REPORT

AI in the Swedish financial sector

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Contents

Finansinspektionen
Box 7821, 103 97 Stockholm
Street address Brunnsgatan 3
Telephone +46 8 408 980 00
finansinspektionen@fi.se
www.fi.se

Summary

The new generative AI technology has spread quickly and extensively both among employees and within firms' installations of AI systems. Finansinspektionen (FI) has been able to determine this through a survey of how AI is used in the financial sector.

Artificial intelligence (AI) in its various forms has long been present in the financial sector. To better understand how the sector uses AI and the risks associated with it, FI's Innovation Center sent in 2024 a targeted questionnaire to firms under FI's supervision. A total of 234 firms answered the survey, of which 84 per cent reported that their employees have begun to use the new generative AI technology.

The responses also indicate that 22 per cent of the firms have different AI systems in production or development in their in-house IT environments. Another 46 per cent indicate that they are working with pilot projects and experimenting with AI technology.

The firms report that AI is being used primarily to search for or summarise information and for process automation, customer insights, chatbots and customer support. The survey also show that generative AI technology has quickly become the most-used AI technology (45 per cent of cases), followed by machine-learning technology (41 per cent).

The firms that already have AI systems in operation are also those that are planning to the greatest extent to further increase their investments in various AI technologies compared to this year. Most of these firms declare that they intend to increase their investments in generative AI technology.

The firms consider the largest risks and challenges in using AI to be related to data quality and data protection, and they have different strategies for managing these risks. Only 41 per cent of the firms that have AI in production say that they have a formally approved policy for their development and use of AI.

Most firms with AI in production have begun to prepare for the application of the EU's regulation on artificial intelligence (the AI Regulation). Based on the responses, it is also highly probable that more firms will have such AI systems in production, which according to the AI Regulation will be classified as high risk once the regulation goes into effect.

Background

Artificial intelligence (AI) is an innovative technology that is an important part of the digital transformation in society. Within the financial sector, various forms of AI have been used for a long time. The use of AI has now increased sharply in the wake of the so-called generative AI technology with easily accessible tools such as the chatbots Chat GPT, Gemini and Claude.

The Innovation Center at Finansinspektionen (FI) has been tasked with analysing innovations and the digital development within the financial sector as well as assessing the risks associated with this development. The sector's use of AI is a particular area of focus for the Centre. Previously, our analyses have primarily been based on dialogues with individual institutions. Given the rapid development within primarily generative AI technology, we have now chosen to conduct a more extensive survey of AI use in the Swedish financial sector. Similar national analyses are also being conducted in other EU countries.

FI has previously communicated that it considers AI to be associated with specific risks that actors in the financial sector need to manage, but it also emphasises that AI can be highly beneficial, for example in preventing criminals from taking advantage of the financial system.[1]

The EU's regulation on artificial intelligence (the AI Regulation) entered into force on 1 August 2024.[2] It covers all sectors, including the financial sector. The rules will start to be applicable at different points in time over coming years, but most of the articles in the regulation will be implemented on 2 August 2026.

The AI Regulation uses a risk-based approach in which AI systems are classified into different risk categories. AI systems that entail an unacceptable risk are forbidden, and AI systems that are classified as high risk are allowed if they fulfil certain requirements under the regulation. Within the financial sector, two areas have been identified to be classified as high risk: evaluate the creditworthiness of natural persons or establish their credit score and risk assessment and pricing in relation to natural persons in the case of life and health insurance.

Firms within the financial sector will be subject to the AI Regulation, primarily those that use AI in the areas classified as high risk. According to the AI Regulation, authorities responsible for supervision of financial services shall also supervise AI systems used by financial institutions, if the Member States do not appoint another authority for this assignment.

[1] https://www.fi.se/sv/publicerat/tal-och-debatt/2023/ai-kan-forsvara-for-kriminella-att-utnyttja-finanssektorn/.
[2] Regulation (EU) No 2024/1689 of the European Parliament and of the Council laying down harmonised rules on artificial intelligence.

About the survey

With the aim of deepening its knowledge about the use of AI in the financial sector and given the new AI Regulation, FI sent in September a survey to financial firms subject to its supervision. The survey was sent to a total of 278 selected firms operational in areas such as payment services, issuers of electronic money, credit institutions, asset managers, banks, insurance undertakings, insurance distributors, securities companies, fund management companies, stock exchanges and clearing.

The survey consisted of four main parts:

1. The firm's view on AI, its plans, and its employees' eventual use of generative AI.
2. General information about how the firm is handling AI and how the firm views the benefits and manages the risks that can arise.
3. Detailed information on up to three specific AI systems in production or development and aggregate information about other AI systems in production or development.
4. The firms' preparations for the application of the new AI Regulation and potential needs for guidance in conjunction with the use of AI.

We received 203 responses to the survey, which corresponds to information from 234 of the 278 firms due to joint reporting within groups. This represents a response frequency of 83 per cent.

We present in the following section a summary of the results from the survey. The results are presented in aggregate form, without reference to individual firms.

Part 1 – AI use in the financial sector in general

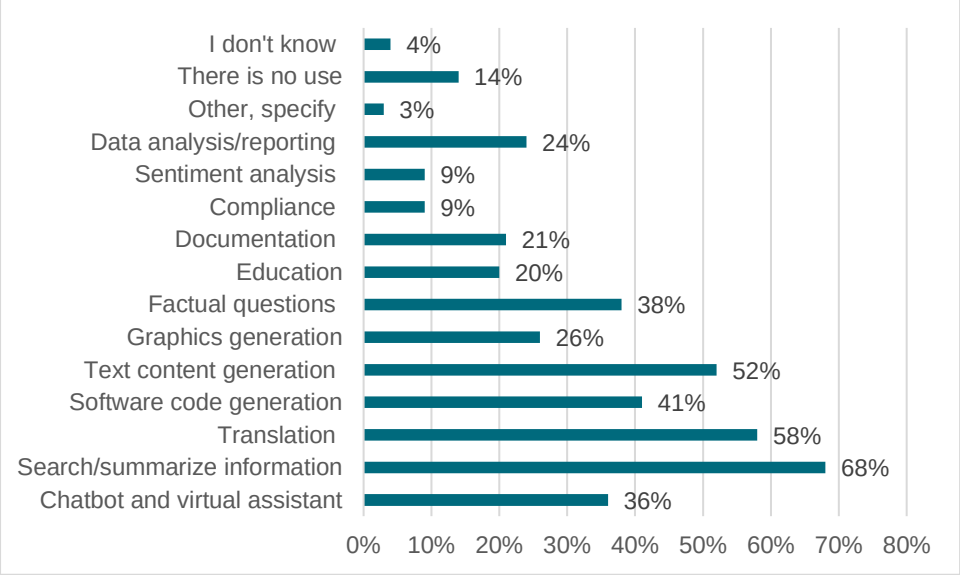
In this section, we discuss the use of AI technologies at firms under FI's supervision. In the survey we have broken down AI use into two main categories: the use of publicly available generative AI models by the firms' employees and the use of different types of AI systems that the firms are responsible for within their own IT environments.

Use of generative AI by the firms' employees

Of the firms that responded to the survey, 84 per cent state that their employees use some form of generative AI (GenAI) in their jobs. These firms state that their employees mainly use generative AI to search for and summarise information. Other common areas of use are translation, text content generation, and software code generation (see diagram 1).

1. In which areas do your employees use GenAI as part of their job? State all known areas of use

Per cent

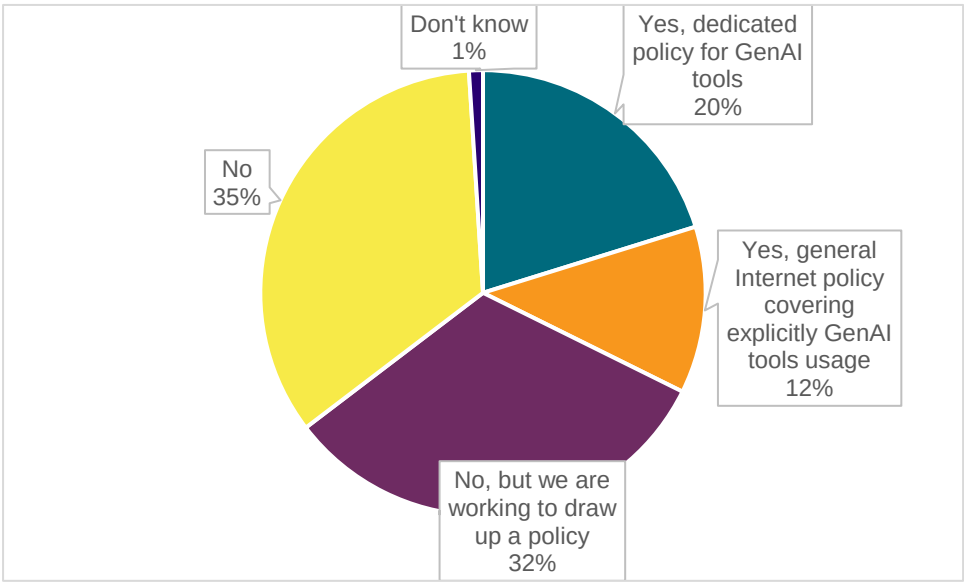


Source: FI's AI Survey 2024

Only 32 per cent of the firms have drawn up some form of policy that lays forth rules for how their employees may use generative AI (se diagram 2).

2. Have you drawn up a policy setting forth the rules for your employees' use of GenAI tools?

Per cent



Source: FI's AI Survey 2024

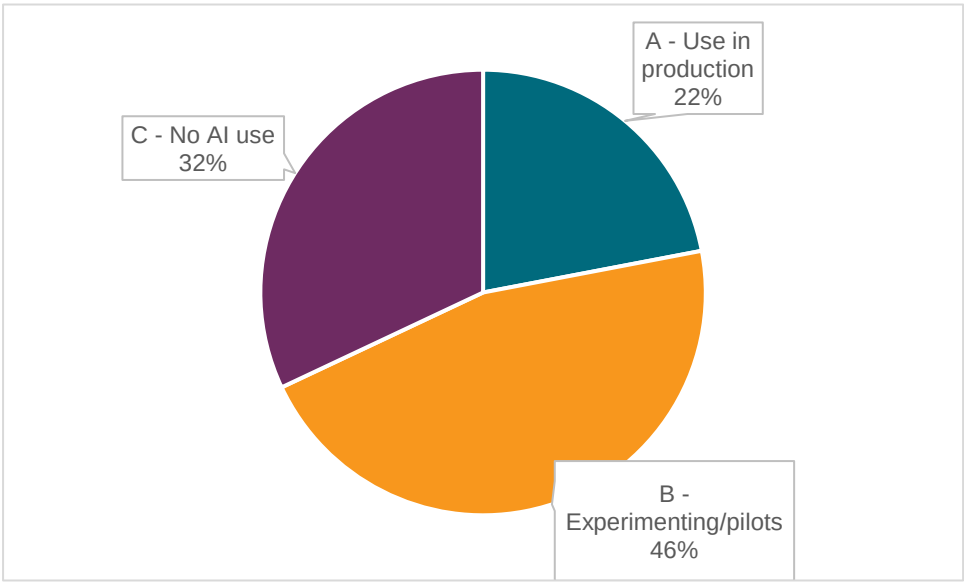
Use of AI in the firms' IT environments

In the survey, we have divided the use of AI in the firms' IT environments into three categories. Category A includes firms that have concrete AI use cases in production or development. Category B includes firms that are conducting experiments or pilot projects, either ongoing or planned within 12 months. Category C includes firms that are neither using nor planning to use AI in the next 12 months.

Of the firms in the survey, 22 per cent responded that they belong to Category A, 46 per cent that they belong to Category B, and 32 per cent that they belong to Category C (see diagram 3).

3. Number of firms per category

Per cent



Source: FI's AI Survey 2024

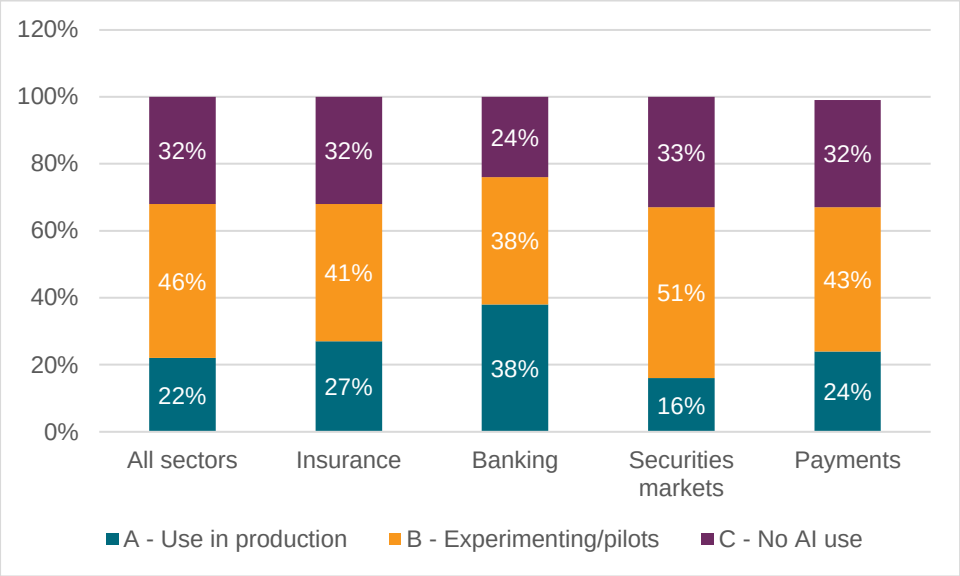
Use of AI within different areas of the financial sector

The percentage of firms that belong to Category C is relatively similar throughout the Swedish financial sector. Banks and credit institutions, however, have the highest share, 38 per cent, in Category A, where AI is already being used. Firms in the Securities markets sector is to a greater extent, 51 per cent, involved in experimentation or pilot projects, which places them in Category B. Only 16 per cent of these firms use AI in production (see diagram 4). The use of AI in the financial sector is otherwise relatively evenly distributed, and there are no large

differences between large and small firms, even if smaller firms tend to be overrepresented in Category C.

4. Distribution by category per subsector of the financial sector

Per cent



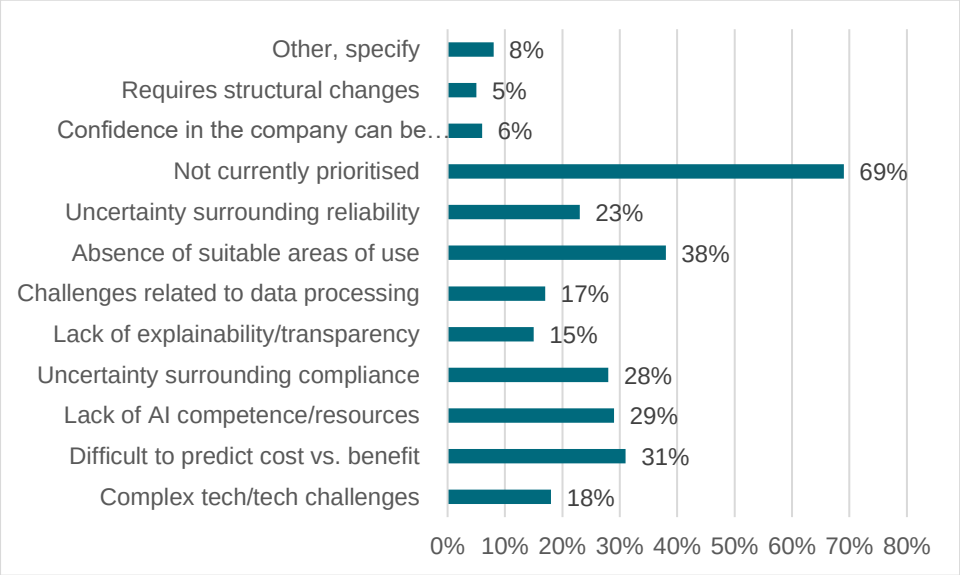
Source: FI's AI Survey 2024

Primary reasons to not use AI

Among the 32 per cent of the firms stating in our survey that they are neither using AI now nor planning to use AI in the next 12 months (Category C), 69 per cent consider AI not to be a current priority. These firms also point out the lack of suitable areas of use and difficulties in assessing the cost versus the benefit as additional reasons (see diagram 5).

5. State the primary reasons why you are not using AI today and not planning to use AI within 12

Per cent



Source: FI's AI Survey 2024
Note: Company's in category C

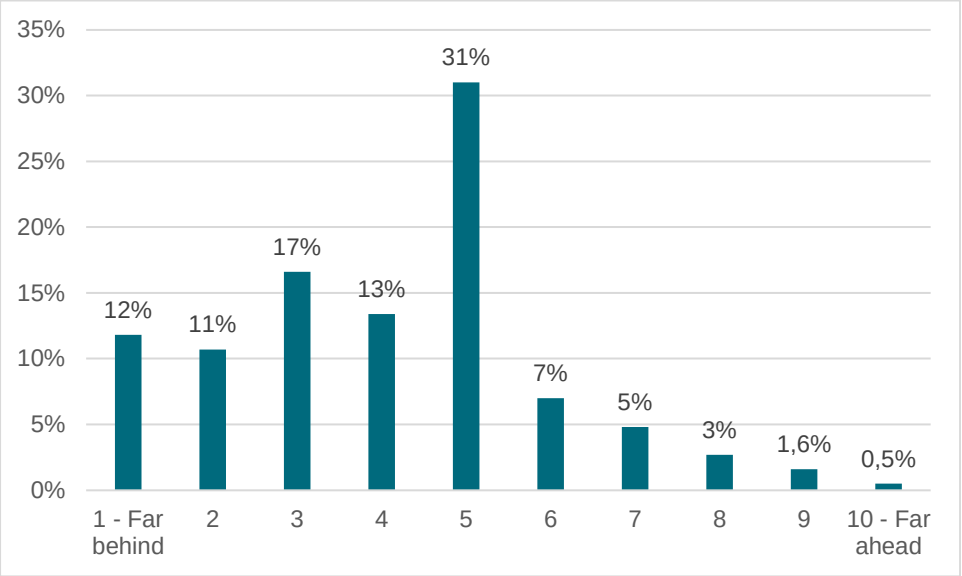
International comparison

In December 2023, the Swedish Government appointed an national AI commission with the task of analysing and proposing measures to strengthen Swedish competitiveness and contribute to the development and use of artificial intelligence (AI) in Sweden[3]. According to the responses to our survey, most of the firms in the financial sector believe that they are currently lagging behind their international competitors. Only 17 per cent of the firms say that they are ahead of their competitors (see diagram 6).

[3] https://www.regeringen.se/pressmeddelanden/2023/12/regeringen-tillsatter-en-ai-kommission-for-att-starka-svensk-konkurrenskraft/

6. Compared to similar international companies operational in your industry, how would you assess your position when it comes to the use of AI? Use a scale of 1 to 10, where 1 is “far behind” and 10 is “far ahead”

Per cent



Source: FI’s AI Survey 2024

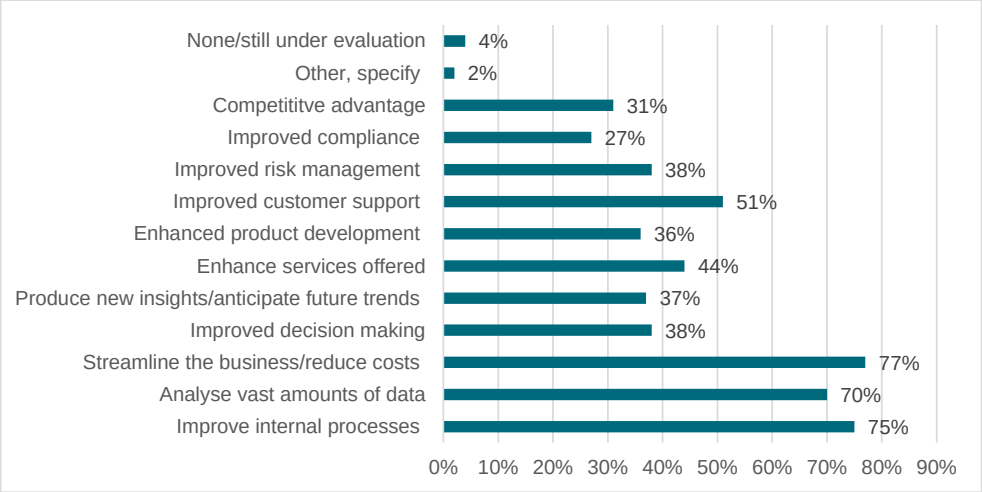
Two main explanations emerge in the responses as for why firms believe they are lagging behind their international competitors. The first is that the regulation accompanying new AI implementations is considered burdensome. This makes it challenging for the firms to quickly develop new AI solutions. The second is that many firms believe that they are small actors internationally, which limits their possibilities for building up an extensive organisation to work efficiently with AI.

Benefits and opportunities

Among the firms that belong to Category A or B, the primary benefits and opportunities associated with their use of AI is to improve internal processes, analyse vast amounts of data, streamline the business, and reduce costs (see diagram 7).

7. State the primary benefits and opportunities associated with the use of AI in your firm

Per cent



Source: FI's AI Survey 2024
Note: Company's in category A and B

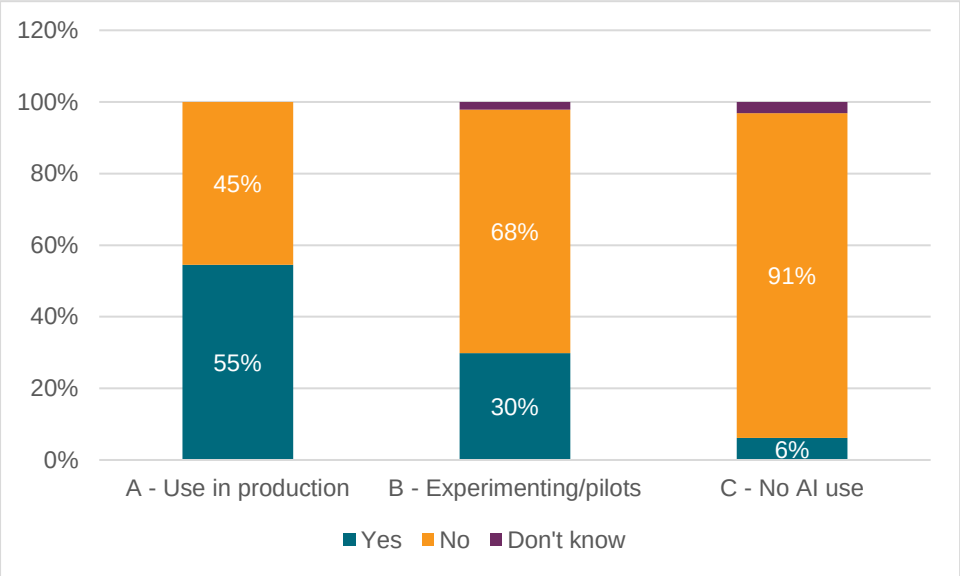
Future

Presence of an AI strategy varies

A relatively large share, 45 per cent, of the firms that are using AI today (Category A) have not drawn up an AI strategy for their organisation (see diagram 8), including firms that have reported significant AI use. The number of firms that have drawn up an AI strategy decreases further for other firm categories.

8. Has your organisation drawn up an AI strategy?

Per cent



Source: FI's AI Survey 2024

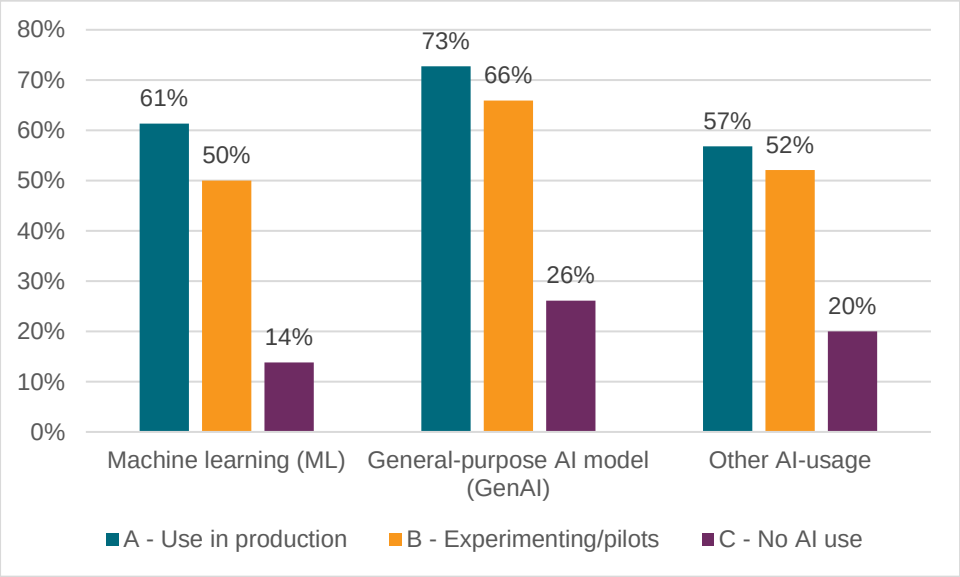
Investment trend in different AI technologies

With regard to investments, a majority (57–73 per cent) of the firms that today have AI in production (Category A) report that they intend to increase their investments in different AI technologies in the coming 24 months (see diagram 9). Among the firms that are not yet using AI (Category C), the corresponding figures are between 14 and 26 per cent.

In general, a large share of firms is planning to increase their investments in the relatively new area of generative AI compared to the more established technologies such as machine learning (see diagram 9).

9. Compared to your investments in 2024, are you expecting to increase, maintain or decrease your investments in the following types of AI in the coming 24 months

Per cent



Source: FI's AI Survey 2024

Note: Percentage of companies that selected the response option 'increase'

Part 2 – Concrete use cases

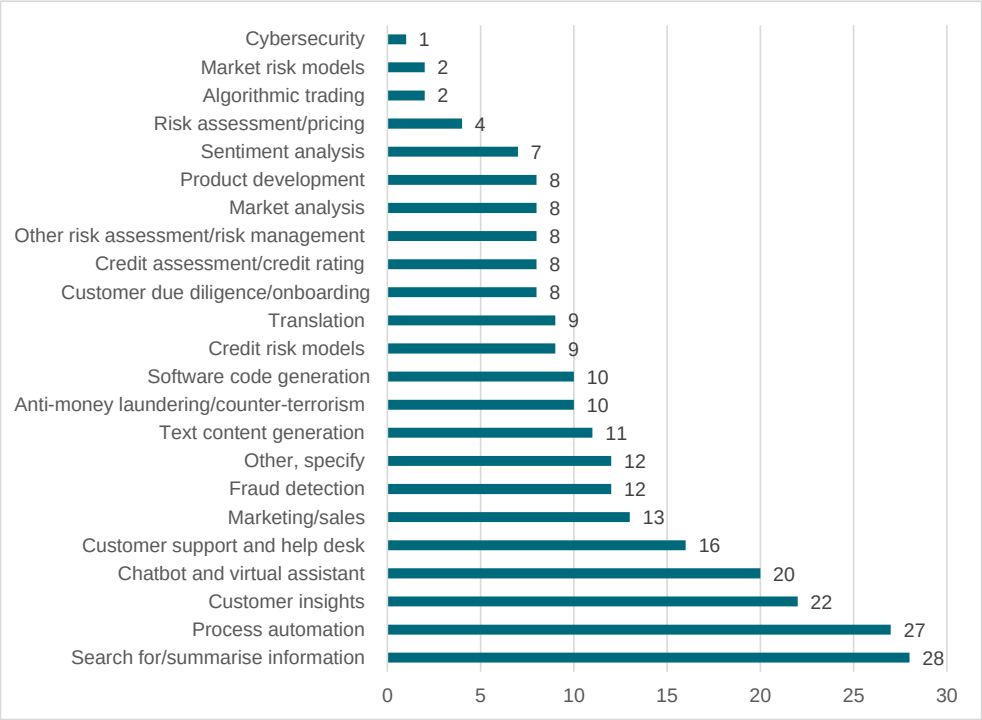
General

In the survey, the firms that have concrete AI use cases in either production or development (Category A) were able to share the details of up to three cases per firm. The 44 firms in Category A have reported details for a total of 83 use cases and summarised information for an additional 184 use cases.

The most common areas of use for AI are said to be searching for and summarising information, process automation, insights into customers, chatbots and customer support (see diagram 10).

10. Specify the categories that best describe the use case

Amount



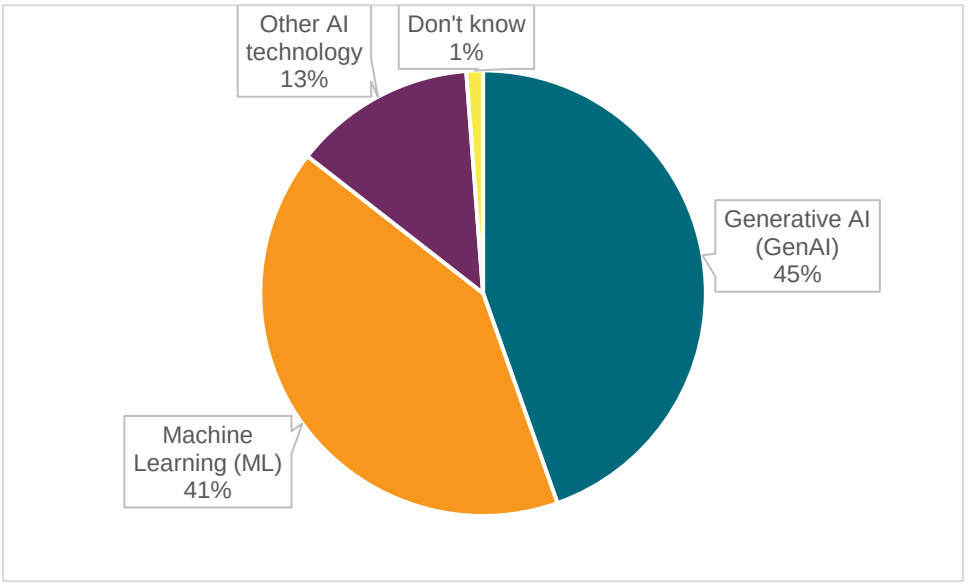
Source: FI's AI Survey 2024
Note: Company's in category A

Use of different AI technologies

Of the 83 use cases reported in detail, 45 per cent are based on generative AI technology, while 41 per cent use more traditional machine learning (see diagram 11). This shows that the relatively new generative AI technology is already more common than the more traditional machine learning.

11. Use of different AI technologies in the use cases

Per cent



Source: FI's AI Survey 2024
Note: Company's in category A

Use of generative AI

All AI systems that are based on generative AI were taken into production between the years 2022 and 2024.

The responses in the free text section of the survey show that it is common for firms to use AI models to summarise public texts such as press releases, news items, and longer documents. The objective is often to efficiently compress the content to a uniform format adapted for different channels, for example social media. This technology is used by firms throughout the sector but is particularly common among the firms that directly target consumers.

Many firms state that they use external services that offer generative AI models to generate code. The majority of those describing specific cases of generative AI mention how they have integrated external solutions into their own systems.

Use of machine learning

Machine learning has been used for a long time in the Swedish financial sector, in some cases for more than ten years. And even if the generative AI technology has developed rapidly in recent years, the responses to the survey indicate that the more traditional machine learning continues to be used in parallel.

Several firms report that they use trained models for machine learning to generate suggestions for how to process standardised information. One common example is the use of these models to automatically gather specific information from, for

example, receipts or invoices. The models can also suggest how this type of information can be processed.

In general, we can see that machine learning is often used to process structured information that often consists of numbers. Traditional machine learning is usually very good at identifying patterns in numeric information, which can be used, for example, to segment customers, recommend products to customers, or assess customers creditworthiness.

Machine learning is used widely at firms in several different areas of use, for example pricing insurance policies, detecting different types of fraud, and predicting market developments. Several firms are also using machine learning to improve categorisation of bank transactions.

Other AI technologies

The firms describe that they, for example, are using technologies like Natural Language Processing (NLP) to process information. They are using NLP to identify and categorise different types of texts. In addition, this technology is being used to process and answer more standardised questions, which provides an alternative to technologies that are normally associated with generative AI.

Risk classification under the AI Regulation

When asked how the firms' use cases would be classified according to the AI Regulation's risk model, 4 per cent of the firms reported that they have cases that would be classified as high risk, all in creditworthiness. However, most of the cases (65 per cent) are assessed to entail limited or minimal risk. Almost one-third of the cases have not yet been risk-classified under the AI Regulation's model.

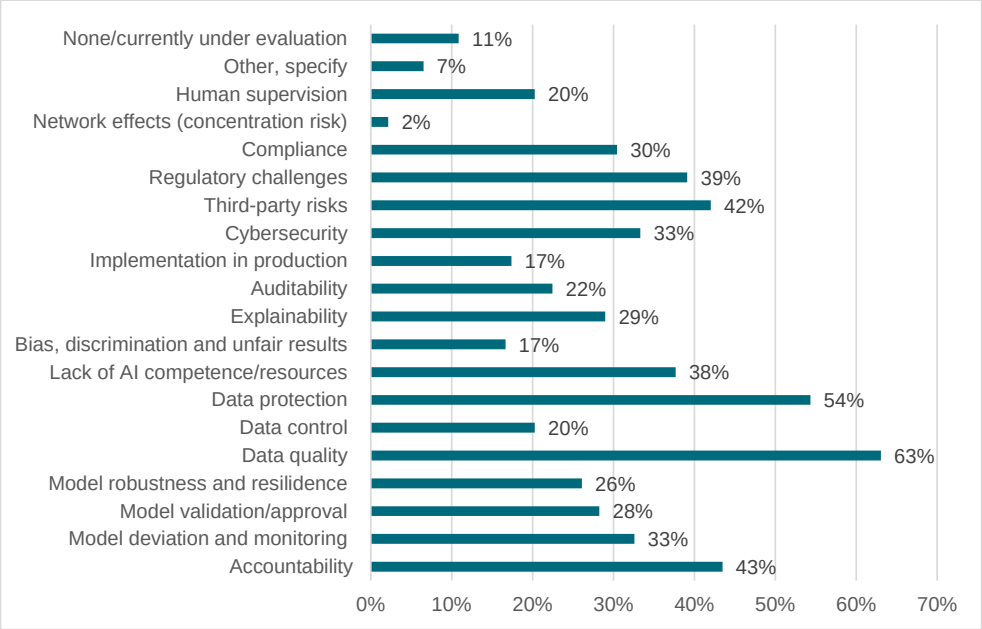
Part 3 – Secure and trustworthy AI

Challenges and risks

In terms of challenges and risks, the firms in Categories A and B mention primarily that they are facing challenges related to data quality and data protection. The firms also identify challenges and risks associated with accountability and governance, risks related to third parties, and regulatory challenges (see diagram 12).

12. List the main risks and challenges you observe from the use of AI technologies

Per cent



Source: FI's AI Survey 2024
Note: Company's in category A and B

Safeguarding secure and trustworthy AI

In the free response section of the survey, firms note that they are taking several measures to manage risks and challenges in their AI use. The firms report that they are working to evaluate models, services and suppliers and introduce human oversight and supervision of products. They are also investing in training and educations for their employees, clarification of processes, testing of models, monitoring of data quality and other types of data control.

Human in the loop

One measure that many firms list as a measure to mitigate the risks associated with AI use is to introduce human oversight (human in the loop). In 57 per cent of the

cases, there is a human in the loop in the decision process, while in only 19 per cent of the decisions are made fully autonomously.

Models with high explainability

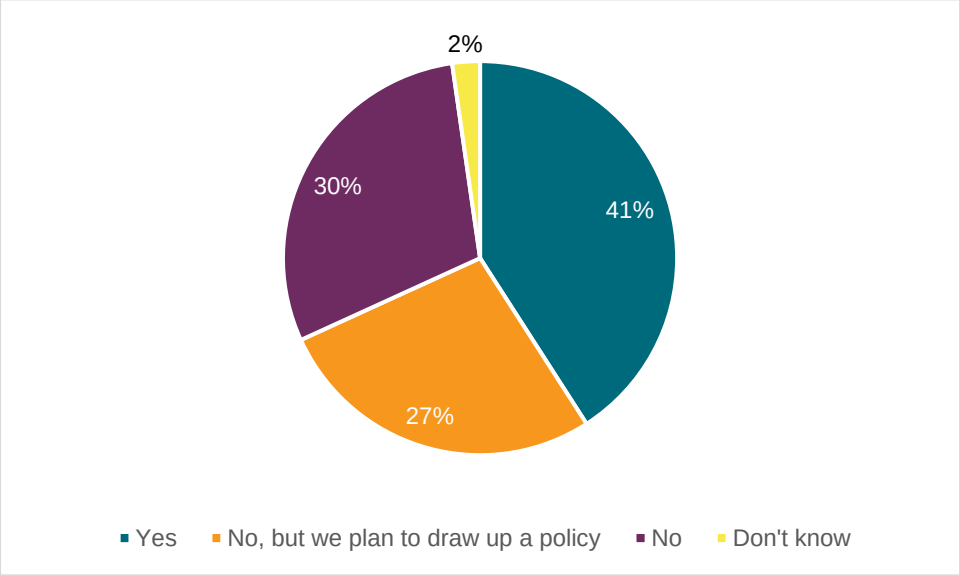
Different AI technologies vary in complexity and degree of explainability, i.e., the possibility to explain ex-post why a model generates a certain outcome. According to the survey responses, the firms consider their current use of AI to have high or very high explainability in 64 per cent of the cases. Cases where the firms consider the model to have low or very low explainability (13 per cent) primarily use generative AI as a subcomponent in the AI system.

Policy for development and use of AI

Many firms state that clear and strict processes are an important measure to reduce the risks associated with AI use. Among the firms that already have AI in production (Category A), 41 per cent report that they have adopted a policy and another 27 per cent plan to draw up such a policy (see diagram 13).

13. Do you have formally approved policy for your development and use of AI?

Per cent



Source: FI's AI Survey 2024
Note: Company's in category A

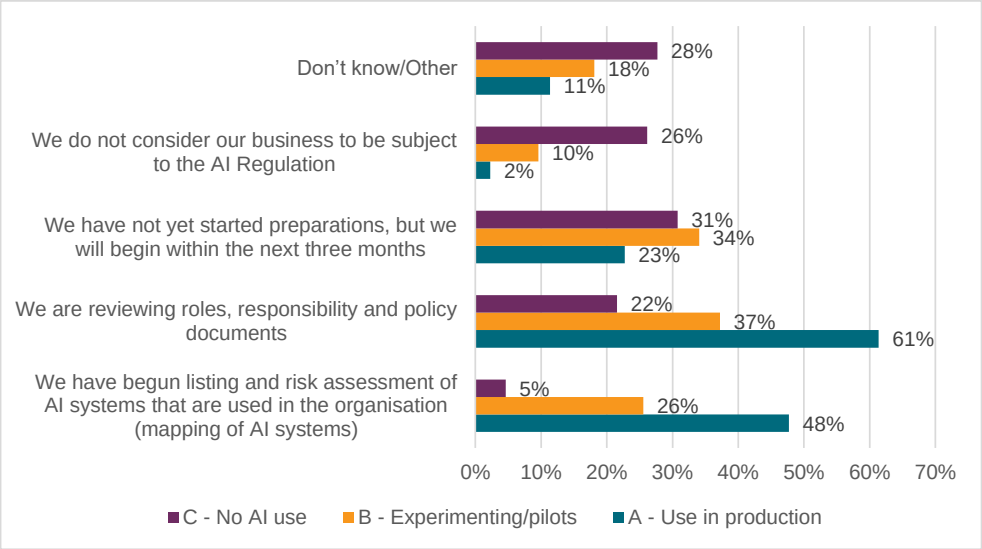
Preparations for the AI Regulation

Since the AI Regulation introduces strict requirements, particularly for suppliers and providers of high-risk AI systems, financial firms need to start preparing early. Firms were therefore given the opportunity in the survey to answer whether they have started to prepare their organisation for the application of the AI Regulation.

Many firms report that they have started to list and risk-assess the AI systems used in the organisation. A significant number of the firms also state that they are reviewing roles, responsibility, and policy documents (see diagram 14).

Among the firms that already have AI in production (Category A), 68 per cent have begun to prepare in some form, and an additional 23 per cent say they will start in the next three months.

14. How is your organisation preparing for the new AI Regulation, and what measures are you taking to meet the regulations in practice?
Per cent



Source: FI's AI Survey 2024

High probability of high-risk applications

The AI Regulation places particularly strict requirements on areas of use that are classified as high risk. Within the financial sector, two areas are particularly identified as high risk, namely creditworthiness and life and health insurance.

According to the survey, a few firms already classify some of their use cases in creditworthiness as high risk under the AI Regulation. Fourteen firms believe it is probable or highly probable that they will have a use case within the next 24 months that is defined as high risk, within both creditworthiness as well as life and health insurance.

Conclusions

Public generative AI models have quickly become common among employees in the Swedish financial sector. Of the firms that responded to our survey, 84 per cent report that their employees use these services. Despite the expanded use, only 32 per cent of the firms have drawn up a policy with guidelines for how their employees may use generative AI.

The use of AI within the firms' own IT environments is less common, which in part can be explained by the higher threshold to integrate such technology than public generative AI models. 22 per cent of the firm's state that they have AI systems in production or development, while 46 per cent of the firms are conducting experiments or pilot projects.

The firms that have worked the most with AI applications to date are also those that to the greatest extent say they are planning to increase the rate of their investments going forward. This indicates that the firms see the benefit of their investments in different AI technologies, which also could result in other firms that have not yet started to use AI coming to the same conclusion once they start to use the technology themselves. A large portion of the planned increases focus on generative AI technology.

Most of the financial firms in Sweden believe they are lagging behind their international competitors. The main cause mentioned by the firms is the limited size of their company and that the regulations are perceived as burdensome.

Among the firms that already use AI, the primary reasons are to improve internal processes, analyse large volumes of data, streamline the operations, and reduce costs.

The survey shows that the use of new generative AI models is already now somewhat more prevalent than traditional machine learning methods. Most of these use cases include a human in the loop and are classified as low risk under the AI Regulation, with a few exceptions, and the models are considered to have high explainability, according to the firms' own assessments.

Despite the expanded use of AI, most of the firms that have AI in production do not have a formally approved policy for their development and use of AI. In contrast, 91 per cent of these firms have begun preparations for the application of the AI Regulation or are planning to do so in the next few months.

Based on the survey responses, it is judged to be highly probable that the financial sector will use AI in the identified high-risk areas once the regulation will be applicable.