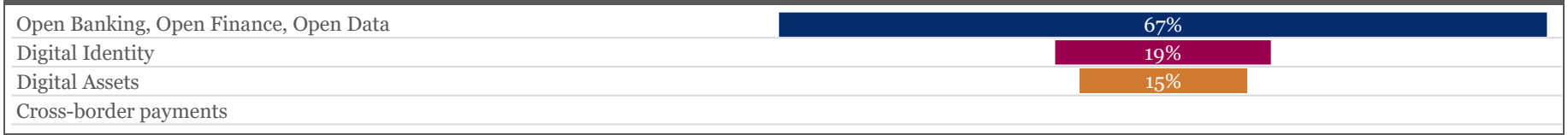
VIII

Strategic Considerations

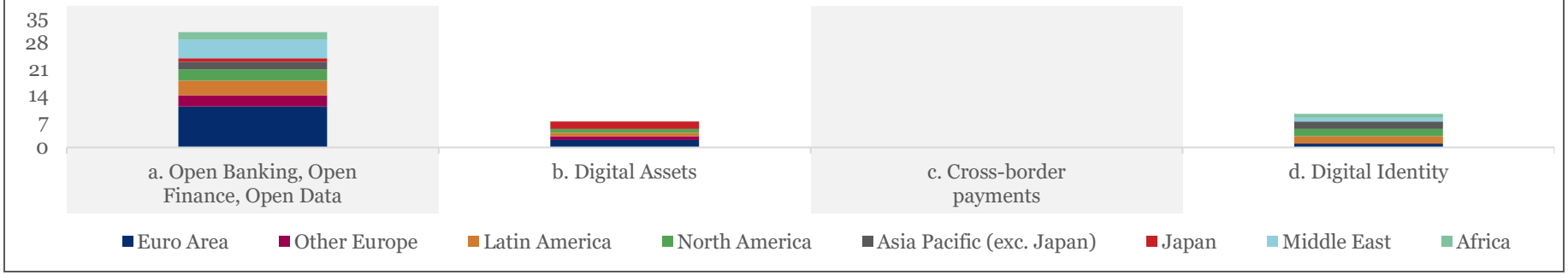
Which of the following trends and developments are more likely to interact with AI/ML in the near future?

Across all responses, 67% of respondents believe open banking/open finance/open data is the most popular trend/development most likely to interact with AI/ML in the near future. Digital identity (19%) and digital assets (14%) make up the rest of the responses while cross-border payments did not receive any votes. Open banking/open finance/open data remained the unanimous trend/development across all regions surveyed. Euro Area made up 35% of the region's responses in favor of open banking/open finance/open data. This data is consistent with the importance of data and other components of the AI value chain.

Trends and developments likely to interact with AI/ML in the near future (by percentage of respondents)



Trends and developments likely to interact with AI/ML in the near future, by region type



Section IX
Conclusion

The financial services industry continues to push forward with careful and well governed use of AI/ML for a wide range of applications. 88% of survey respondents are using the technology in production today and 100% reporting increased investment in 2024.

The rapid growth of GenAI and LLM is a step-change in AI with distinct models for development and deployment. 87% of respondents anticipate an increase in their inventory of GenAI/LLM models in the next 12 months and 94% of respondents expect the use of third-party models to increase as use of this new type of AI expands. FIs are working to address this change and other top challenges they see when using GenAI applications including data confidentiality/privacy and hallucination. Financial service firms are starting from a strong position in GenAI risk management because they can leverage the knowledge they have gathered over the years from deploying Predictive AI tools and managing third-party risk in general. On this issue of third-party risk, the majority of respondents require third-party models to have the same level of validation as required for internally developed models; however, a majority within that group noted challenges in obtaining the requested information to perform that same level of validation.

The financial services industry has taken a cautious approach to GenAI and is still largely focused on internal use cases this year rather than client-facing ones. 73% of institutions surveyed expect regulatory developments that could have an impact on their AI adoption. Regulatory signal and compliance concerns continue to constrain the pace of adoption and innovation with new GenAI tools in financial services.

Financial institutions continue to strengthen governance and oversight of AI with 74% of respondents assigning a C-suite executive responsibility for oversight as they continue to evolve review and approval routines for use cases. To support rapid adoption, institutions are utilizing robust infrastructure, committing to significant year-over-year investments, and implementing safeguards such as human-in-the-loop systems.

The 2024 IIF-EY Survey Report on AI/ML Use in Financial Services is a continuation of a multiyear effort to study global Artificial Intelligence in the financial industry. In future surveys, AI/ML risk management, engagement with regulators, and the continued growth of generative AI will continue to be explored, along with new technologies and industry shifts that emerge.

Section

X

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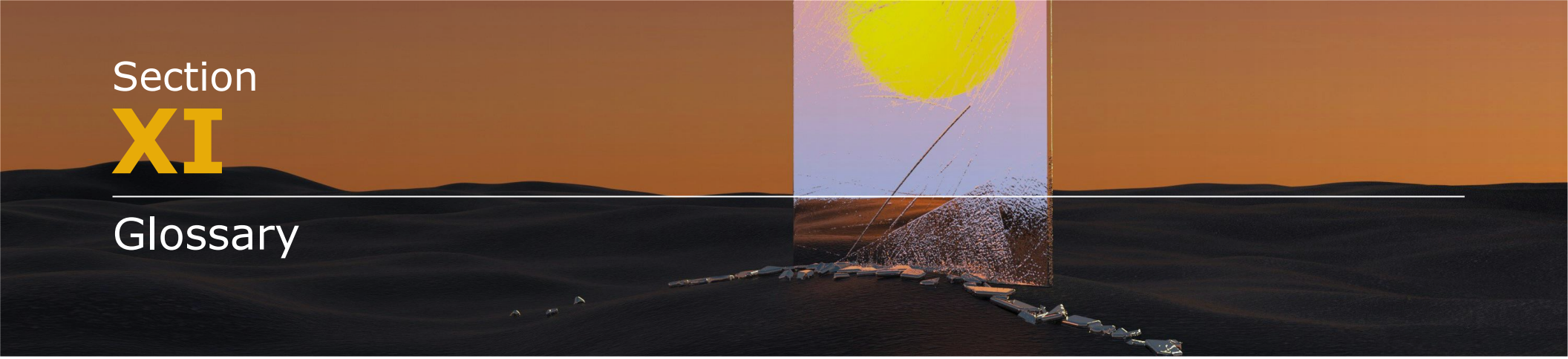

Section XI

Glossary

Anti-money laundering (AML): Money laundering is the criminal practice of processing ill-gotten gains, or "dirty" money, through a series of transactions; in this way the funds are "cleaned" so that they appear to be proceeds from legal activities. Money laundering generally does not involve currency at every stage of the laundering process. Although money laundering is a diverse and often complex process, it basically involves three independent steps that can occur simultaneously. Anti-money laundering consists of laws, rules, and regulations to prevent money laundering.

Artificial intelligence (AI): The theory and development of computer systems able to perform tasks that traditionally have required human intelligence. It is broadly applied when a machine mimics cognitive functions that humans associate with other human minds, such as learning and problem-solving.

Asset management: The business of providing financial products or services to a third-party for a fee or commission.[1]

Bias: An unfair inclination for or prejudice against a person, group, object, or position.

Black box testing: Input-output testing without reference to the internal structure of the ML application. The developer "experiments" with the model, feeding it different data inputs to better understand how the model makes its predictions.

Brokerage: A firm or individual that engages in the business of buying and selling securities (stocks, bonds, mutual funds, exchange-traded funds (ETFs), and certain other investment products) on behalf of its customer (as a broker), for its own account (dealer), or both.[2]

Central bank: A public institution that manages the currency of a country or group of countries and controls the money supply.[3]

Clearinghouse: A common entity (or common processing mechanism) through which participants agree to exchange transfer instructions for funds, securities, or other instruments. In some cases, a clearinghouse may act as a central counterparty for those participants, thereby taking on significant financial risks.[4]

Data quality validation: Refers to when one or more techniques are used to ensure potential issues with data (such as class imbalances, missing or erroneous data) are understood and considered in the model development and deployment process. Examples of these include data certification, source-to-source verification or data issues tracking.

Ethics: A system of moral principles governing a person's behavior or the conduct of an activity. In the case of financial institutions, ethics bridges the gap between regulated and non-regulated spaces – that is, firms know what they should do (what is right or wrong). Financial institutions have long-established ethical standards that are enshrined in firms' values and codes of conduct, incremental to those that are adopted in response to regulatory requirements such as those relating to fair lending or best

[1] OCC. OCC Comptroller's Handbook: Asset Management Version 1.0. June 22, 2023.
[2] U.S. Securities and Exchange Commission. Introduction to Investing: Working with an Investment Professional – Brokers. Accessed on November 30, 2023.
[3] European Central Bank. What is a central Bank? July 10, 2015.
[4] European Central Bank. Glossary of Terms Related to Payment, Clearing and Settlement Systems. December 2009.

interest standards. It is important to note that what is deemed "ethical" varies between individuals, societies, and jurisdictions, and can change over time.

Explainability tools: Tools and techniques aimed at explaining the inner workings of the ML model.

Generative AI (Gen AI): The class of AI models that emulate the structures and characteristics of input data in order to generate derived synthetic content. This can include images, videos, audio, text, and other digital content.[5]

G-SIB: A financial institution that is classified as a Global Systemically Important Bank by the Financial Stability Board (FSB) for 2022.[6]

Insurance corporations: Financial intermediaries that offer direct insurance or reinsurance services, providing financial protection from possible hazards in the future.[7]

International bank: A financial institution licensed to take deposits and make loans and whose businesses are distributed in two or more countries.

Large language models (LLMs): Neural network–based models trained on massive amounts of data, including text and documents, and capable of producing understandable and meaningful text or human languages.[8]

Machine learning (ML): One of the techniques used for AI and includes neural networks, among others. In general, ML is characterized by an algorithm autonomously "learning the rules" or "developing a model" from training data and using it to predict outcomes for new data (i.e., not from the training set).

Example ML modeling approaches within the scope of this survey include:

- Ensemble methods (e.g., gradient boosting machine, random forest, and isolation forest)
- Neural networks (trained through supervised, unsupervised, or semi-supervised learning) kernel or instance-based algorithms (e.g., support vector machines and support vector regression)
- Complex dependence structure (e.g., hidden Markov models, Bayesian networks, and generative adversarial networks); and
- Online or reinforcement learning (e.g., Q-learning, state-action-reward-state-action and adaptive dynamic programming)

Model governance: Sets an effective framework with defined roles and responsibilities for clear communication of model limitations and assumptions, as well as the authority to restrict model usage. A strong governance framework provides explicit support and structure to risk management functions through policies defining relevant risk management activities, procedures that implement those policies, allocation of resources, and mechanisms for evaluating whether policies and procedures are being carried out as specified. Notably, the extent and sophistication of a bank's governance function are expected to align with the extent and sophistication of model usage.[9]

Model risk: The potential for adverse consequences from decisions based on incorrect or misused model outputs and reports. Model risk can lead to financial loss, poor business and strategic decision-making, or damage to a bank's reputation.[10]

[5] The White House. Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence. October 30, 2023.
[6] Financial Stability Board. 2022 List of Globally Systemically Important Banks (G-SIBs). November 21, 2022.
[7] European Central Bank. Statistics – Financial Corporations. November 20, 2023.
[8] International Monetary Fund. Generative Artificial Intelligence in Finance: Risk Considerations. August 22, 2023.
[9] Federal Reserve. SR 11-7 attachment: Supervisory Guidance on Model Risk Management. April 4, 2011.
[10] Federal Reserve. SR 11-7 attachment: Supervisory Guidance on Model Risk Management. April 4, 2011.

Model validation: The set of processes and activities intended to verify that models are performing as expected, in line with their design objectives and business uses. Effective validation helps ensure that models are sound. It also identifies potential limitations and assumptions and assesses their possible impact.[11]

Multilateral organization: An organization formed by or encompassing multiple nations for a common purpose. In the context of this report, the multilateral organizations surveyed are focused on the financial sector.

National bank: A financial institution licensed to take deposits and make loans and whose businesses are primarily focused in one country.

Outcome monitoring against a benchmark: Refers to when decisions or actions associated with the AI/ML system are monitored using one or multiple metrics. Performance is assessed against a certain benchmark value of those metrics.

Outcome monitoring against a non-ML model/A-B testing: Decisions or actions associated with the AI/ML system that are monitored using one or multiple metrics. Performance is assessed by comparing it to the performance of a separate, non-AI/ML model. The same approach is used in A-B testing (also known as split testing).

Predictive AI: Draws inferences from large data sets, relying on hypothesis-free data mining and inductive reasoning to uncover patterns to make predictions about future outcomes, and may use natural language processing, signal processing, topic modeling, pattern recognition, machine learning, deep learning, neural networks, and other advanced statistical methods. [12]

Tollgate: An AI/ML tollgate process refers to a formal, pre-designated point of review and approval before proceeding with utilization of the AI/ML use case in production.

[11] Federal Reserve. SR 11-7 attachment: Supervisory Guidance on Model Risk Management. April 4, 2011.

[12] U.S. Securities and Exchange Commission. Conflicts of Interest Associated with the Use of Predictive Data Analytics by BrokerDealers and Investment Advisers. October 10, 2023.

About the Institute of International Finance

The Institute of International Finance (IIF) is the global association of the financial industry, with about 400 members from more than 60 countries. The IIF provides its members with innovative research, unparalleled global advocacy, and access to leading industry events that leverage its influential network. Its mission is to support the financial industry in the prudent management of risks; to develop sound industry practices; and to advocate for regulatory, financial and economic policies that are in the broad interests of its members and foster global financial stability and sustainable economic growth. Within its mission, the IIF is leading efforts to help our members and the public sector understand and leverage the technology-driven transformations reshaping financial services. IIF members include commercial and investment banks, asset managers, insurance companies, professional services firms, exchanges, sovereign wealth funds, hedge funds, central banks and development banks.

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