



# Use of Data Analytics and Artificial Intelligence in Luxembourg – 2023 edition

**The age of generative AI**



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Executive

summary



# Introduction

2023 has been a formidable year for AI. Elaborated reports with a single click, studio quality photographs with a simple text query – we are truly living in the age of generative AI. Luxembourg's companies are already investigating the use of this technology as part of their broader strategy around Data and AI.

PwC Luxembourg has conducted the third edition of this study to generate insights on the use of Data & AI technologies in Luxembourg. The last study was conducted in 2021 and highlighted how Luxembourg is increasingly data-driven, while facing a challenging talent and investment landscape. Things are progressing at astonishing speed. With new EU Regulations expected in the summer of 2023 and the explosion of generative AI solutions on the market, the time is right to look at this topic again.

The study keeps on tracking the maturity in Data and Analytics of Luxembourg's organisations, including the most common applications and challenges that they are facing in 2023. Thanks to an increased rate of respondents, we are now able for the first time to capture data from organisations in Banking, Asset & Wealth Management, Public Sector, Insurance and Operational sectors. We are also for the first time collecting their opinion and wishes regarding the European AI Act, and how they see generative AI impacting our country.



**Thierry Kremser**

Data & AI Leader  
PwC Luxembourg

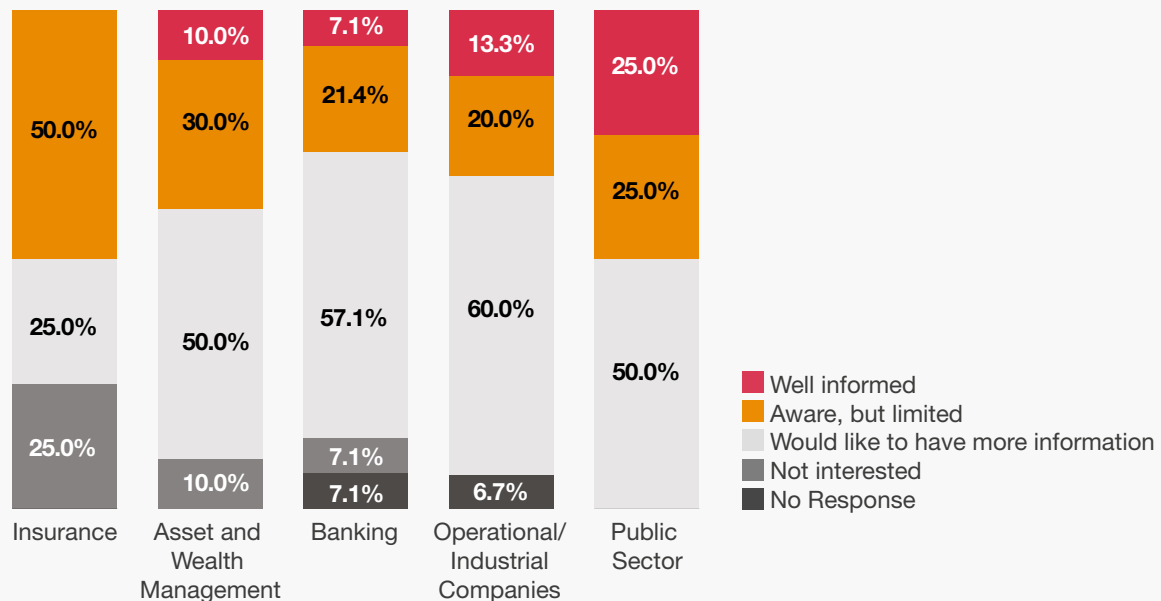
We are living in the age of generative AI. ChatGPT is already the fastest growing internet application of all time and has opened the public's imagination to the possibilities – and risks – of AI. In this report we show where Luxembourg's financial and non-financial sectors stand on this technology, and how it is integrated in their strategy.



# Opportunities and risks of Europe's AI legislation

The European AI Act is largely still an unknown or less-known factor in Luxembourg's companies. Our survey revealed that only 12% of respondents felt well informed about it.

What is your level of awareness on the upcoming European AI Act?



Specifically, the Banking Sector had a relatively low level of awareness, with only 29% of respondents feeling informed to some degree. This lack of awareness and understanding is something that would have to be addressed in the coming months, as the European AI Act will become a law.

In addition, larger companies were more likely to believe they were not using or developing high-risk applications under the European AI Act, with 73% expressing this belief. This suggests a potential lack of awareness about the regulation's impact, given that it might be more broadly impacting AI solutions in HR functions, security and financial products. In another light, there is the potential that these companies are also not fully aware of the entire range of AI being used on a daily basis.

Interestingly, most respondents agreed that the European AI Act would facilitate innovation, indicating that businesses view the regulation as an opportunity to promote responsible AI development and create new growth opportunities. However, they also are of the opinion that it will increase requirements and cost of compliance.

To what level do you agree to the following aspects of the European AI Act?

Competition Europe vs US China



Access European market



Cost for compliance



Facilitating innovation



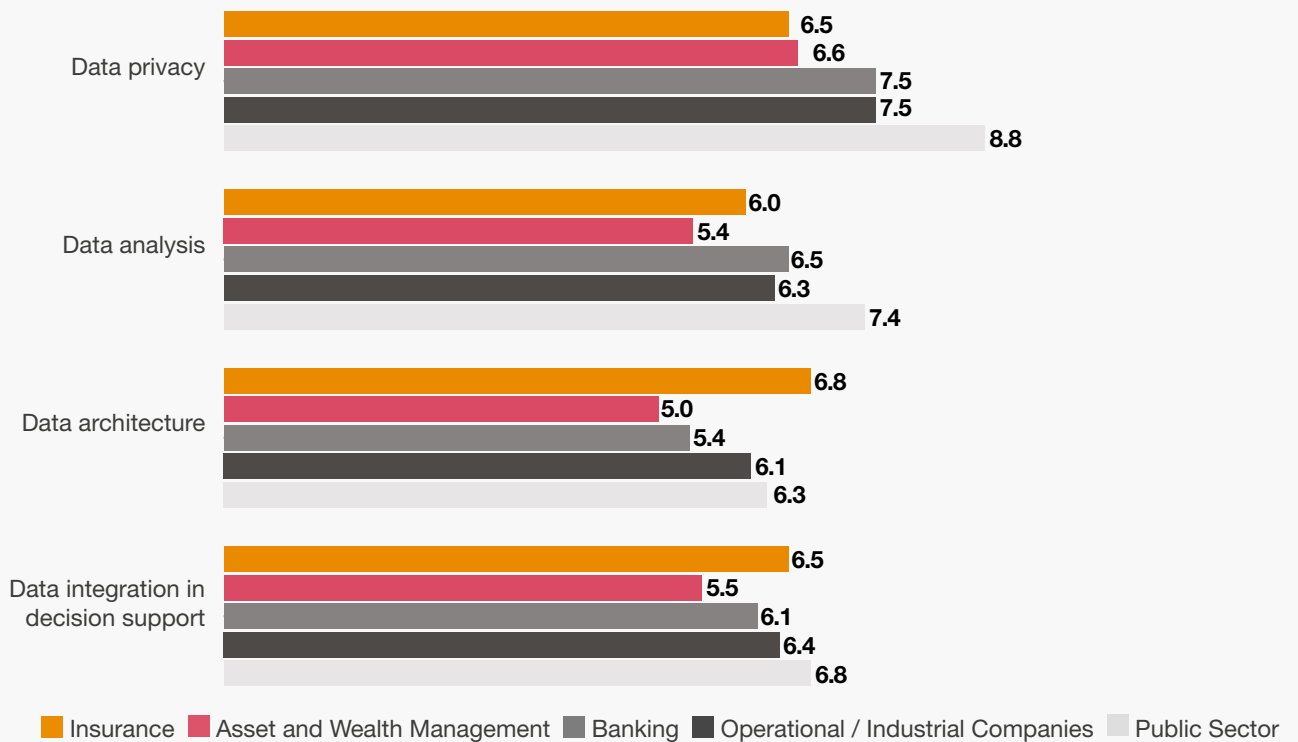
- I do not agree at all
- I do not agree
- I agree
- I strongly agree

# The current state of Data Governance in Luxembourg

Our survey found that the level of maturity of data governance practices in Luxembourg remained roughly the same as in the previous year. This indicates that the maturity of data governance is still relatively low and has seen little progression in the last two years. We took the opportunity to dig deeper into the individual sectors and found significant differences. The Asset and Wealth Management

sector reported a less mature data governance approach, with a self-assessed maturity of 5.6 out of 10. For a compliance-driven sector, there is a significant opportunity to improve the process, in particular with the upcoming regulations in this regard. In contrast, the Public Sector considered themselves most mature with a score of 7.2.

On a scale of 1 to 10, how would you rate your company in terms of maturity? (Average)



The survey also found that there had been progress in defining data strategy across organisations. The Banking Sector was found to be very mature in this regard, with 71% of respondents indicating that their organisation had a well-defined data strategy. However, the Asset and Wealth Management sector lagged behind, with only 30% of respondents indicating that their organisation had a well-defined data strategy.

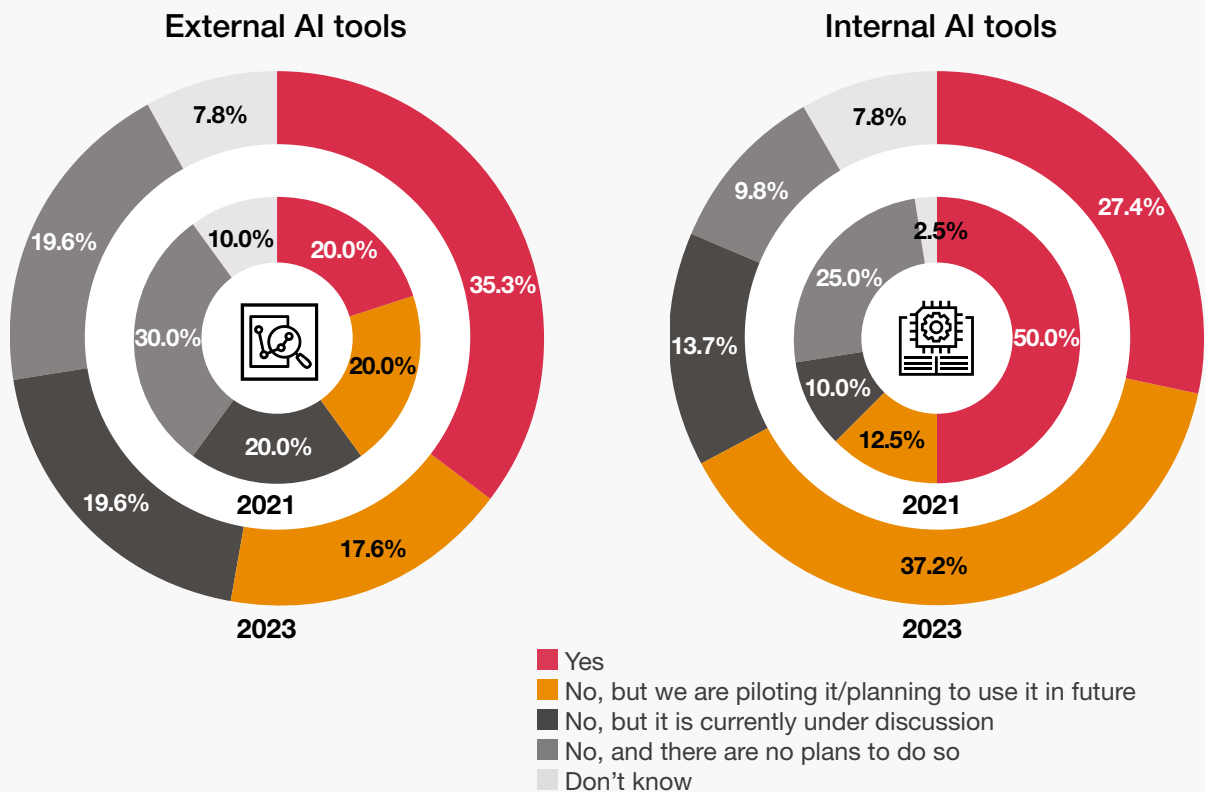
# Increased maturity of the AI market

The market for AI is constantly evolving, with new tools and technologies being developed all the time. Our survey also assessed the maturity of the AI market and to identify trends and changes over time.

One of the key findings of the survey is that external AI tools are more commonly used. In 2021, only 20% of organisations surveyed reported using external

AI tools, while in 2023 this figure increased to 35%. In contrast, the use of internal AI tools decreased from 50% in 2021 to 27.4% in 2023. This suggests that organisations are increasingly relying on external AI tools to meet their needs, rather than developing their own in-house solutions, as the market for those solutions has become more mature.

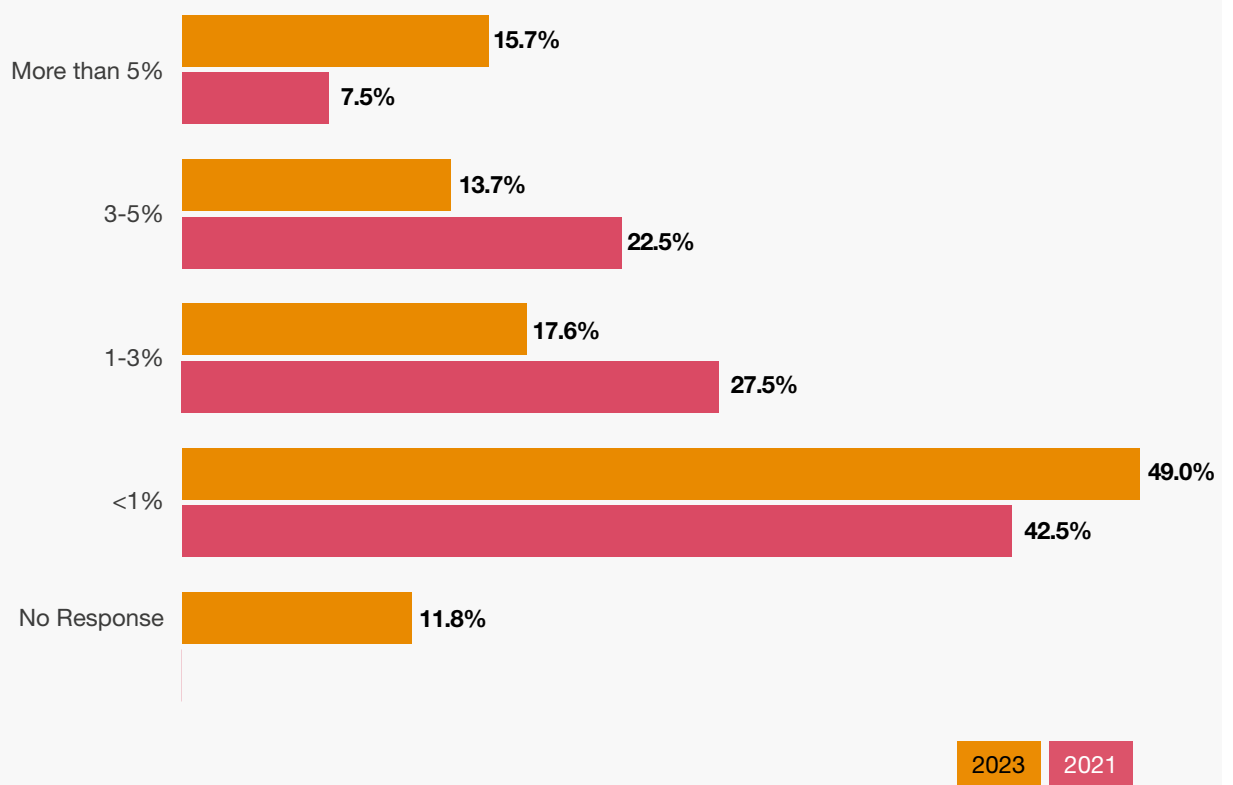
Are you currently using external AI tools (e.g. DeepL for translation, Ephesoft Transact for document analysis) or internally developed AI tools (e.g. self-developed machine learning algorithm with Python) in your company?



The survey also found that there has been an increased drive towards investment in Data and AI solutions. Specifically, 16% of organisations surveyed indicated that they would allocate more than 5% of their turnover to these solutions. Luxembourg's organisations are recognising the importance of investing in Data and AI as a way to drive innovation and reduce cost.

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What percentage of your turnover would you allocate or be prepared to allocate to develop/improve data or AI solutions?



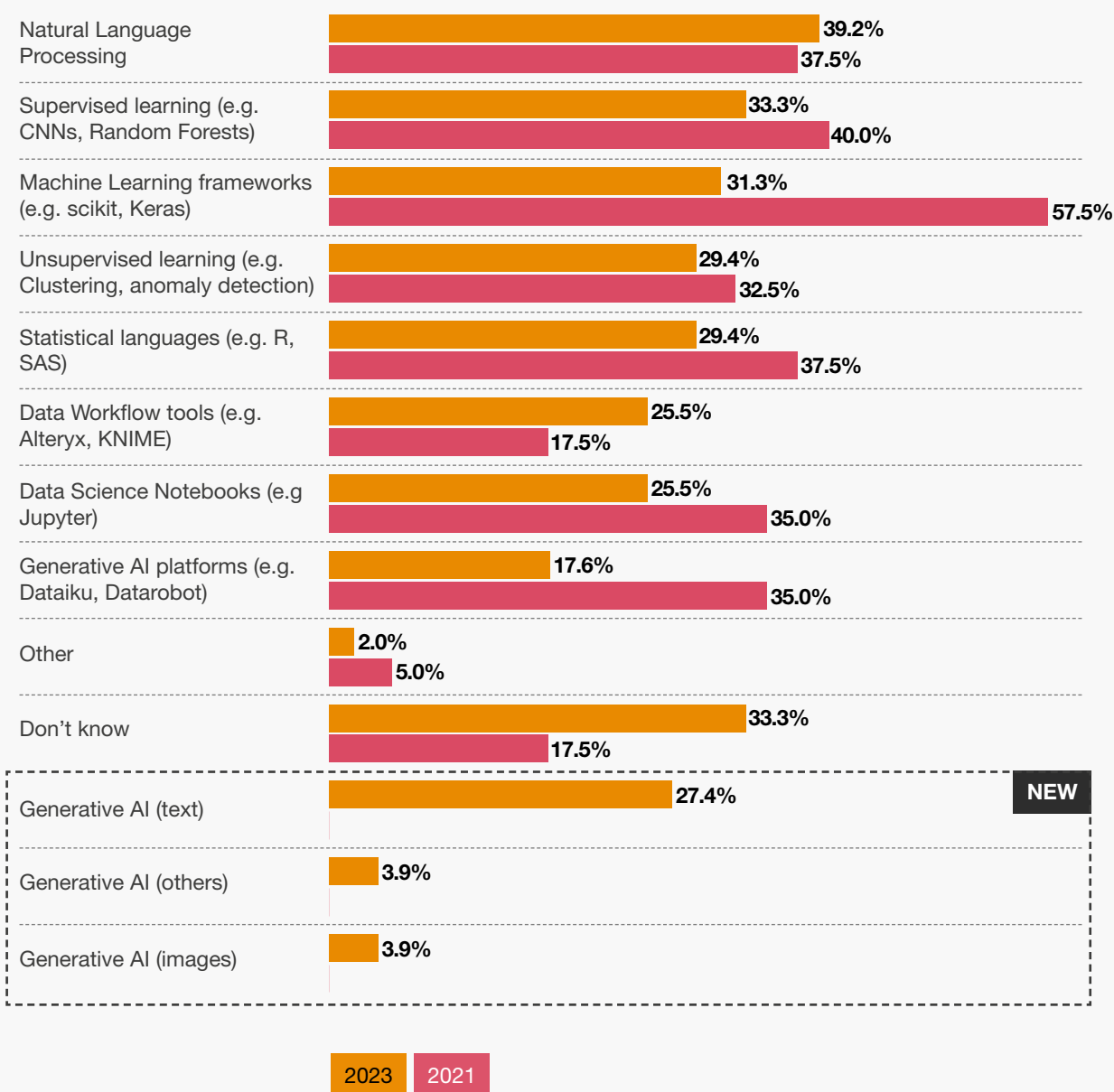
Finally, the survey found increased trust in AI tools, with only 6% citing a lack of trust as reason to not use AI. Organisations are becoming more comfortable with the use of advanced solutions.

# The age of generative AI

The survey found that the current hype around generative AI is only partially translating into interest among Luxembourg's companies. Specifically, 27% of respondents indicated that they would be interested in

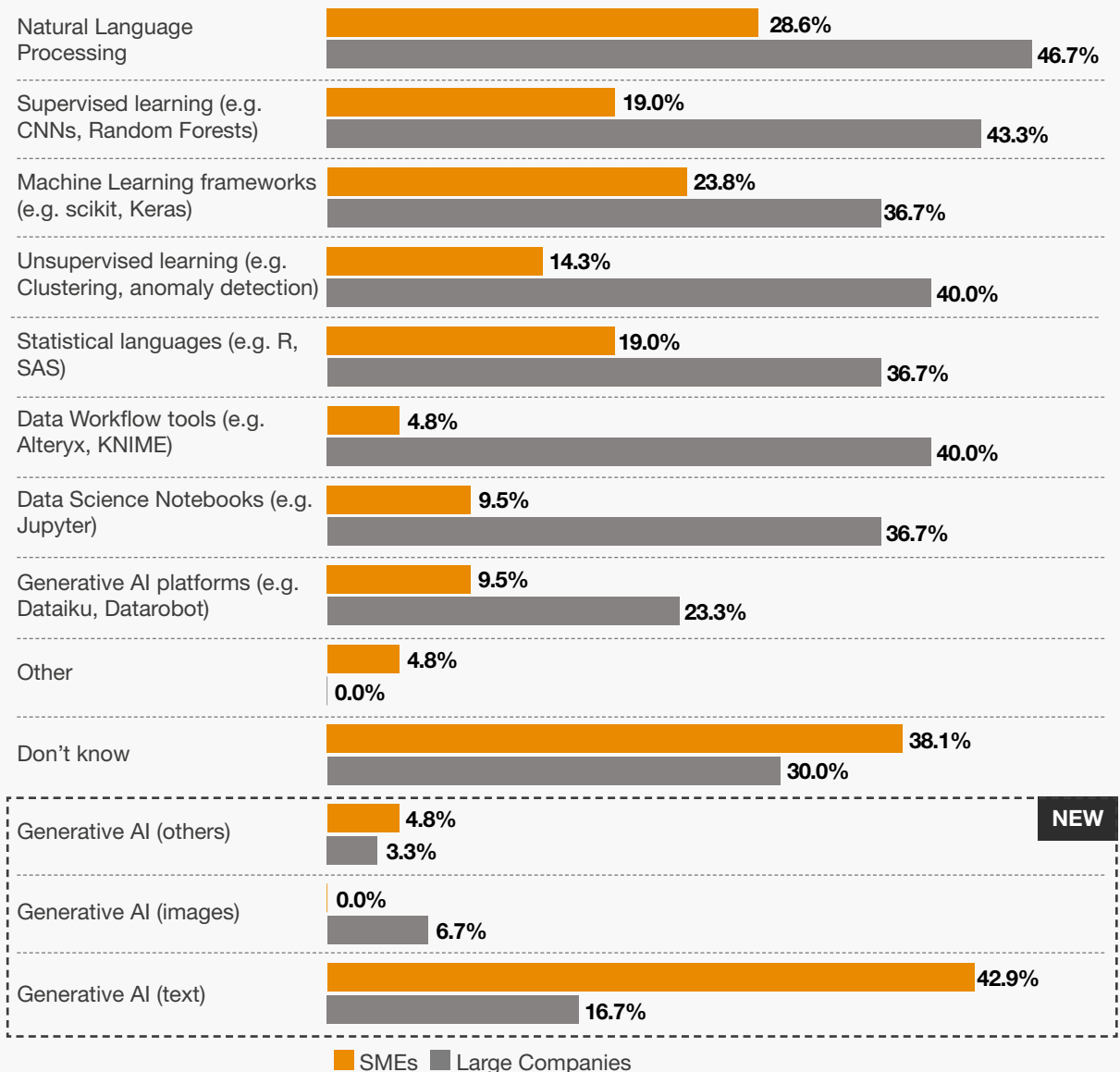
using generative AI for text generation, while only 4% expressed interest in using image generation or other forms of generative AI. Interest in natural language processing (NLP) was higher still.

## Which AI technologies are you using or would like to use?



Interestingly, as seen below, the survey found that for small and medium-sized enterprises (SMEs), generative AI was already considered a top potential application for AI. This suggests that SMEs in Luxembourg see the potential benefits of generative AI, even if larger companies are not yet fully embracing these technologies.

Which AI technologies are you using or would like to use? (Split by company size)



Given the speed of development in this area, the results may have already changed when data would be collected just a few months later. We will be following up the use of this technology in future editions.

# Conclusion

The year 2023 is already an exceptional time in the field of Data and AI. From the massive leaps in performance of generative AI models, to the impending European AI Act, it is a challenge for organisations in Luxembourg to stay on top.

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## Uncertainty regarding AI legislation is still high

Given the significance of the Financial Services sector in Luxembourg, it may be considered a surprise that there is a high level of uncertainty regarding the upcoming AI legislation in Europe. While there is general acknowledgement on the potential impact and additional needs towards compliance in this domain, organisations in Luxembourg still need to gain a level of maturity in this regard.

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## Growing maturity of the AI market and its applications

A noticeable trend is the growing maturity in the market of AI applications. Off-the-shelf software increasingly meets the demands of Luxembourg's organisations. Rather than creating their own AI solutions based on self-developed applications, more commodity data management, data analytics, and data visualisation tools are sitting atop a company's data, providing the relevant insights at a reduced cost for maintenance.

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## Strong differences between sectors

Our increased rate of responses has allowed us to look at more detail into the use of Data and AI of different sectors in Luxembourg. It is notable that not all financial services are the same, our respondents from the Funds Industry (in graphics referred as Asset and Wealth Management) are reporting less maturity in topics around data governance and use of machine learning, compared to banking and insurance. The Public Sector is much more inclined to use internally developed PoCs, while less frequently using data visualisation and storytelling as techniques. The detailed responses are found in the full survey results.

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## It's still early days in the age of generative AI

The age of generative AI has just begun, with our surveyed companies being interested in the topic, but not yet ready to incorporate the technology deeply into their daily operations. This is not surprising, as there are numerous open topics around the trustworthiness and compliance of the applications, as well as discussions of lawmakers on their regulation in Europe. Despite the current hype, Luxembourg's organisations will need to investigate and experiment further. We are keenly interested in following up on this topic in a future edition of the survey.



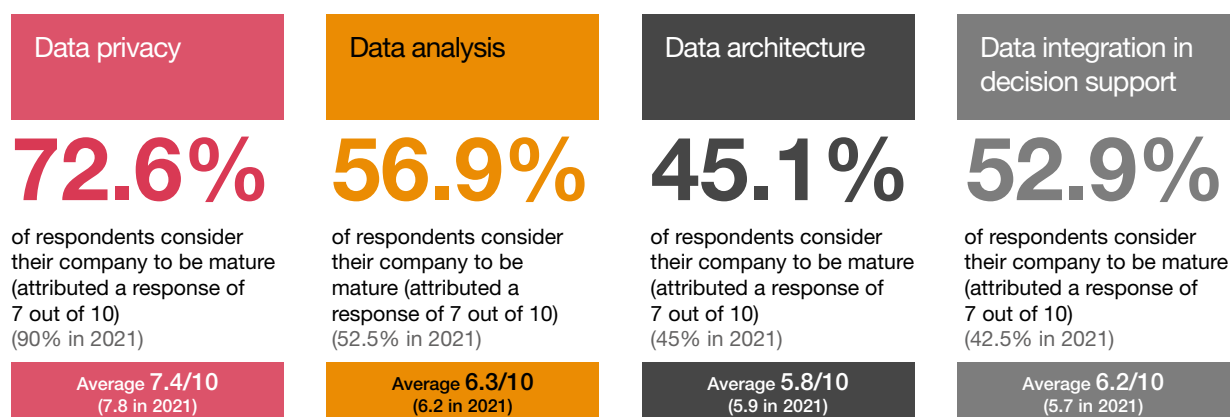


# Main Survey Results



# Data Use and Data Governance

On a scale of 1 to 10, how would you rate your company in terms of maturity with regards to...

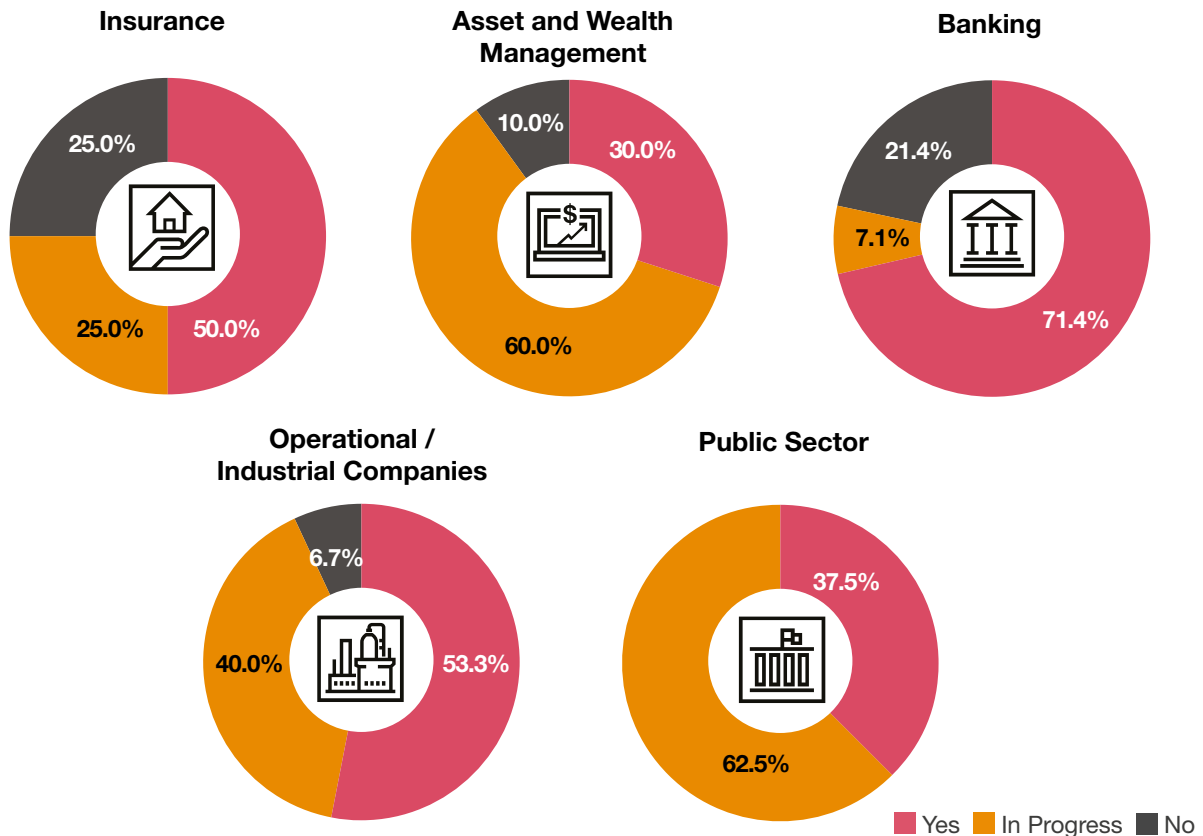


Luxembourg companies in the past two years have overall improved their approach to data maturity. While the average scores in **data privacy** have decreased by a small margin, there are increases across almost all other fields. In particular, **data integration in decision support** saw a significant increase, implying that companies are increasingly relying on data to make more informed and supported decisions. The Public Sector overall seems to be the leader, falling behind only in **data architecture**.

Concerning **data privacy**, the Public Sector rates themselves as much more mature than the others, which is not surprising given the exposure to personal data of citizens. Similarly, Large Companies can have more significant damages when not complying with GDPR and are considering themselves very mature compared to SMEs.

# Data Use and Data Governance

Do you have a clear and defined strategy for managing data within your company?



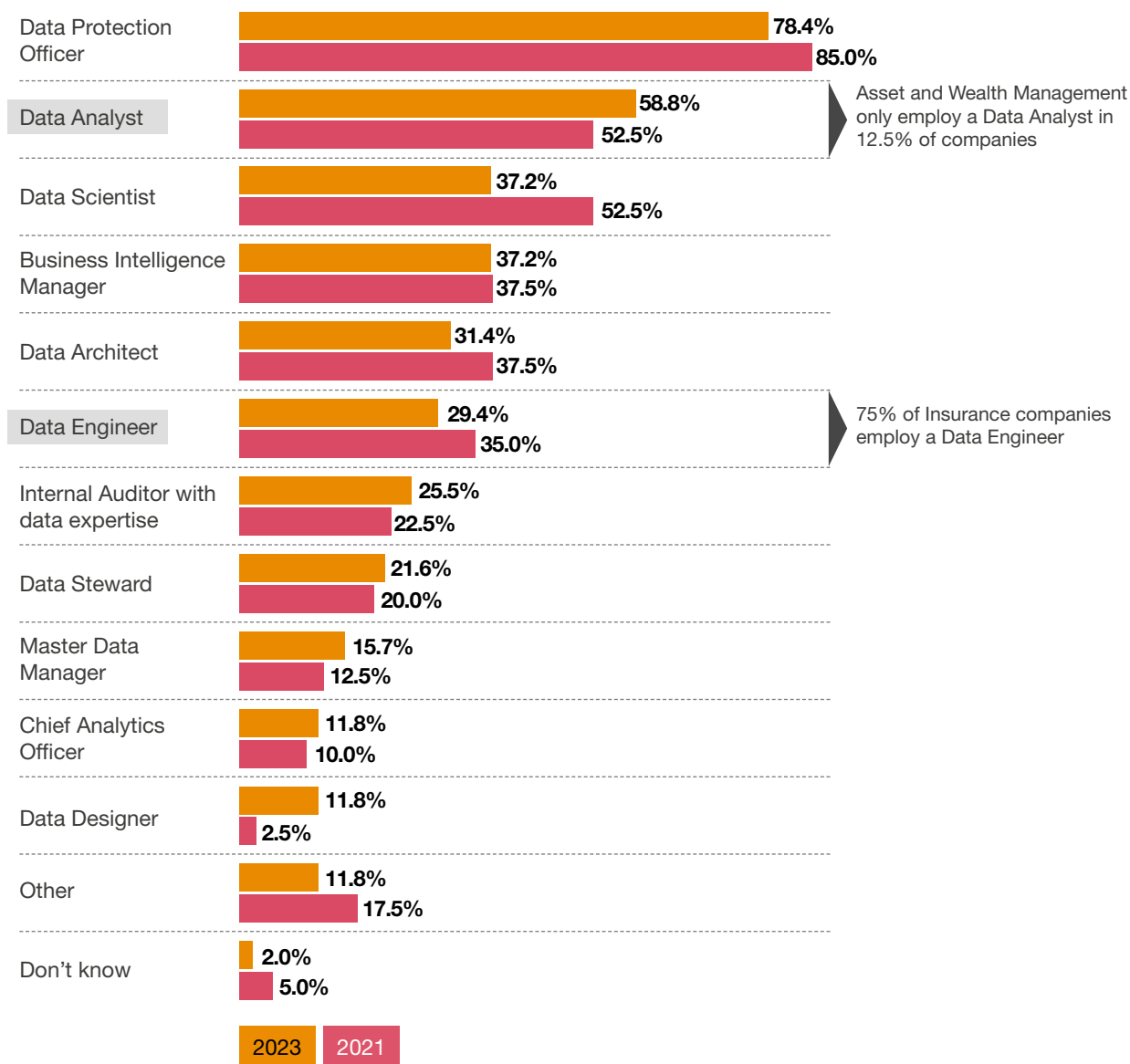
Luxembourg companies are rapidly establishing a more data-centric workplace, seeing a significant increase (35% in 2021 to 51% in 2023) in implementing a clear and defined strategy for managing data, though there is also a small increase in companies without a strategy (7.5% in 2021 to 11.8% in 2023).

The Banking sector overwhelmingly has more companies with a strategy compared to other sectors (**71% Yes**). In compliance with GDPR and other regulation, this sector is well-aware of the requirements on establishing a strategic approach towards data.

SMEs surprisingly seem to be significantly ahead, with **62% reporting having a defined strategy** whereas Large Companies only reported this in **43%** of cases. A potential explanation is the more complex data landscape in which larger organisations operate that may deter an effective strategy.

# Data Use and Data Governance

Which data-related positions are there in your company?



As seen in the maturity self-assessment above, organisations still tend to value data privacy very highly, with the **Data Protection Officer** being the most used data-related position across all sectors. Only in the Insurance sector are **data analysts** more often present.

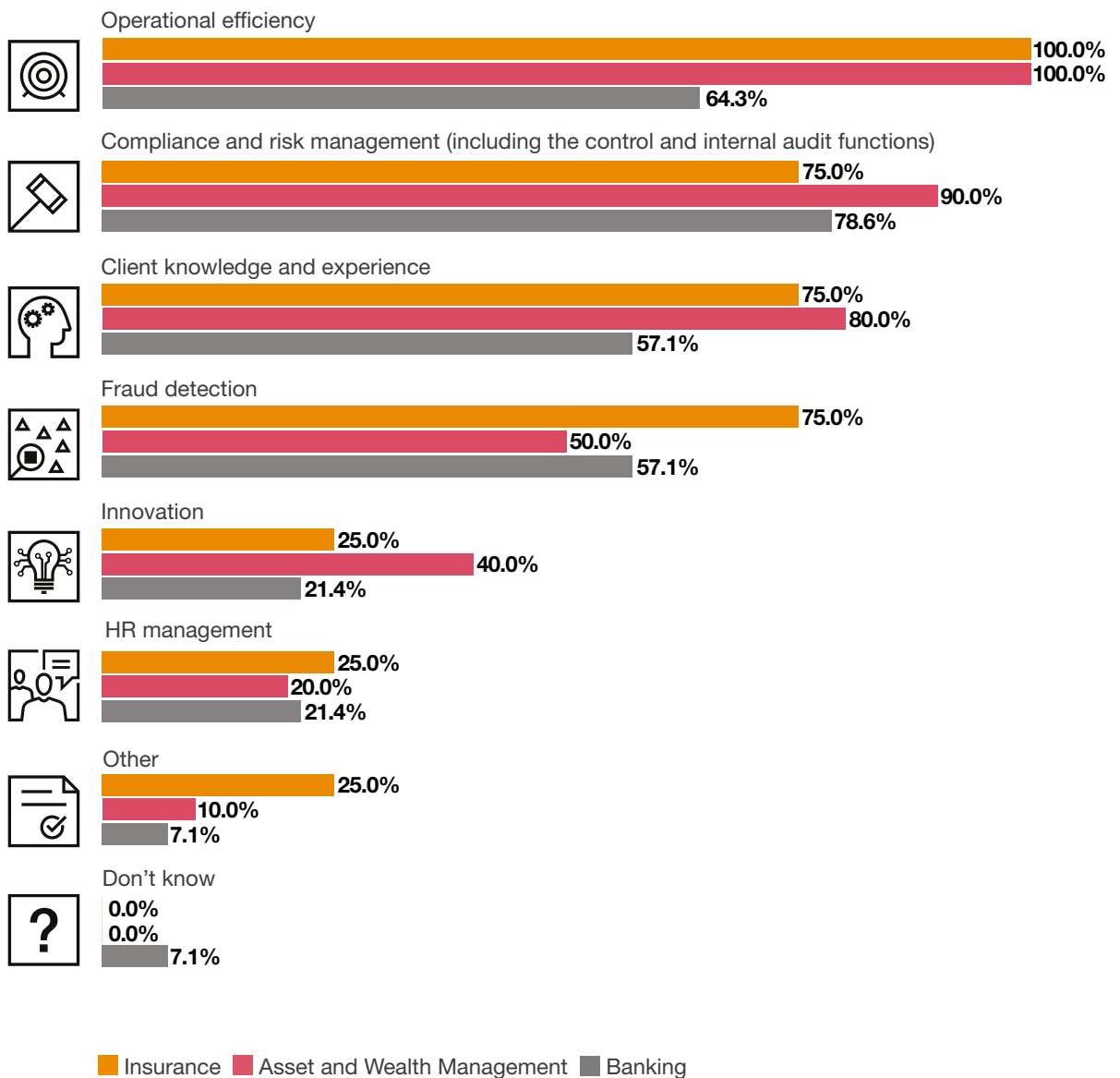
**Data Analyst** and **Data Protection Officer** are the most prominent positions within all companies by a significant margin, though the lesser used positions are seeing an increase in use showing the further incorporation of data within Luxembourg companies.

In comparison to the previous survey, SMEs have increased the hiring of data profiles in almost every position, though they are still generally lagging significantly behind Large Companies due to the lower employee count. The job market on data remains challenging, with demand for data profiles still exceeding supply.

# Data Use and Data Governance

What are your main reasons for collecting data?

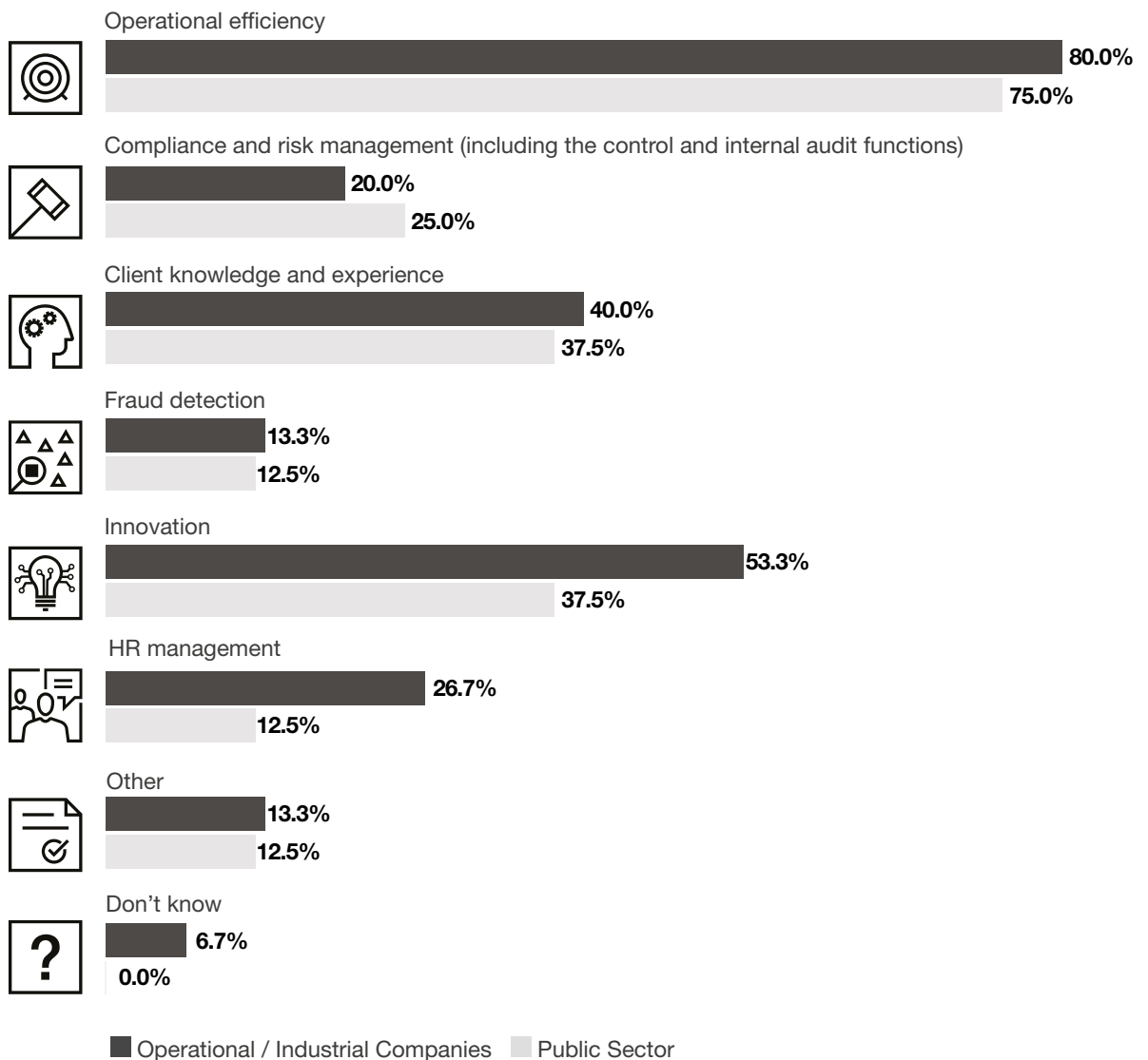
## Financial Sector



# Data Use and Data Governance

What are your main reasons for collecting data?

## Operational companies and Public Sector

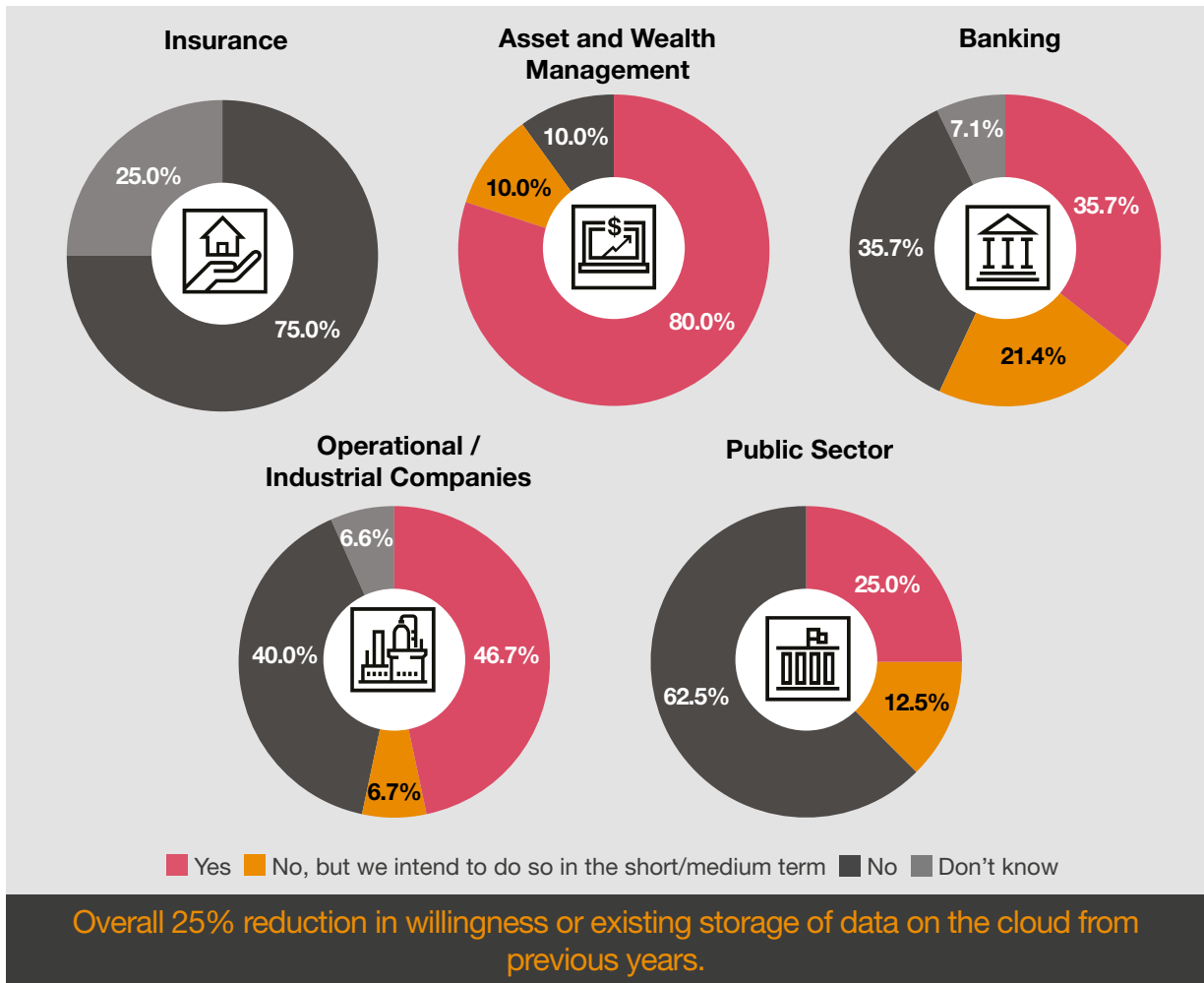


In line with our previous edition, **operational efficiency** remains the most important reason for companies to collect data. **Client knowledge and experience** remain important as well, however, **compliance and risk management** is viewed as just important this year.

Financial sector companies highly value data for **fraud and compliance** related purposes, which was surprisingly limited for Operational companies. It appears that a lack of personal data exposure has this sector less concerned.

# Data Use and Data Governance

Do you store some of your data on the cloud?



There was a decrease in **storage of data on the cloud** from the previous year survey (55%) to this year's result (43%). In addition, those companies **intending to do so in the short/medium term** also decreased (from 20% to 11.8%).

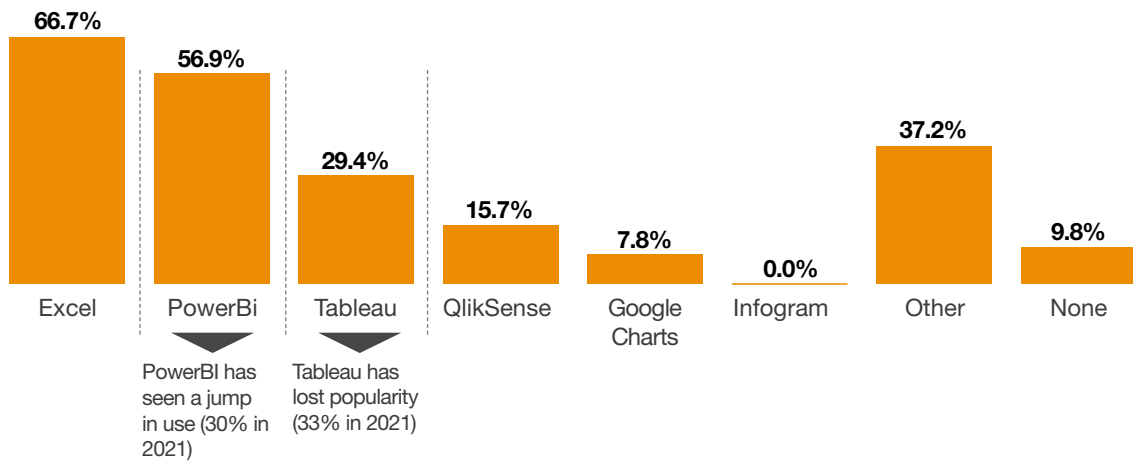
Smaller companies tend to be much more likely to utilise the cloud for data storage (52%) compared to Large Companies (36.7%). There is however a greater portion of Large Companies that plan to in the short/medium term (16.6%) compared to SMEs (4.7%).

Overall there is a notable and significant decrease in both the current storage and intent to store data on the cloud. This is not entirely surprising as we have seen a large increase in data privacy concerns, so companies may be searching for alternatives to avoid any data breaches or related concerns.

To highlight this point, insurance companies **do not have intent to store data in the cloud** based on the responses received. In contrast, 80% of the Asset and Wealth Management Sector already use **cloud data storage**, possibly driven by their international headquarters being more open to this technology.

# Data & AI Tools and Technologies

Which visualisation tool(s) do you use?



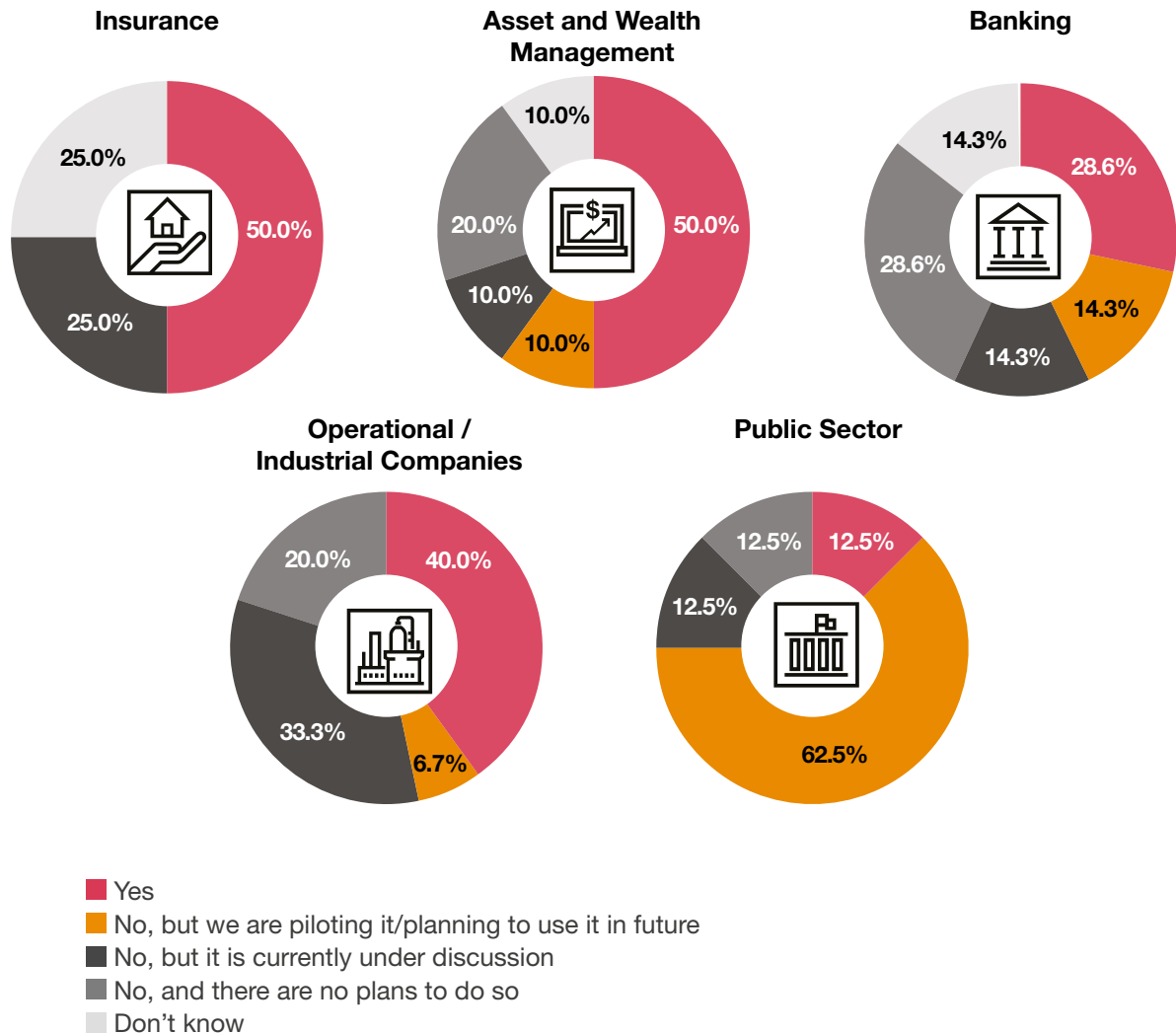
Luxembourg companies are more open to incorporate new visualisation tools. There has been an overall increase in visualisation tool use of 60% (45% Excel plus others + 15% Excel only) to 68% (60% Excel plus others + 8% Excel only) from 2021 to 2023.

In particular, **the sole reliance on Excel has decreased**, meaning companies are adding new tools into their arsenal such as PowerBI, which saw a large increase in use over the last two years (30% to 56%).

While the general use of Excel between Large Companies and SMEs is relatively the same, Large Companies tend to be much more likely to employ the next most popular alternatives in **PowerBI and Tableau (in both cases more than 2x the use)**. It will be interesting to monitor if Excel will remain in this position over the coming years, or if we see an impact of other, AI-powered tools on the market.

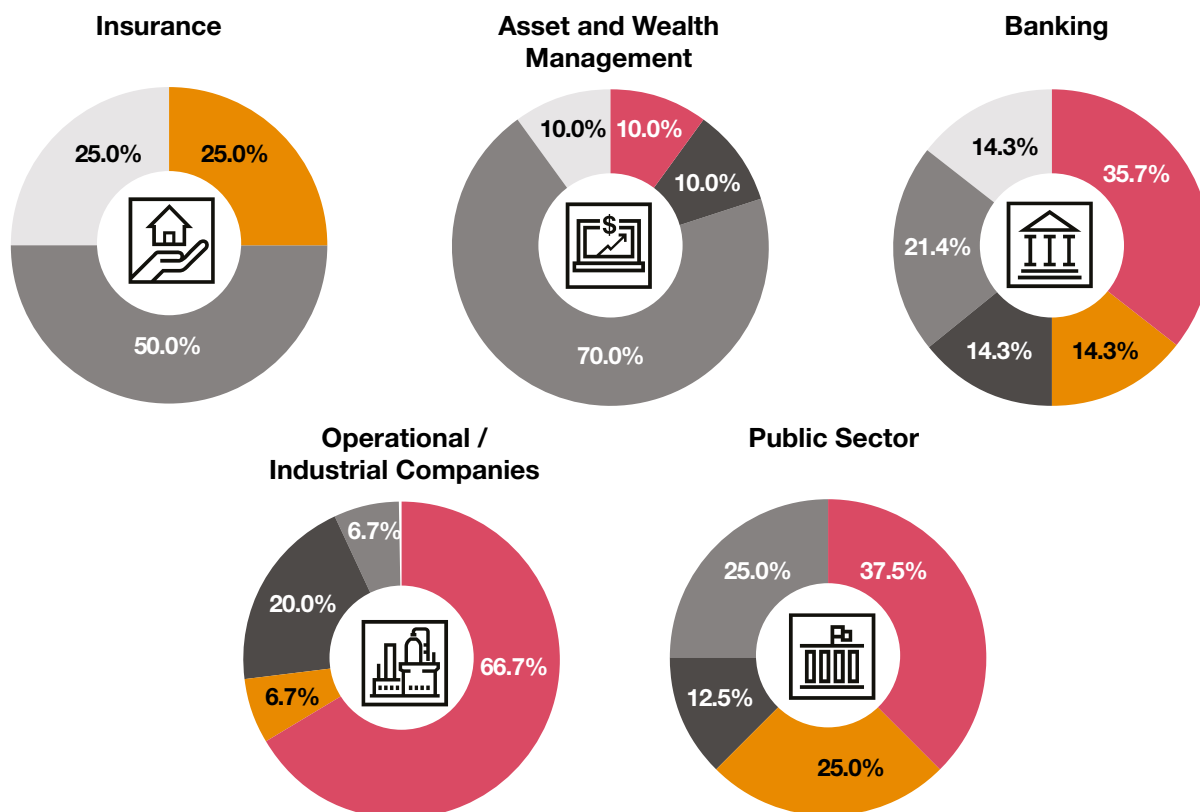
# Data & AI Tools and Technologies

Are you currently using external AI tools (e.g. DeepL for translation, Ephesoft Transact for document analysis) or internally developed AI tools (e.g. self-developed machine learning algorithm with Python) in your company?



# Data & AI Tools and Technologies

Are you currently using internally developed AI tools (e.g. self-developed machine learning algorithm with Python) in your company?



- Yes
- No, but we are piloting it/planning to use it in future
- No, but it is currently under discussion
- No, and there are no plans to do so
- Don't know

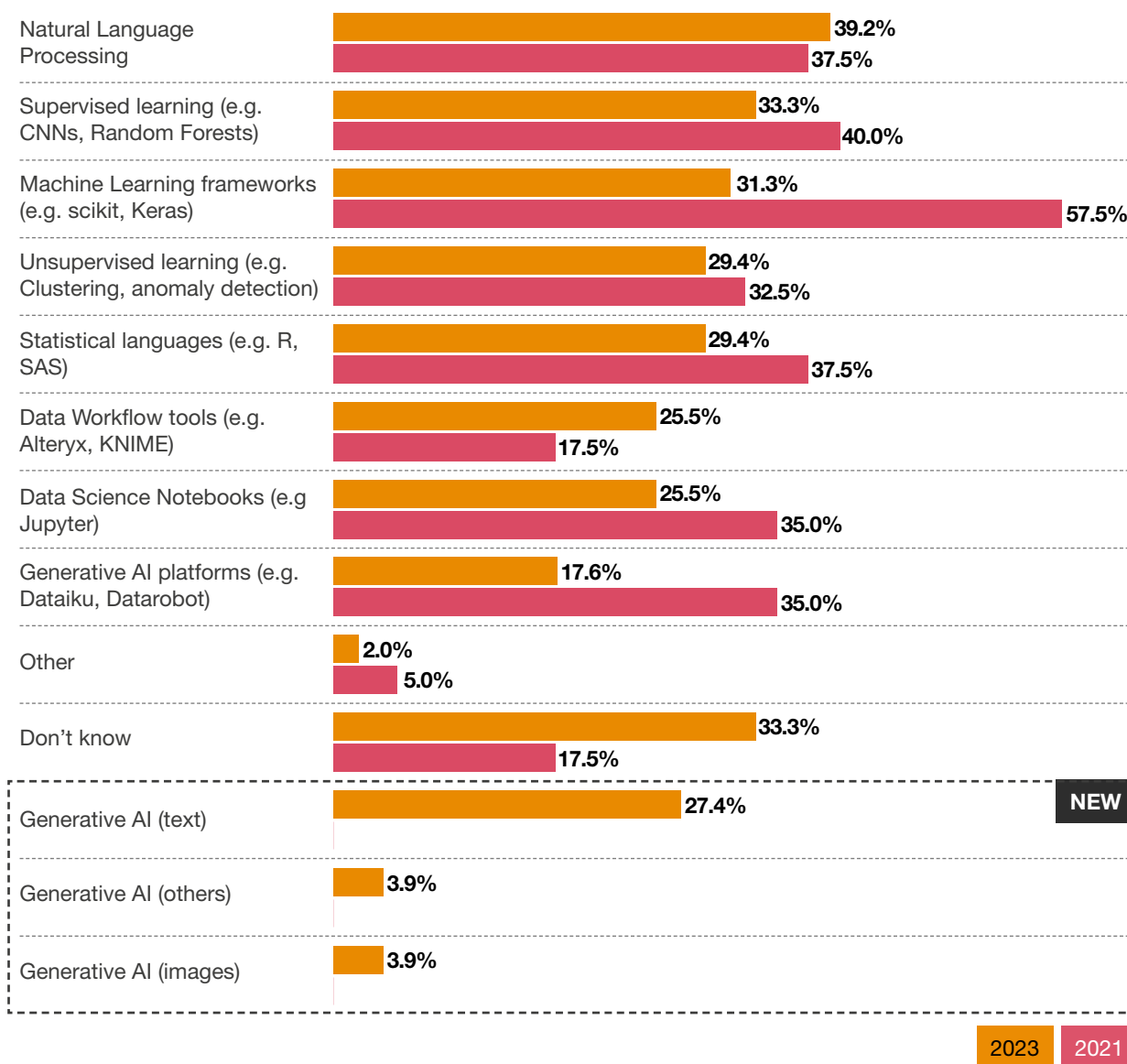


Over the last two years, Luxembourg companies have shown a **notable growth in their interest in AI tools**, both internal and external. From 2021, the utilisation of and potential implementation has increased for both types.

The Public Sector shows particular interest in using external AI tools, while the Operational/Industrial sector companies show the greatest interest in internally developed AI tools. This may be attributed to the use of public data compared to confidential data in the sectors.

# Data & AI Tools and Technologies

Which AI technologies are you using or would like to use?



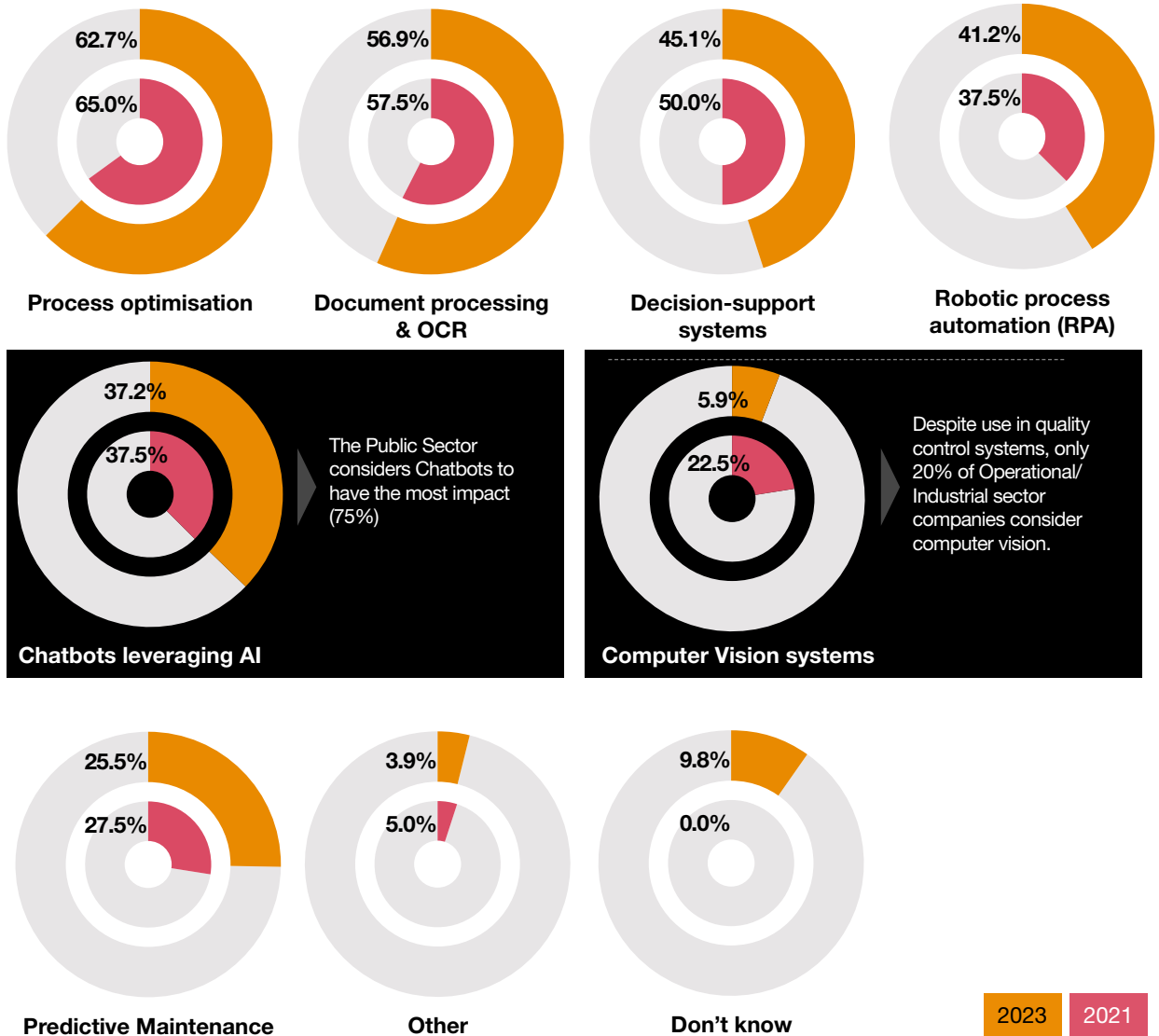
From the previous survey, **Data Workflow Tools** have seen an increase in use from 17.5% to 25.5%.

The Banking sector is ahead of the rest with highest awareness and use for AI technologies across sectors. Of the new technologies, the Public Sector takes a particular interest in **Generative AI (text)** compared to their counterparts. There is a significant willingness to work with ChatGPT and similar models.

Large Companies overall work more commonly with AI technologies than SMEs. An exception of **Generative AI (text)**, a new technology, where SMEs can more easily start experimenting (42.86% compared to 16.67%).

# AI Strategy & Methods

Which AI-related concepts do you think have or would have the greatest impact on your business?

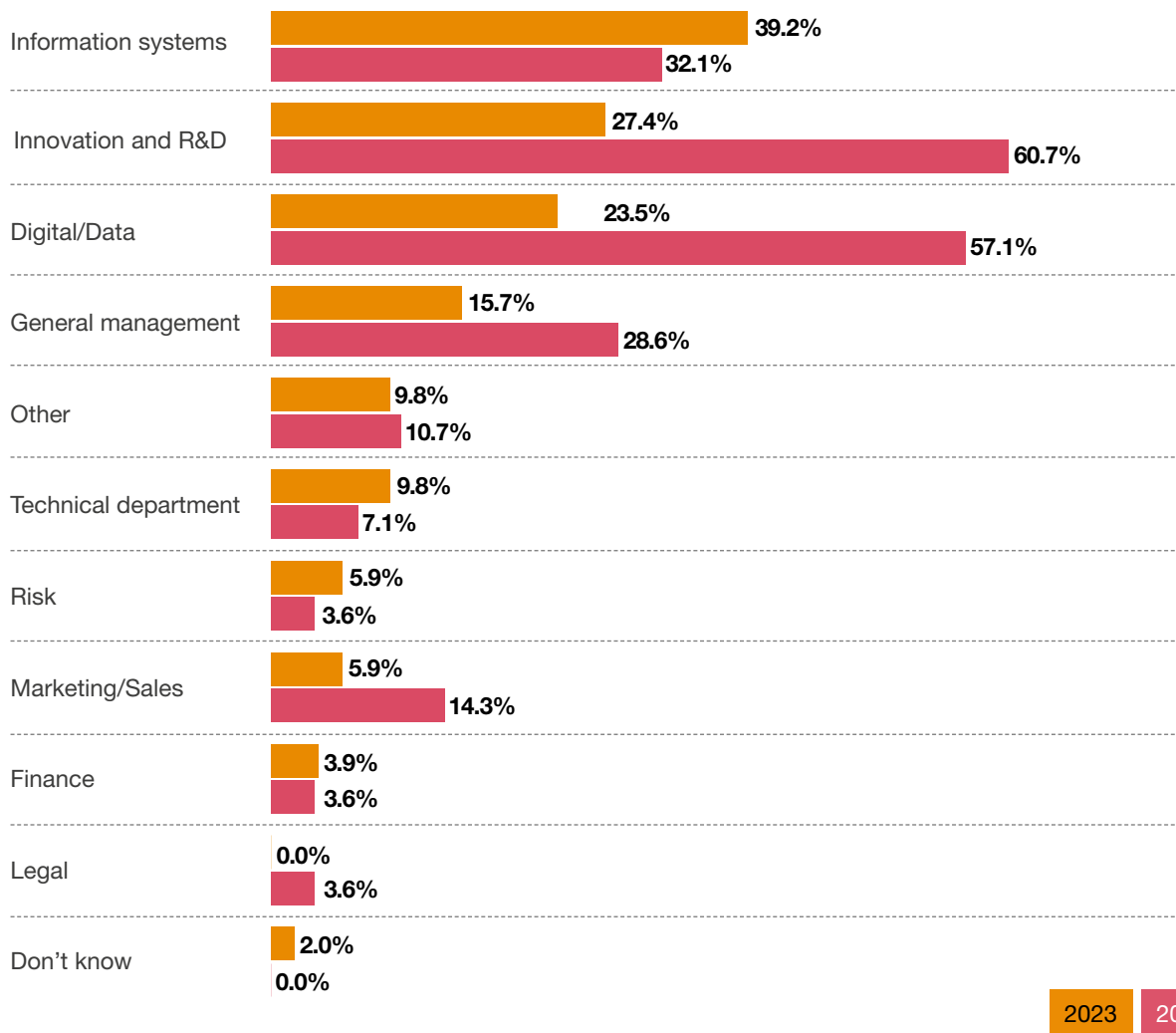


There is no single application that is considered as impactful by all sectors. **Process optimisation (62.7%)** and **Document processing & OCR (56.9%)** are the most popular.

When considering individual sectors, the Public Sector organisation very highly rates **Chatbots leveraging AI**, likely due to the rapid growth of new tools such as ChatGPT and similarly developed AI chatbots. Additionally, the Operational/Industrial sector companies comparatively rate **Predictive Maintenance** much higher than the other sectors. There is no single winning application in 2023 and we are keen to revisit the topic in the next edition.

# AI Strategy & Methods

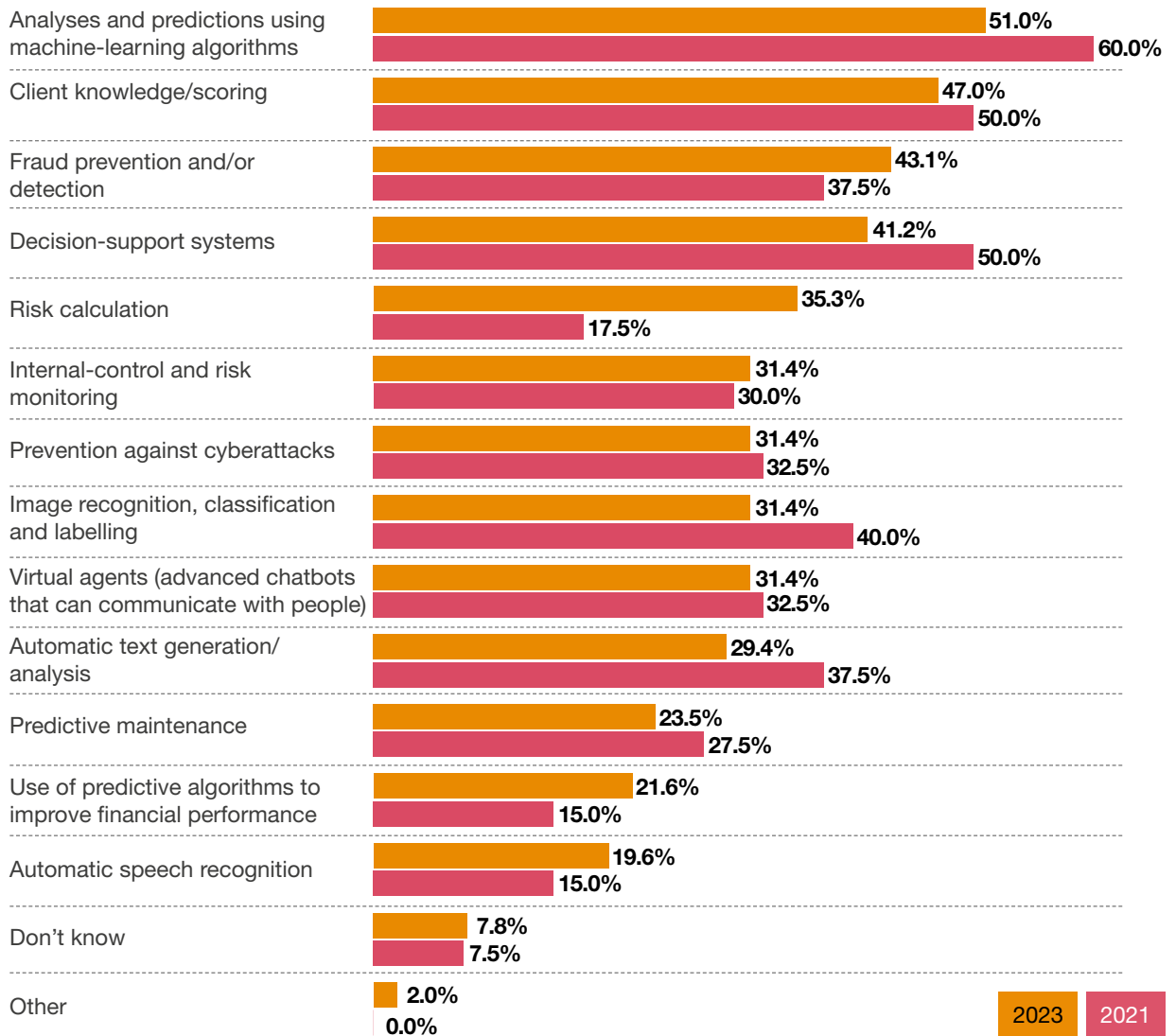
Who is/are responsible for piloting AI-related projects within your company?



In a drastic shift from the last survey, **IT units are now primarily responsible for AI-related projects** in companies across all sectors. Previously this was dominated by Innovation and R&D as well as Digital/Data, but with new AI tools arriving like ChatGPT or other developed technologies, it is becoming more practical to implement them for a wider range of projects and day to day activities and ensuring availability for many business units.

# AI Strategy & Methods

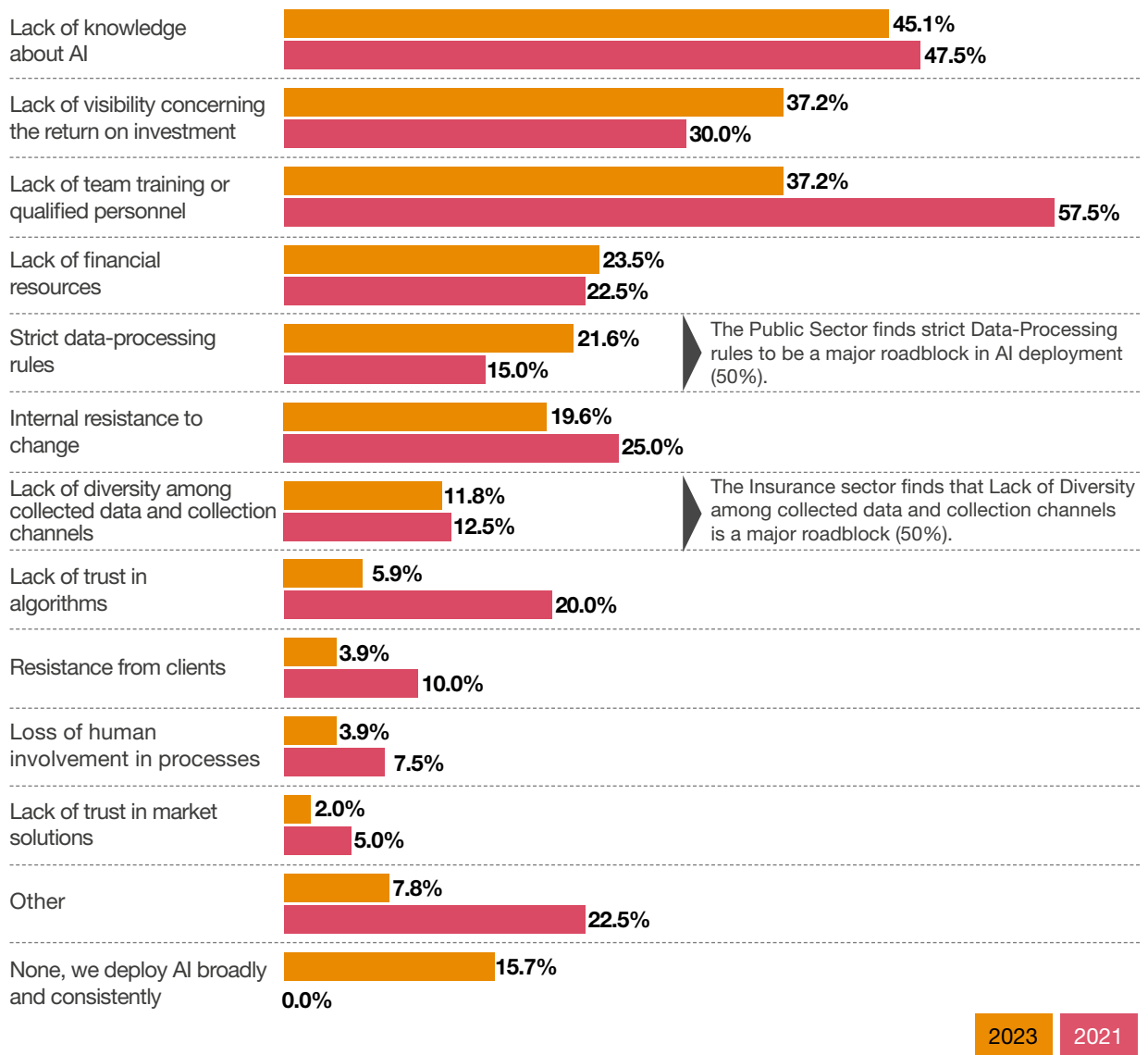
In which fields is AI used (or would be used) within your company?



Compared to previous years, Luxembourg companies stay fairly consistent in which fields they implement AI. However with the increase in data privacy and increased use within the Financial sectors, fields such as **Risk Calculation** (up to 35.3% from 17.5%) have seen massive increases. Additionally, other similar fields for the Financial sector such as **Fraud prevention and/or Detection** and **Use of predictive algorithms** to improve financial performance have seen notable increases as well. There is no clear winning field of AI that would be universally applied over all sectors.

# AI Strategy & Methods

What are the main reasons for not deploying AI in your organisation?



The Public Sector finds strict Data-Processing rules to be a major roadblock in AI deployment (50%).

The Insurance sector finds that Lack of Diversity among collected data and collection channels is a major roadblock (50%).

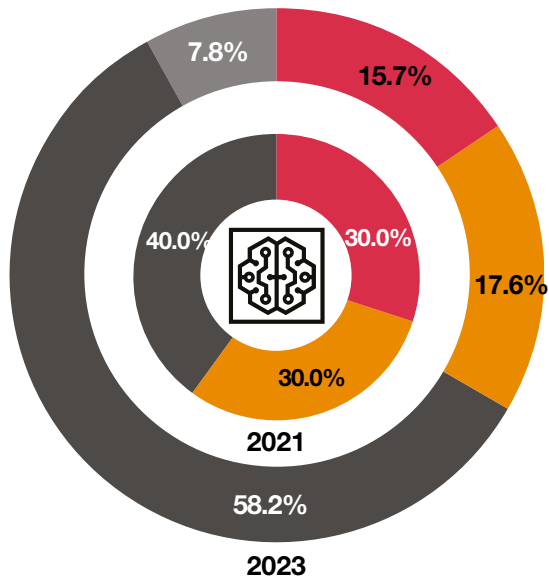


Luxembourg companies have begun to integrate AI technologies at a higher rate, increasing the overall knowledge and capabilities of their personnel. They are now incorporating AI into normal business practice, both through day to day use as well as considerations on **cost, return of investment, and data privacy concerns**. The previous issues such as lack of training or trust (both internally and from clients), which dominated the reasoning behind not deploying, are now significantly reduced, showing a strong increase in maturity for Luxembourg companies.

This shows a willingness by Luxembourg companies to adopt AI moving forward, but also the arrival of new roadblocks related to the implementation rather than the adoption.

# AI Strategy & Methods

Do you have defined KPIs to measure the impact of deploying AI in your company's field of business?



A strategic tracking of the implementation of AI seems challenging at this point in time, with the rate of KPI use decreasing significantly over the last two years. The Banking sector is most inclined to set up a distinct monitoring of AI impact, with 57% of respondents inclined to do so.

It will be relevant to monitor this trend in the future, in particular with the upcoming European AI Act and its requirements towards establishing more governance around the use of AI solutions.

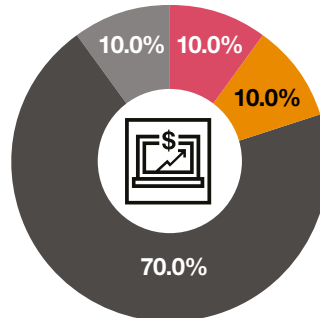
■ Yes ■ No, but we intend to do so in the short/medium term ■ No ■ Don't know

## Responses by Sector

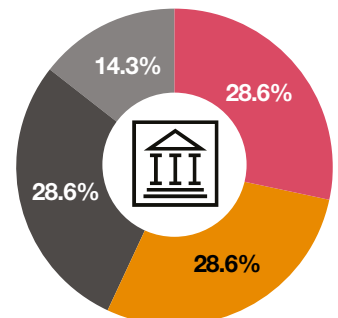
### Insurance



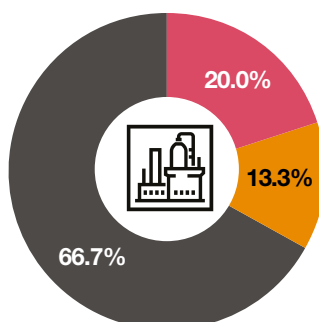
### Asset and Wealth Management



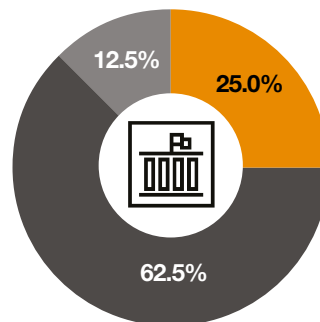
### Banking



### Operational / Industrial Companies



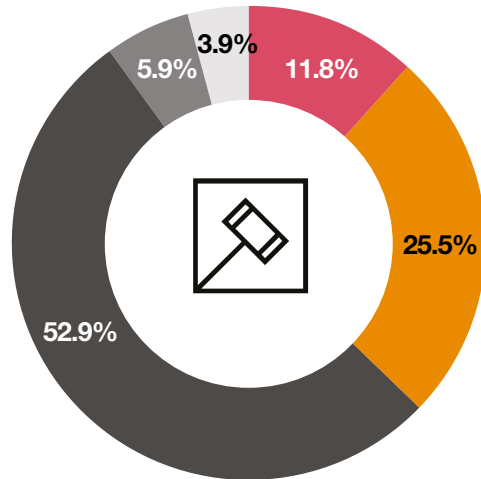
### Public Sector



■ Yes ■ No, but we intend to do so in the short/medium term ■ No ■ Don't know

# European Regulation on AI

What is your level of awareness on the upcoming European AI Act?



- Well informed
- Aware, but limited
- Would like to have more information
- Not interested
- No response

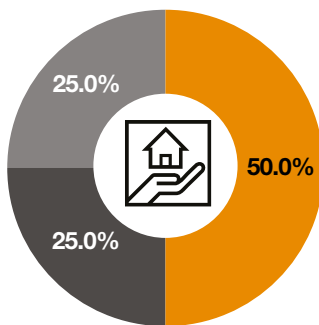


**A lack of awareness** of the European AI Act seems to be present in Luxembourg's companies at this point in time. This is not surprising, as the law is not enacted yet. However, companies show a strong desire to learn more about how it will affect their operations. More than half (52.94%) of responses indicate this willingness and desire, and combined with those that are informed to some capacity (~36%) there is less than 10% of respondents that are not interested in more information.

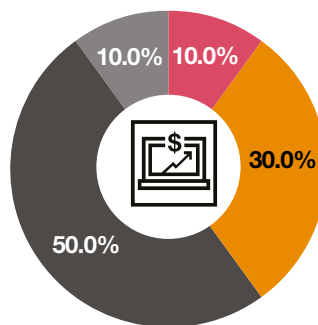
By a slight margin, Large Companies tend to be more informed than SMEs (overall 40% compared to 32%).

## Responses by Sector

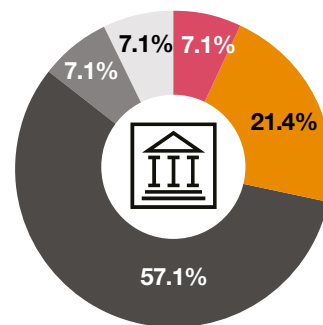
### Insurance



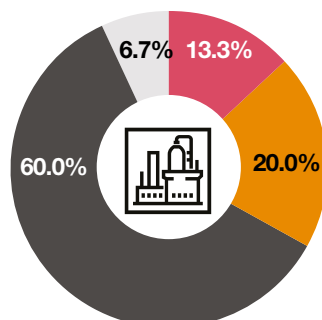
### Asset and Wealth Management



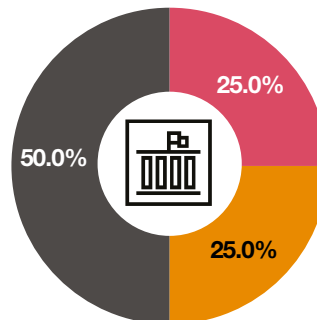
### Banking



### Operational / Industrial Companies

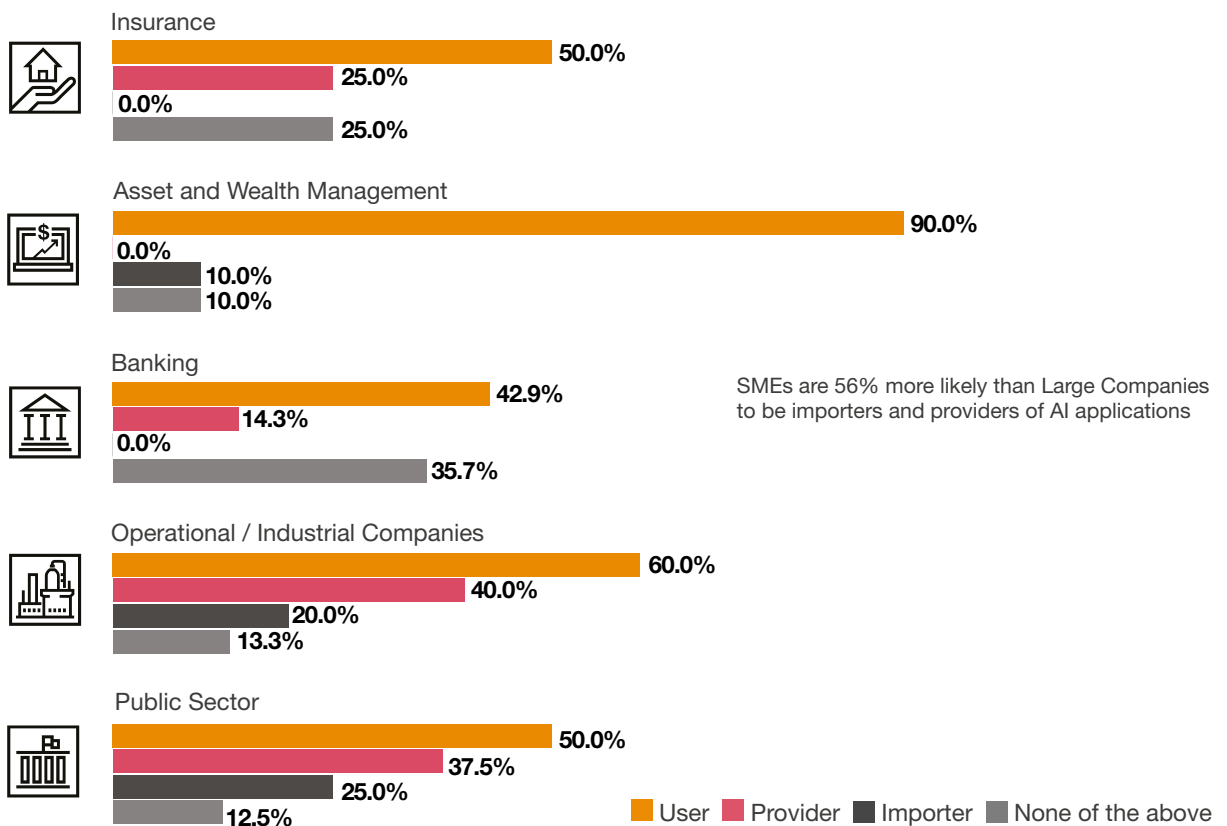


### Public Sector



- Well informed
- Aware, but limited
- Would like to have more information
- Not interested
- No response

## Do you consider yourself as a provider, importer, or user of AI applications?



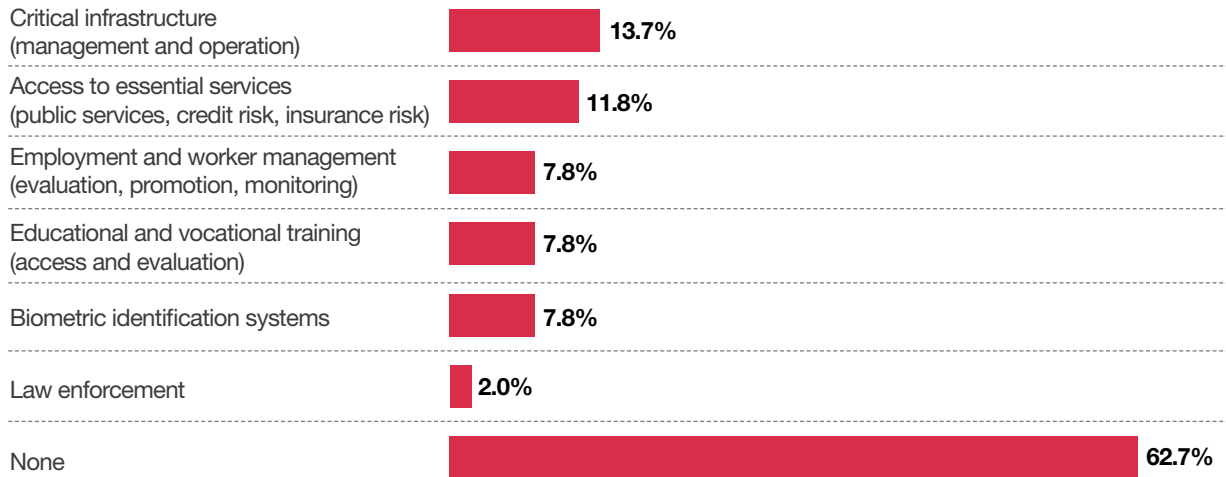
Luxembourg companies are considering themselves as **Users of AI applications**, with 58.8% of responses indicating this. Providers made up 23.5% of responses, importers made up 11.8%, and none filled the remaining 19.6%. Given the broad use of AI applications in business applications, this picture should change in the coming period.

The Asset and Wealth Management sector has a 0% response as a **provider** of AI applications. They plan to procure ready solutions. Conversely, those companies that are SMEs are more likely to be producers of AI applications than Large Companies.

By and large our respondents consider Luxembourg more as an AI-using nation than an AI-producing one.

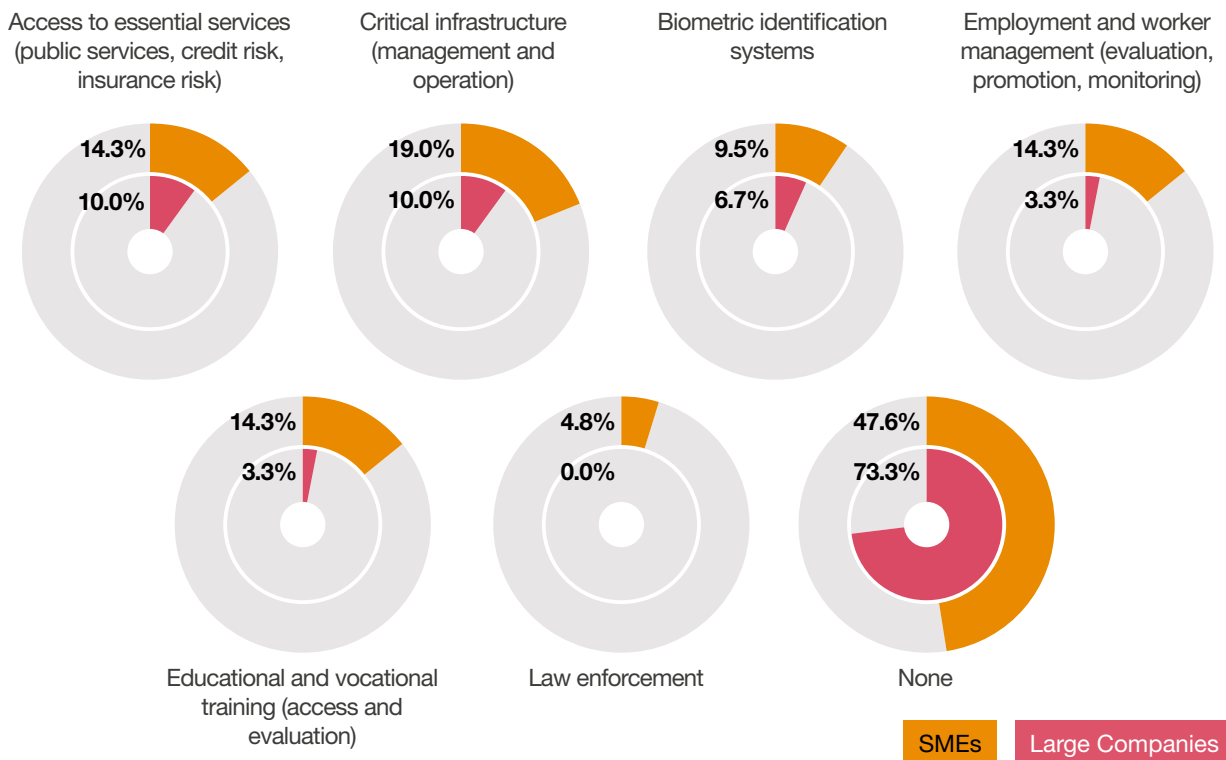
# European Regulation on AI

Are you a likely user of any of the following high-risk AI application groups?



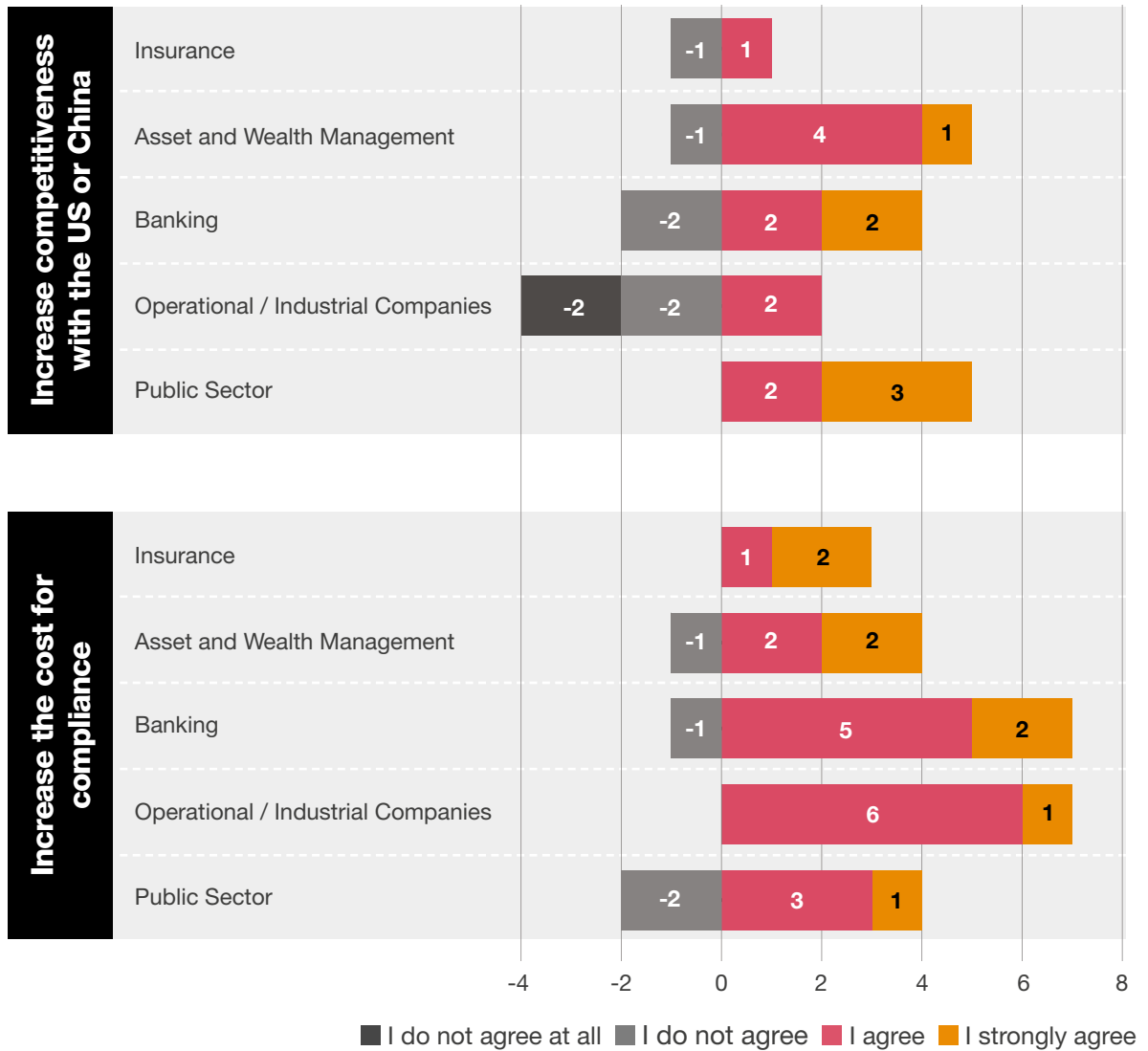
It seems that many Luxembourg organisations **choose to avoid high-risk AI applications** (see Annex for a definition), but those that do use them tend to use more infrastructure and business related applications as opposed to ones related to personal information. Given the ongoing discussions on what constitutes high-risk, this was a challenging question and responses might be significantly different once the law is enacted.

## Responses by Company Size



# European Regulation on AI

To what extent do you agree to the following aspects of the European AI Act ?

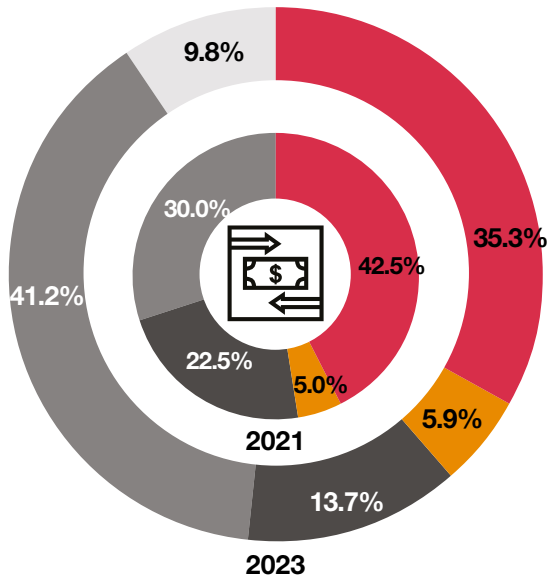


Uncertainty remains high on the impact of the EU AI Act. Luxembourg companies consider it an instrument to facilitate innovation. Several instruments, such as start-up funding and regulatory sandboxes are foreseen in the regulation.

On the other hand, Luxembourg companies fear an increased **cost for compliance**. This should largely depend on their current level of maturity around data governance. A mature company will just have to perform a small leap to AI compliance.

# Investment & Collaboration

Have you invested – or are you considering investing – in proofs of concept?



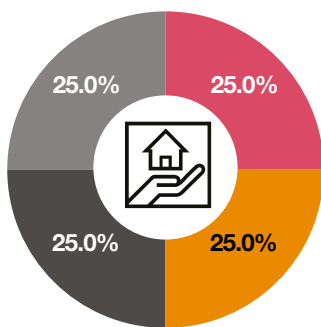
Luxembourg companies have begun to invest more in actual products as opposed to investing in Proofs of Concept (POCs) as seen by the large increase in no responses. As products have become more reliable and more readily available to the market, there is less of a reason to invest in POCs.

The **Banking sector** and the **Operational/Industrial sector** companies seem the most willing to still invest in comparison to the other sectors, however the numbers still have decreased from the previous year survey. Organisations seem more interested in procuring solutions instead of developing their own.

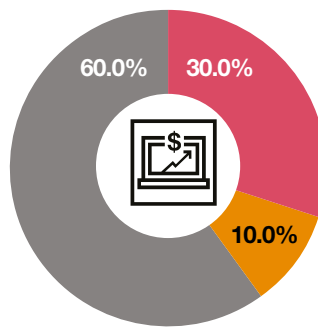
■ Yes, in data & AI POC ■ Yes, in data POC ■ Yes, in AI POC ■ No ■ No Response

## Responses by Sector

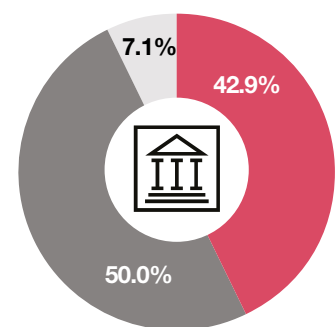
### Insurance



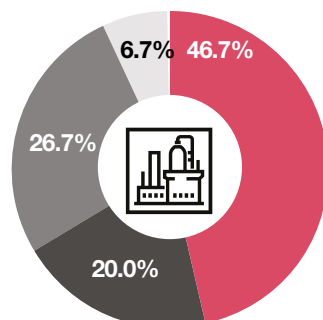
### Asset and Wealth Management



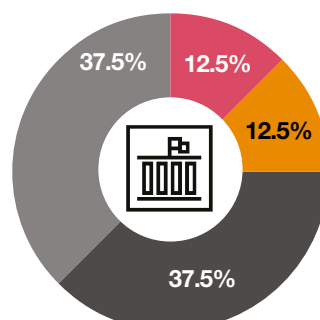
### Banking



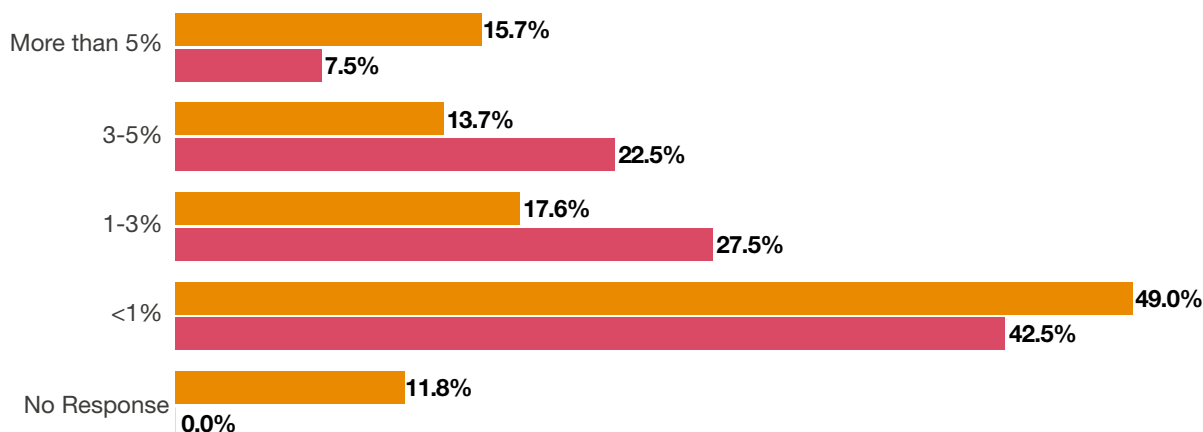
### Operational / Industrial Companies



### Public Sector



What percentage of your turnover would you allocate or be prepared to allocate to develop/improve data or AI solutions?



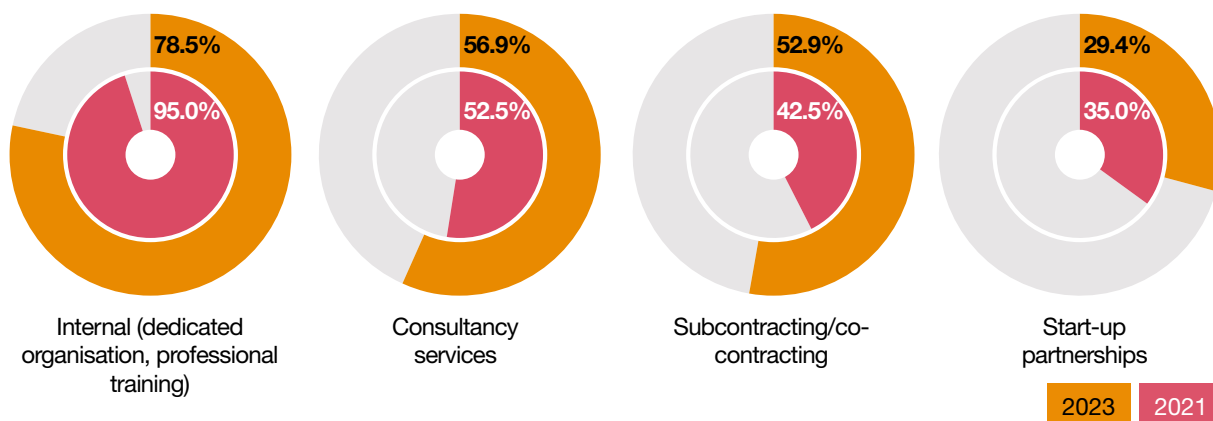
The majority of the Insurance sector would only invest >1%.

2023 2021



There is a **trend of increasing investment** from Luxembourg companies over the last two years in data and AI solutions. The overall response spread has shifted towards the higher percentages, likely due to the increased knowledge and implementation of existing data and AI solutions. As such, companies are more likely to be willing to invest because they can readily see the impact that these solutions are already providing.

Which of the following actors are/would be involved in developing data solutions within your company?



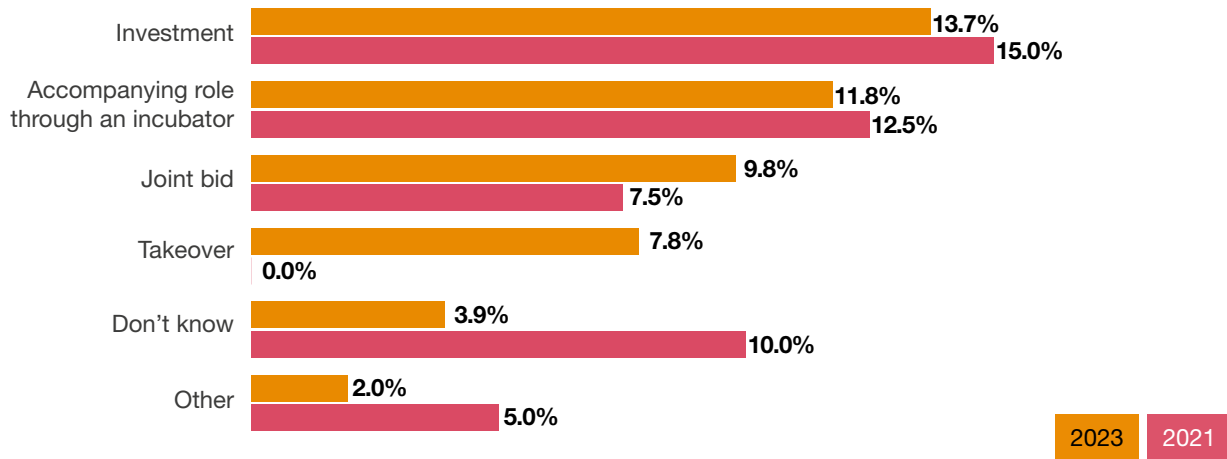
2023 2021



In comparison to previous years, the massive increase of data dependency and AI technologies has seemingly led Luxembourg companies to be more reliant on third-party options for developing data solutions. Both **Consultancy** and **Subcontracting/co-contracting** services saw an increase, despite not being the main actor overall. This is in line with the increased maturity of AI products that can be more readily procured.

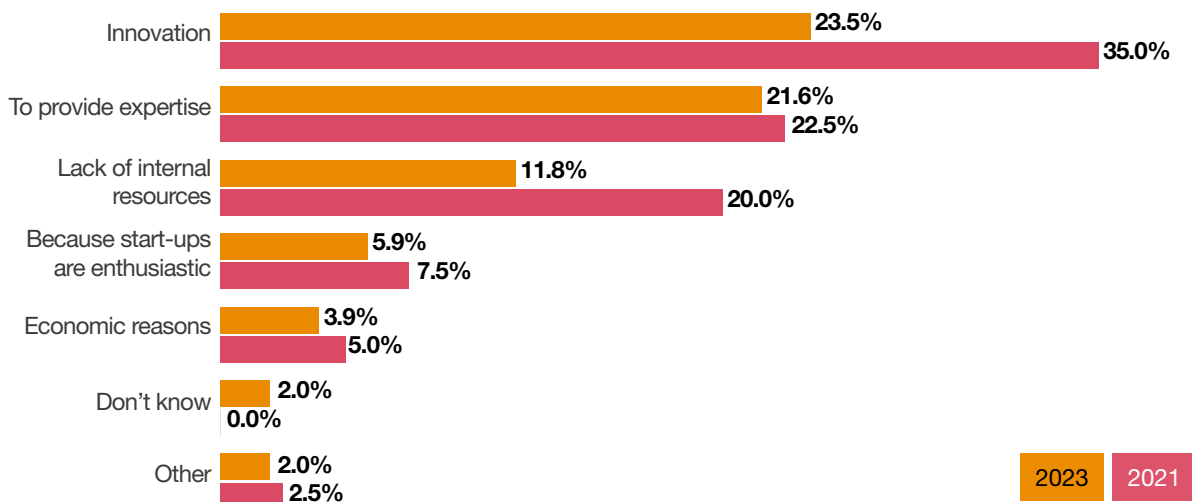
# Investment & Collaboration

What collaboration method(s) have you chosen/would you choose with start-ups?



Luxembourg companies have begun to **reintroduce Takeover as a collaboration** method with start ups, as well as a significant increase in Joint Bid as a method. Otherwise the results are similar to our previous edition, showing a continued uncertain collaboration landscape in Luxembourg.

Why do you/would you get start-up partnerships involved in developing data solutions within your company?



The rapid growth of data-based solutions in the last two years has shifted the approach of Luxembourg companies to more internally-based ones. As companies have become more comfortable with internal options, the need for start-up partnerships has decreased as companies are able to do the same thing with their internal resources.

This can notably be seen by the large decrease in **lack of internal resources** over the last two years. Companies are less frequently citing this as an issue. Given additional efficiencies with technologies such as ChatGPT, this might cause a transition of the Luxembourg Data and AI job market in the coming years.

# Appendix

## What is the EU AI Act?

The European Union (EU) has recently taken a significant step forward in shaping the future of artificial intelligence (AI) within its borders through the introduction of the European AI Act. Recognising the transformative potential of AI and the need to strike a delicate balance between innovation and safeguarding fundamental rights, the Act sets out a comprehensive regulatory framework to ensure the responsible and ethical development, deployment, and use of AI technologies across Europe. Backed by the expertise of policymakers, industry stakeholders, and the public, the European AI Act aims to foster trust, transparency, and accountability in the AI ecosystem while positioning Europe as a global leader in AI governance.

The European AI Act is a landmark legislation that establishes a risk-based designation of AI systems from low risk, which has no specific compliance duties to unacceptable risks of AI systems, prohibiting the development of those, e.g. autonomous weapons systems. The most relevant category is high-risk systems that are having an impact on EU citizens and therefore are posing specific obligations to providers and users of those. This may range from credit rating systems, law enforcement and judicial AI applications, to algorithms applied in critical infrastructures.

The Act emphasises four key objectives:

### Ensuring high levels of protection for individuals and society



The European AI Act places human well-being, fundamental rights, and ethical considerations at its core. It introduces strict requirements for high-risk AI systems to ensure the protection of individuals' rights and safety.

### Fostering trust and transparency



The Act promotes transparency and accountability in AI systems by mandating comprehensive documentation, user information, and clear communication about AI functionalities and limitations.

### Supporting innovation and competitiveness

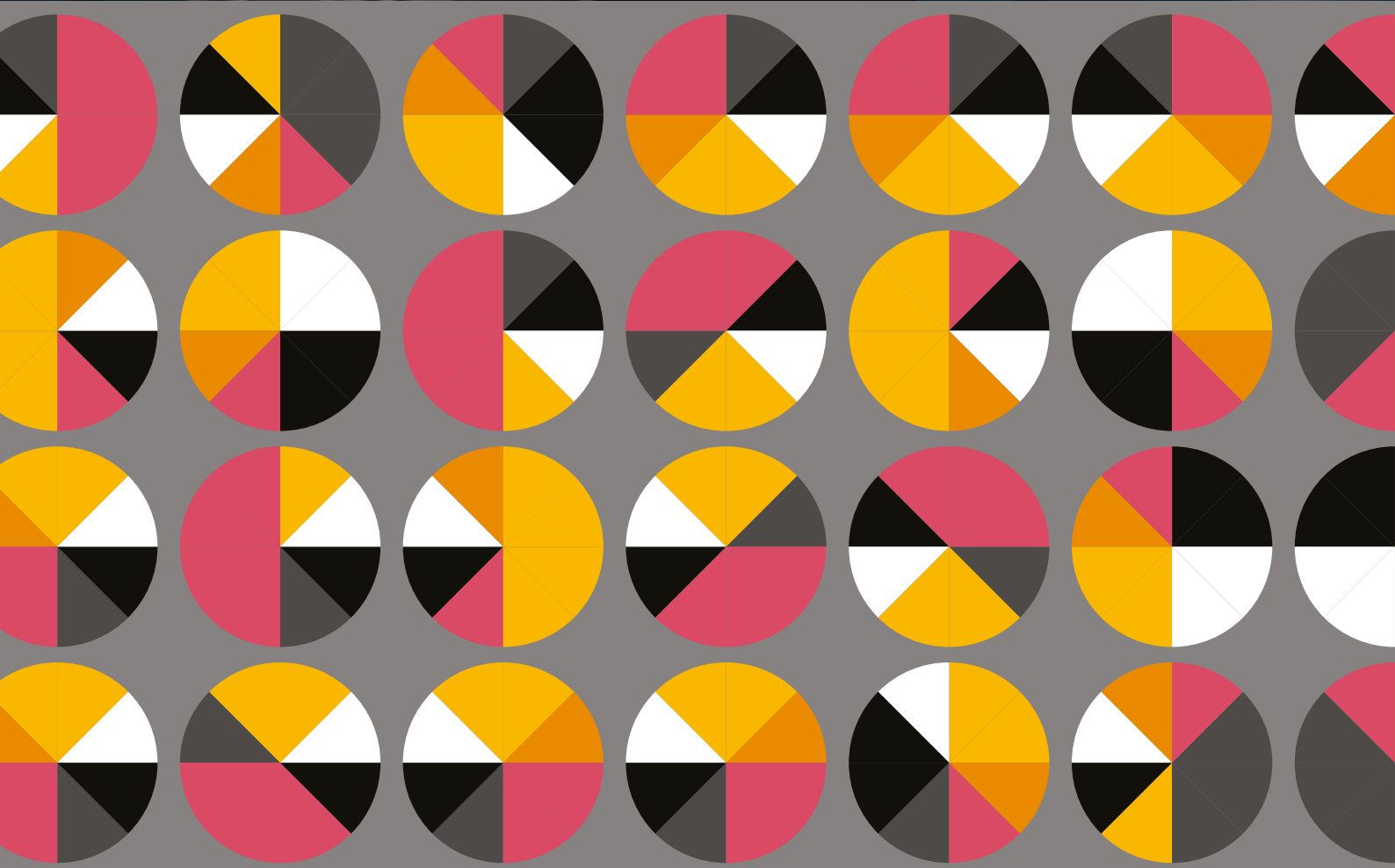


While safeguarding fundamental rights, the Act also aims to foster innovation and competitiveness. It distinguishes between high-risk and low-risk AI applications, imposing proportionate obligations to strike a balance between promoting innovation and protecting individuals.

### Enhancing cooperation and harmonisation



The Act facilitates cross-border cooperation and harmonisation of AI regulations within the EU, aiming to create a level playing field for businesses, prevent regulatory fragmentation, and ensure a cohesive approach to AI governance.

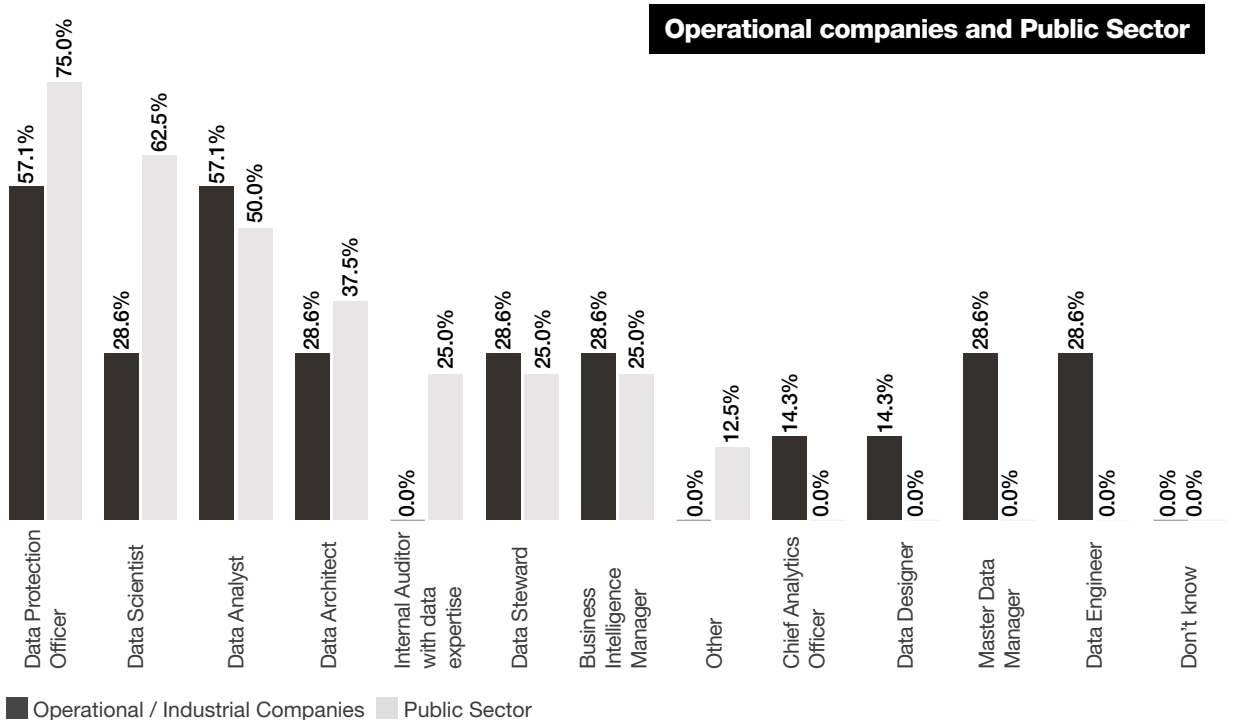
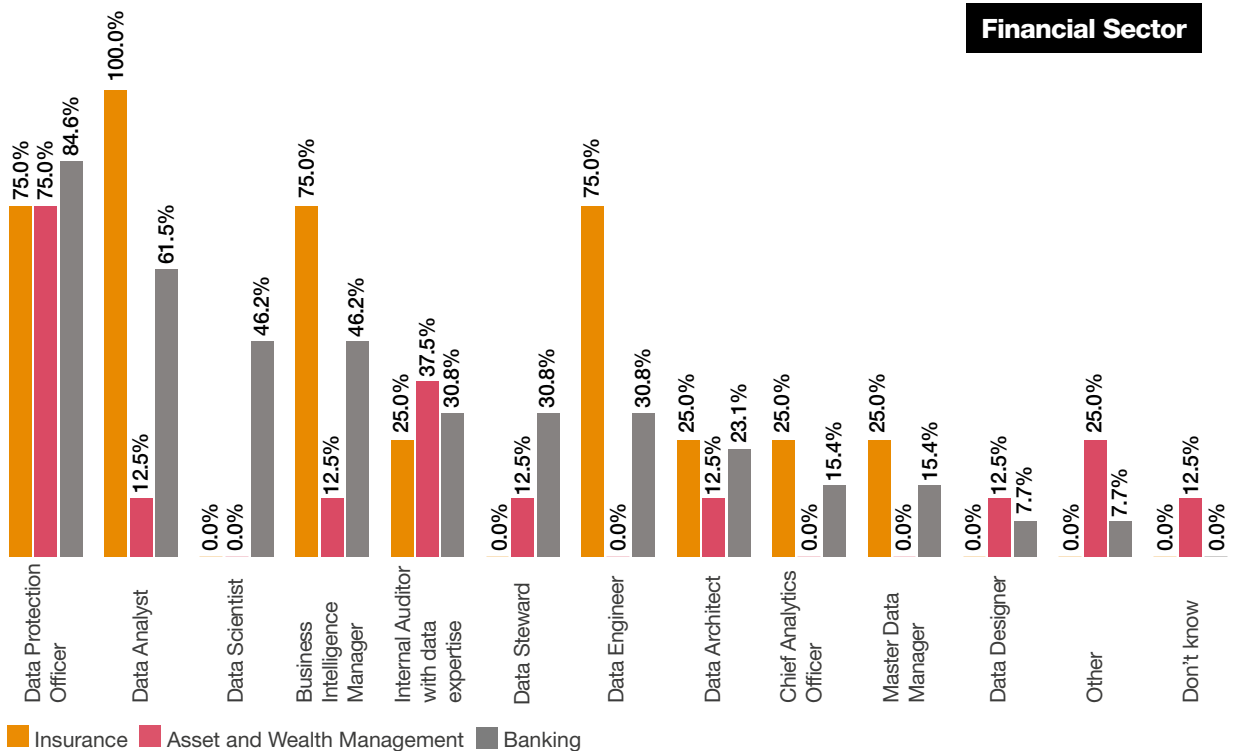


# Additional figures

## Data Use and Data Governance

In this section we present additional results of the survey that provide extra insights but did not make it into the main body of the report.

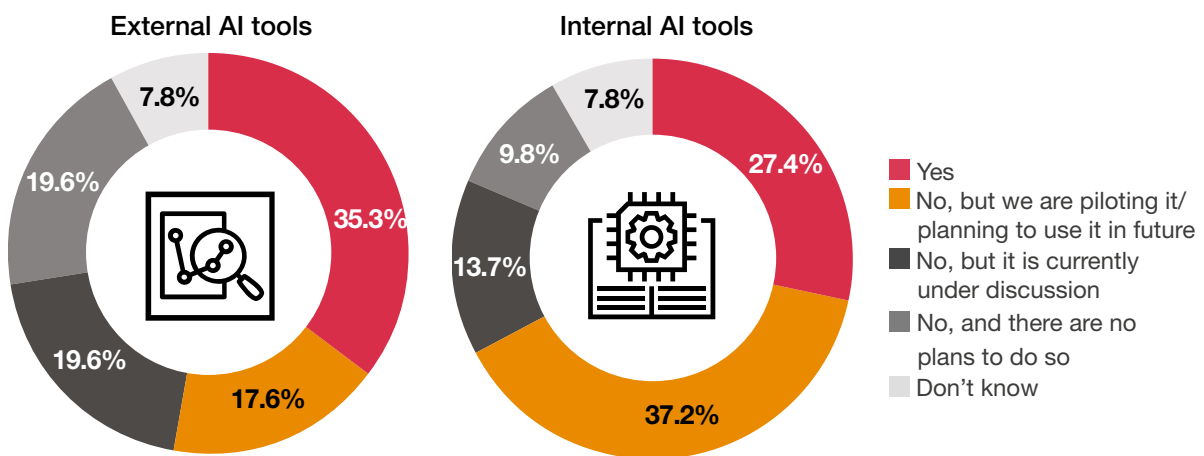
Which data-related positions are there in your company?



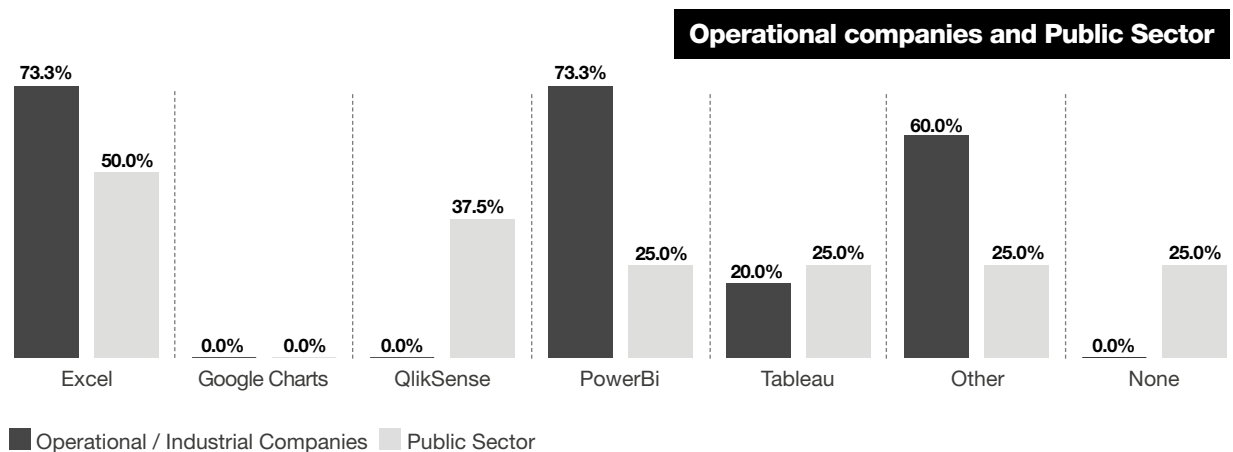
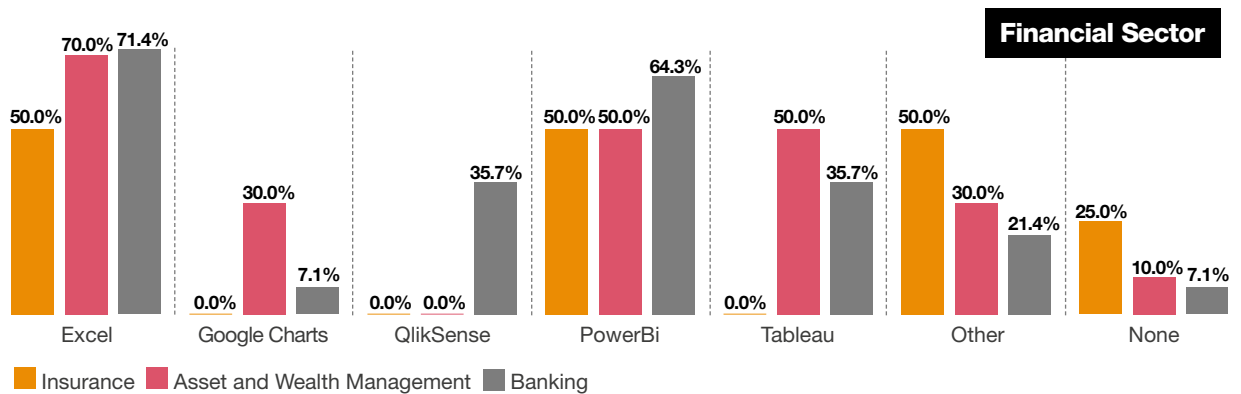
# Additional figures

## Data & AI Tools and Technologies

Are you currently using external AI tools (e.g. DeepL for translation, Ephesoft Transact for document analysis) or internally developed AI tools (e.g. self-developed machine learning algorithm with Python) in your company?

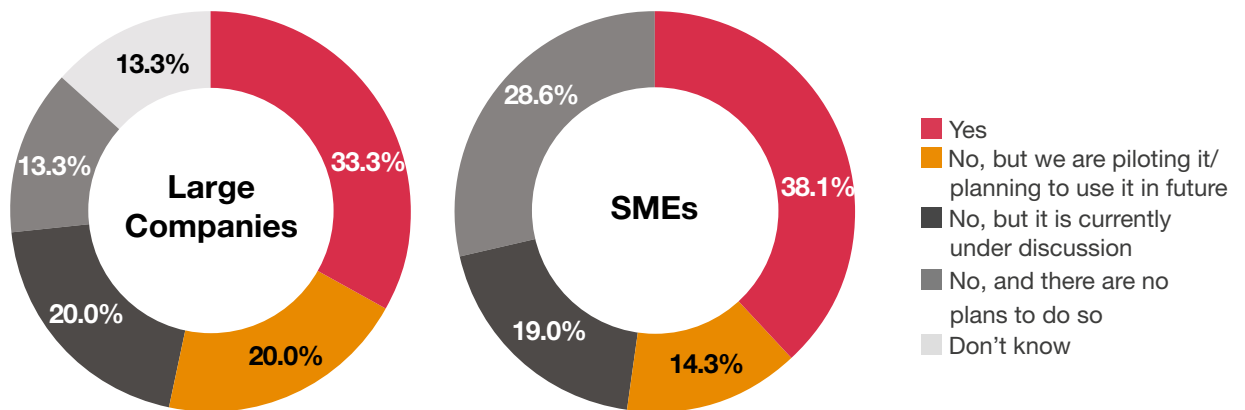


Which visualisation tool(s) do you use?

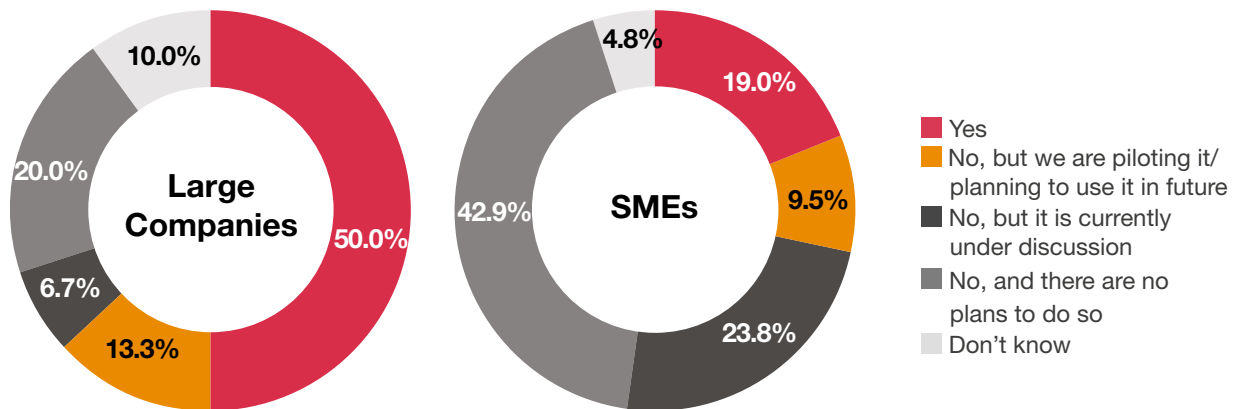


# Additional figures

Are you currently using external AI tools (e.g. DeepL for translation, Ephesoft Transact for document analysis) in your company?

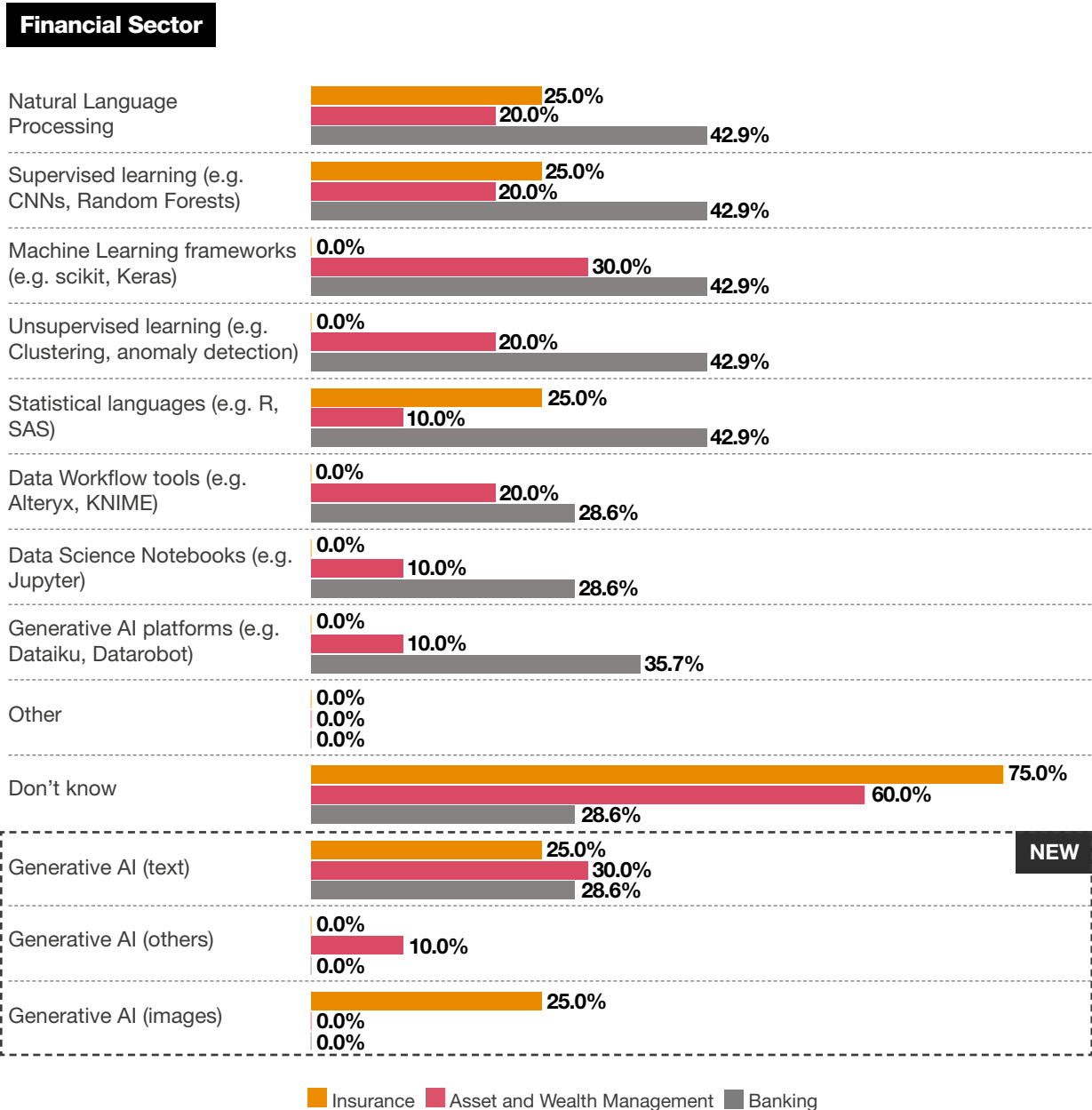


Are you currently using internally developed AI tools (e.g. self-developed machine learning algorithm with Python) in your company?



# Additional figures

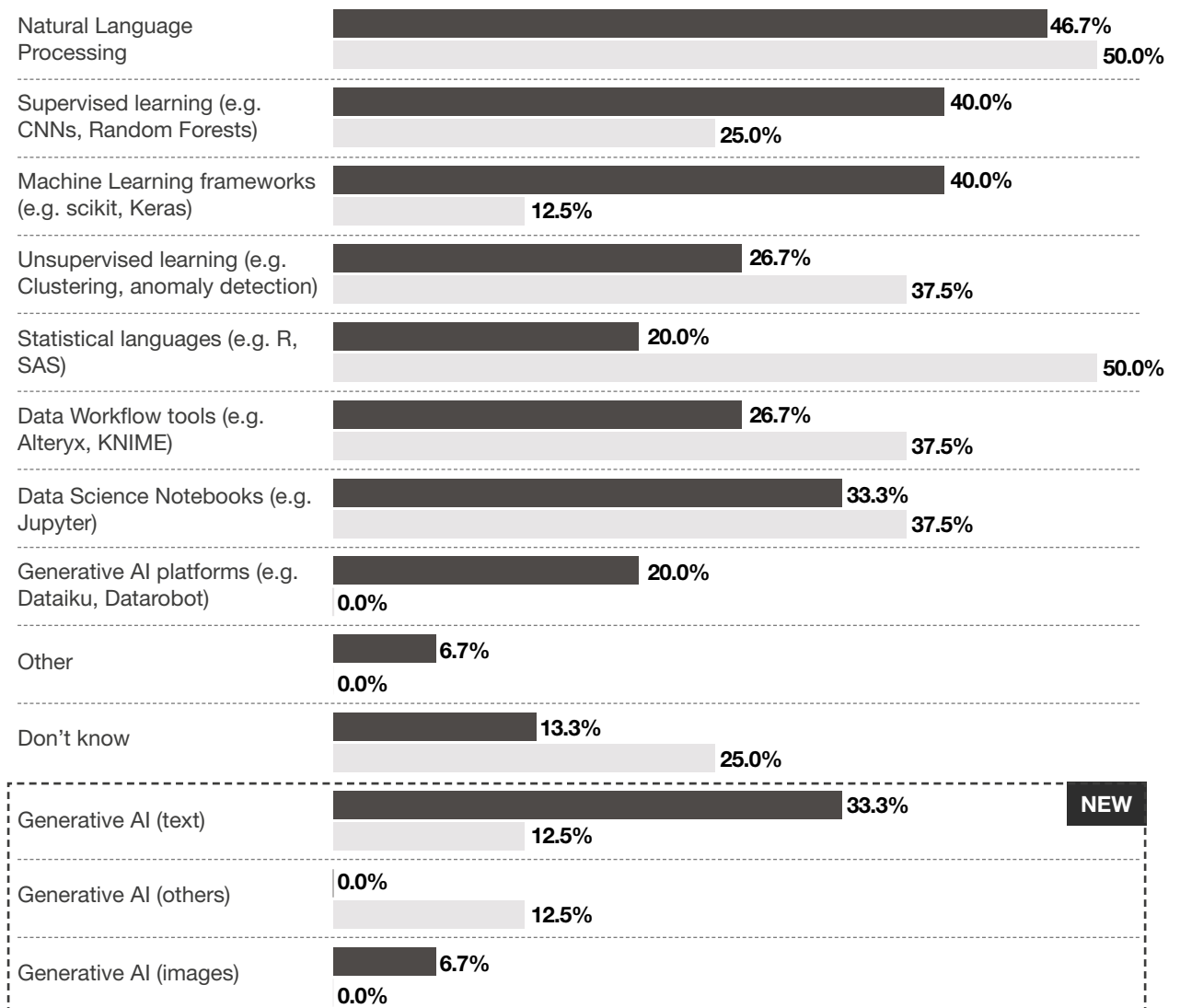
Which AI technologies are you using or would like to use?



# Additional figures

Which AI technologies are you using or would like to use?

## Operational companies and Public Sector

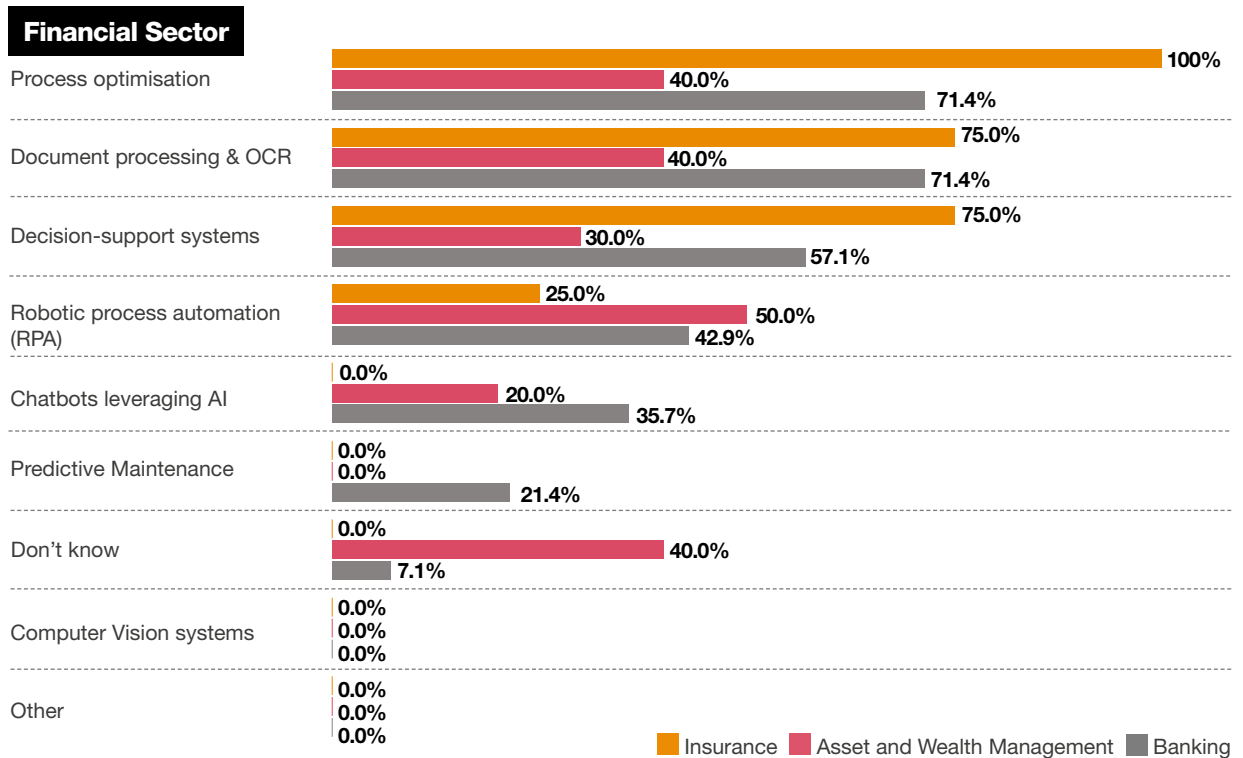


■ Operational / Industrial Companies ■ Public Sector

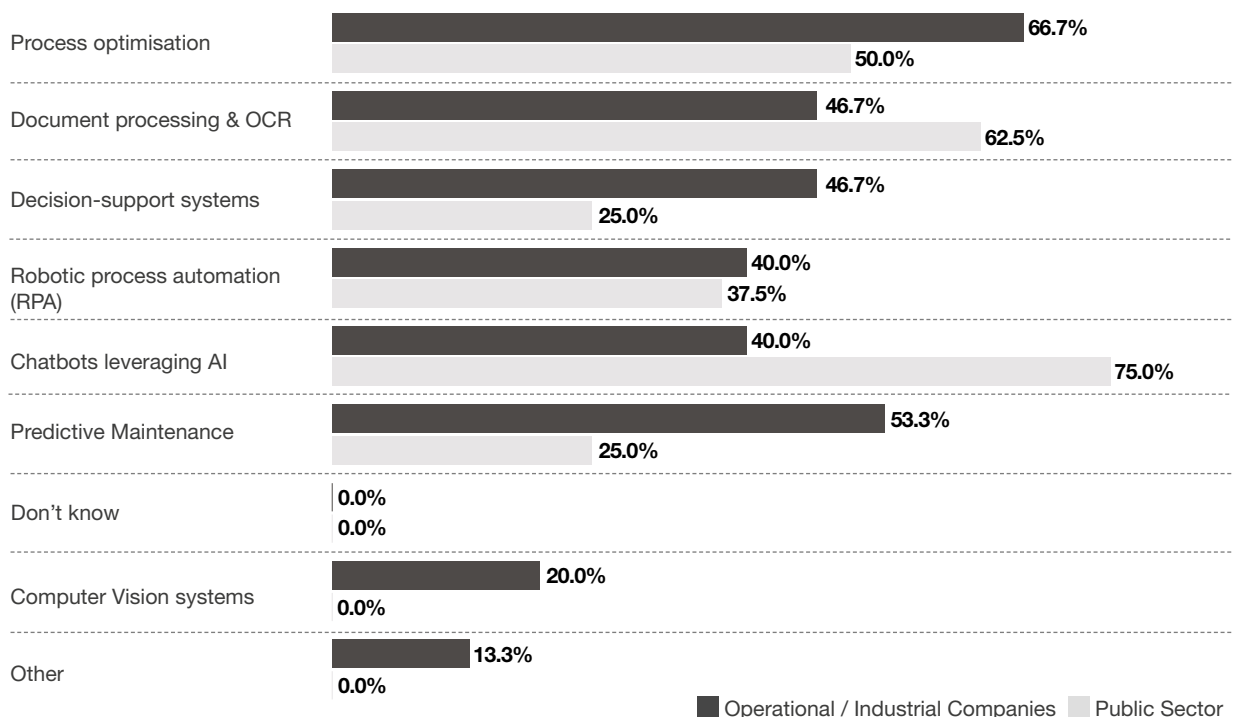
# Additional figures

## AI Strategy & Methods

Which AI-related concepts do you think have or would have the greatest impact on your business?



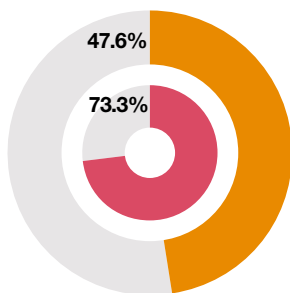
## Operational companies and Public Sector



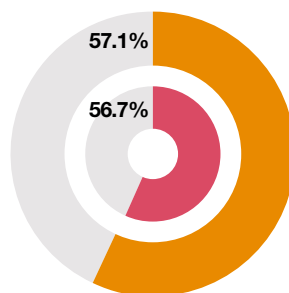
# Additional figures

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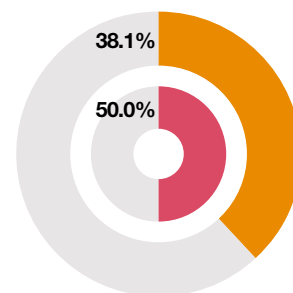
## Split by company size



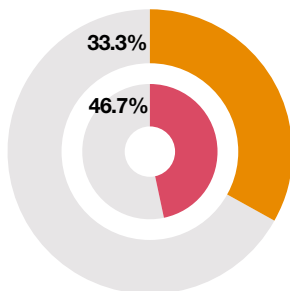
Process optimisation



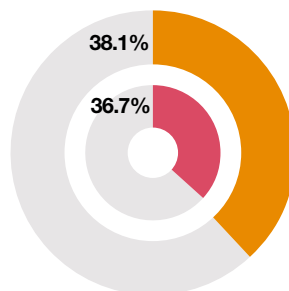
Document processing & OCR



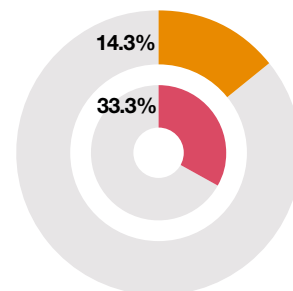
Decision-support systems



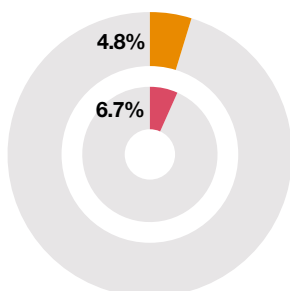
Robotic process automation (RPA)



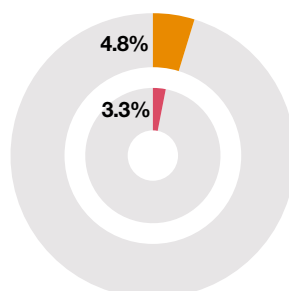
Chatbots leveraging AI



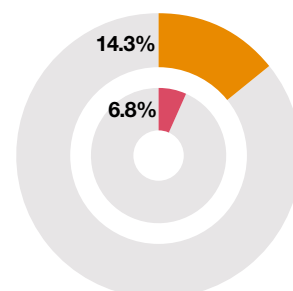
Predictive Maintenance



Computer Vision systems



Other



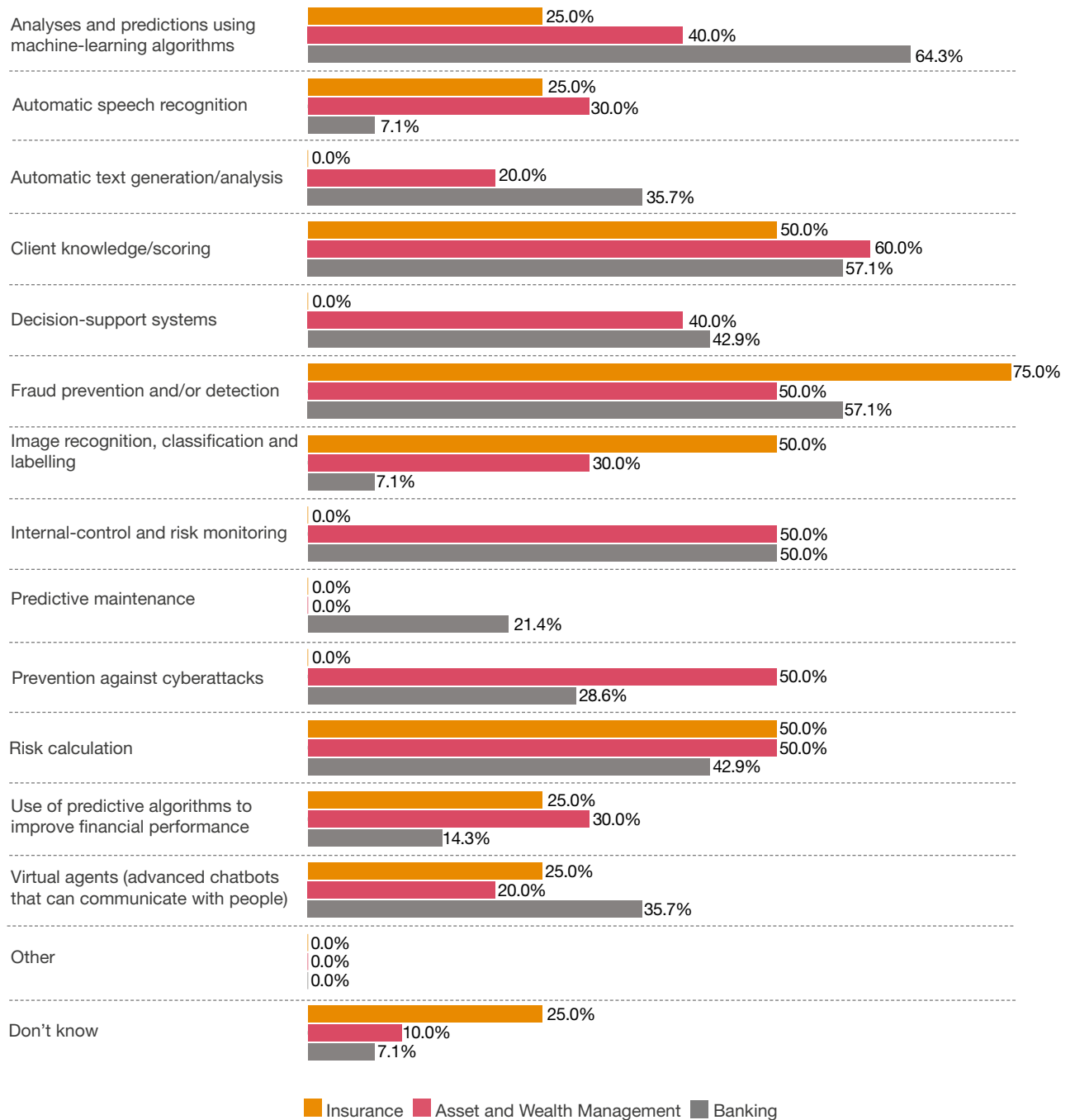
Don't know

■ SMEs ■ Large Companies

# Additional figures

In which fields is AI used (or would be used) within your company?

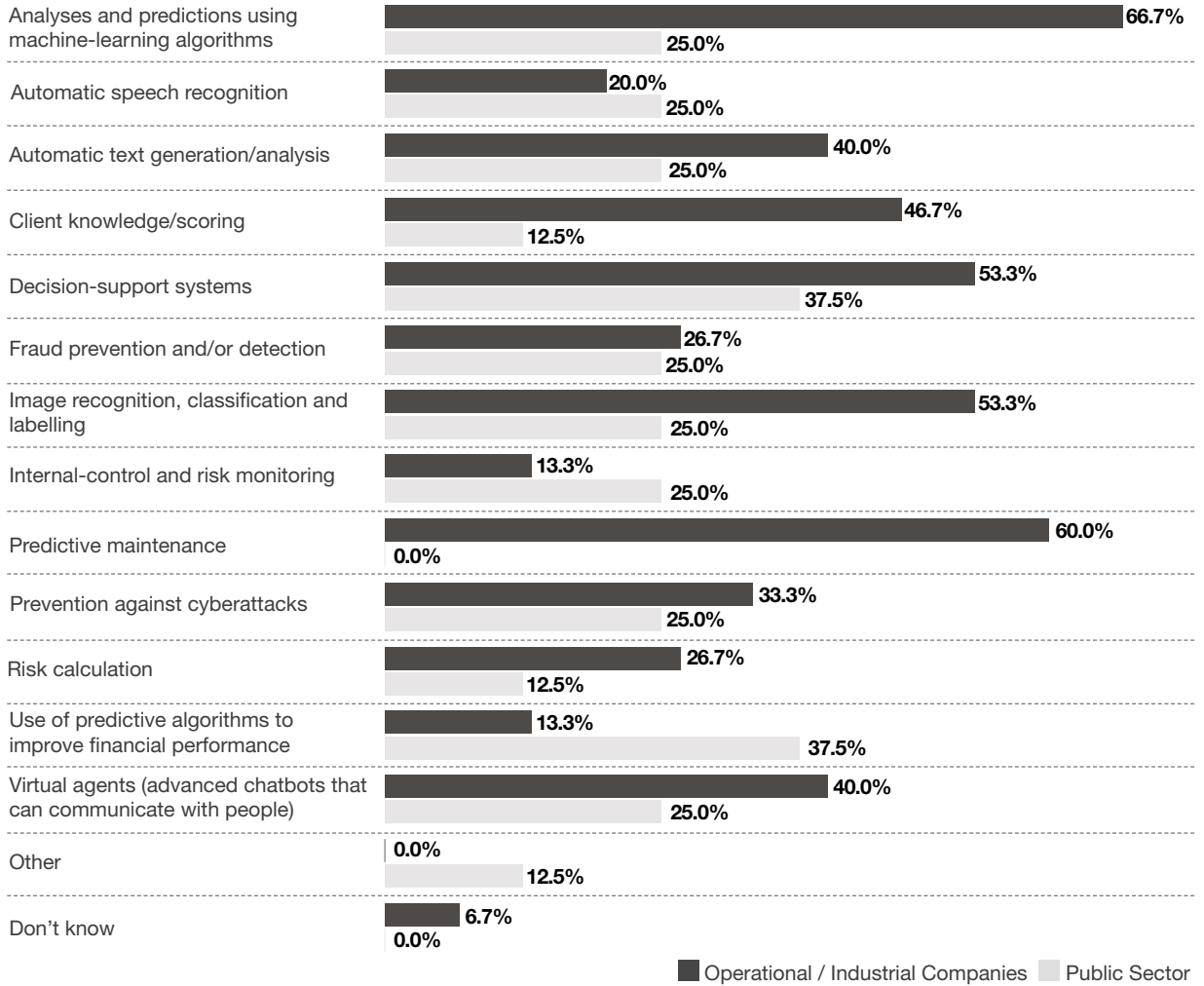
## Financial Sector



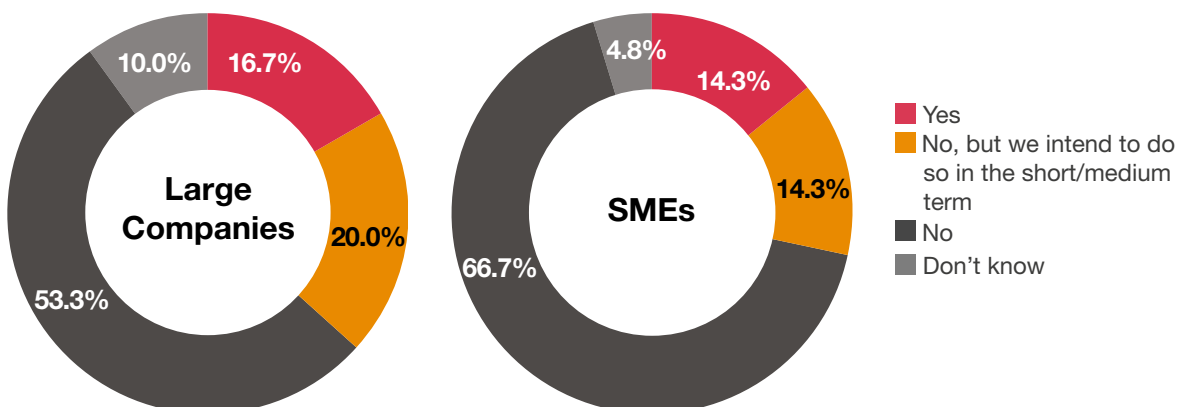
# Additional figures

In which fields is AI used (or would be used) within your company?

## Operational companies and Public Sector



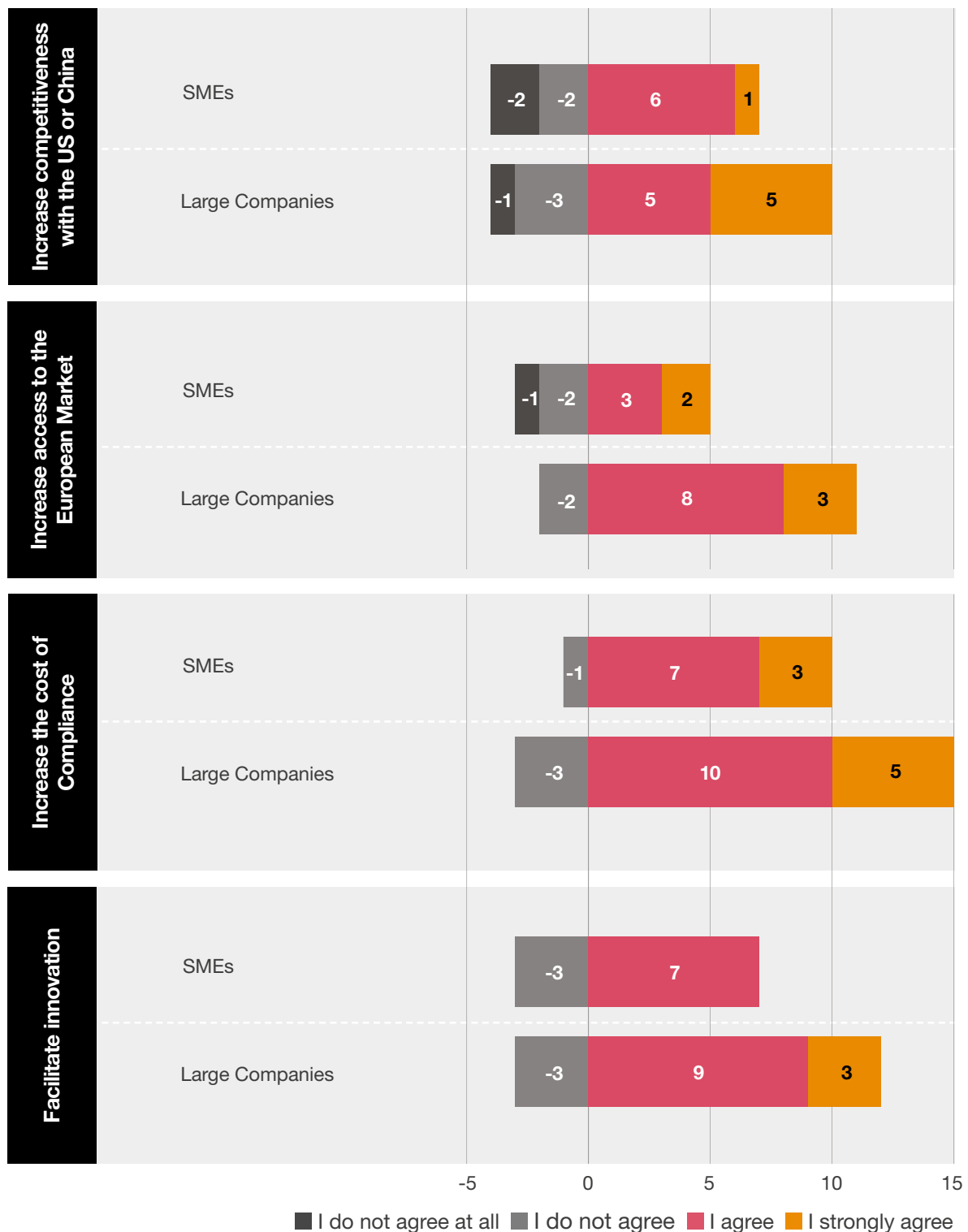
Do you have defined KPIs to measure the impact of deploying AI in your company's field of business?



# Additional figures

## European Regulation on AI

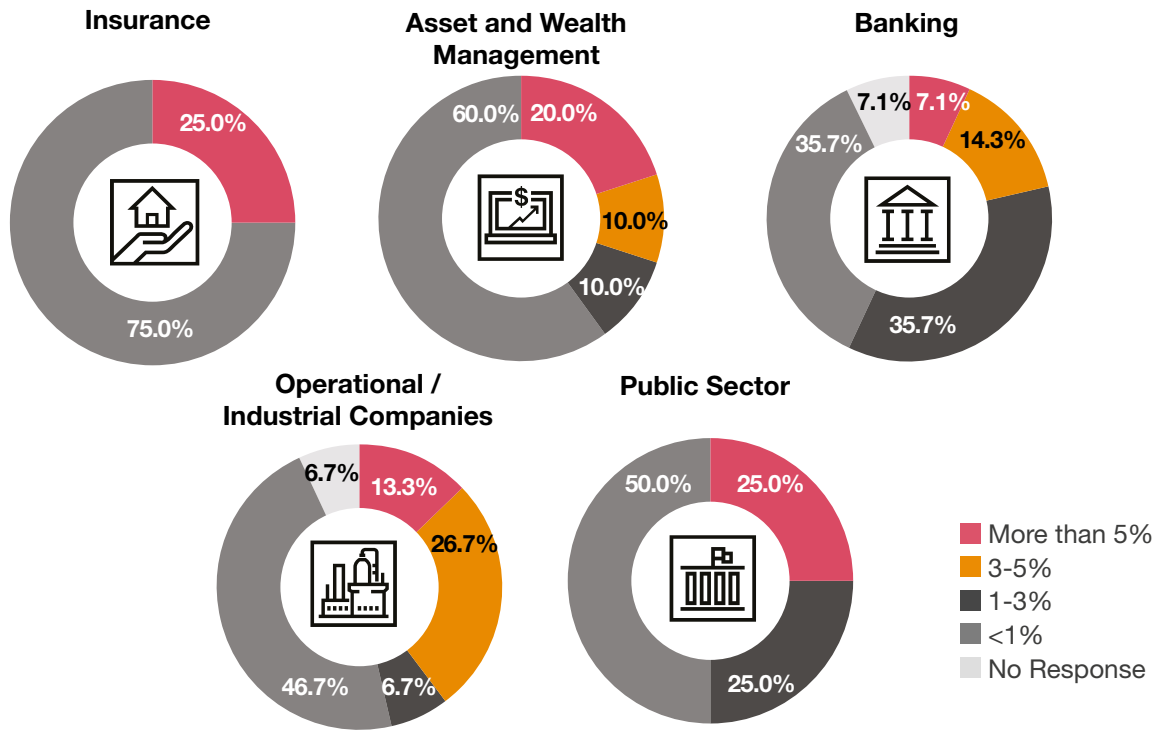
To what extent do you agree that the European AI Act will...?



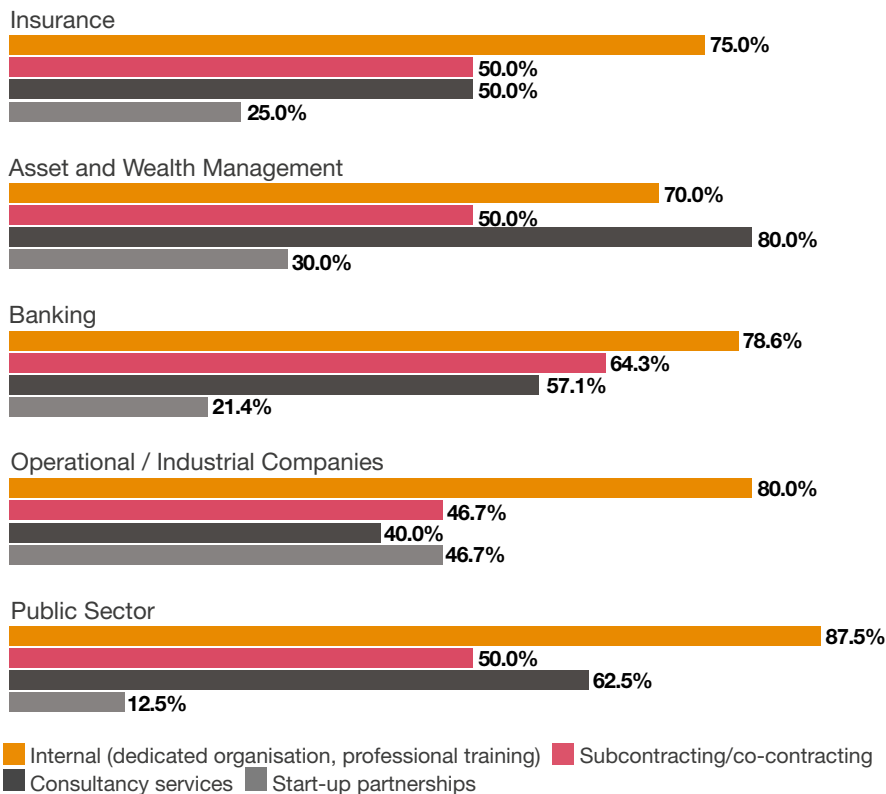
# Additional figures

## Investment and Collaboration

What percentage of your turnover would you allocate or be prepared to allocate to develop/improve data or AI solutions?



Which of the following actors are/would be involved in developing data solutions within your company?





# Survey methodology

## Questionnaire

This survey was conducted on-line by PwC Luxembourg through a self-administered questionnaire. It is based on a set of questions originally developed by PwC France.

## Data collection period

During the months of January, February and March 2023.

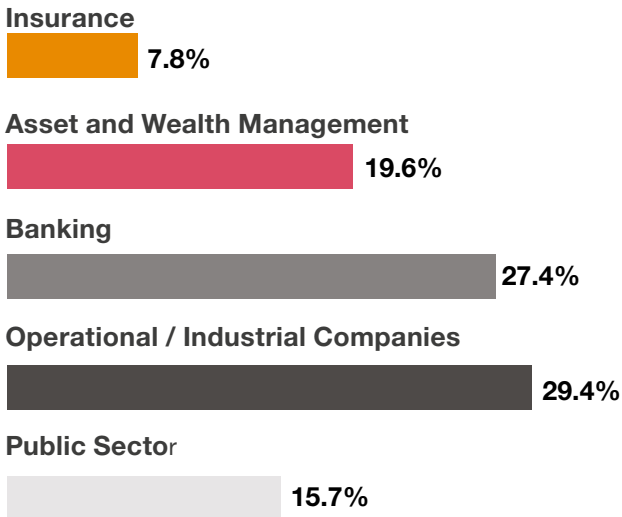
## Sample size

52 respondents in total, answering in their capacities of Head of IT, Operations, Risks, Data or Digital among others. Despite the limited number of respondents, we believe that the survey results paint an informative picture of the situation in Luxembourg.

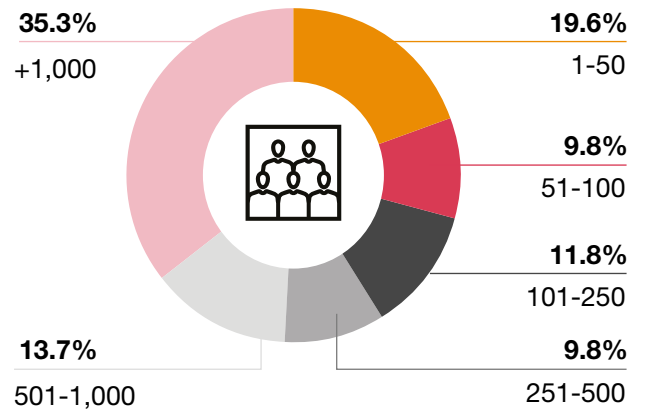
The companies in the sample are based in Luxembourg and come from a wide range of sectors. This year, more diversity was included in the analysis, meaning five distinct sectors were considered.

# Respondents' profile

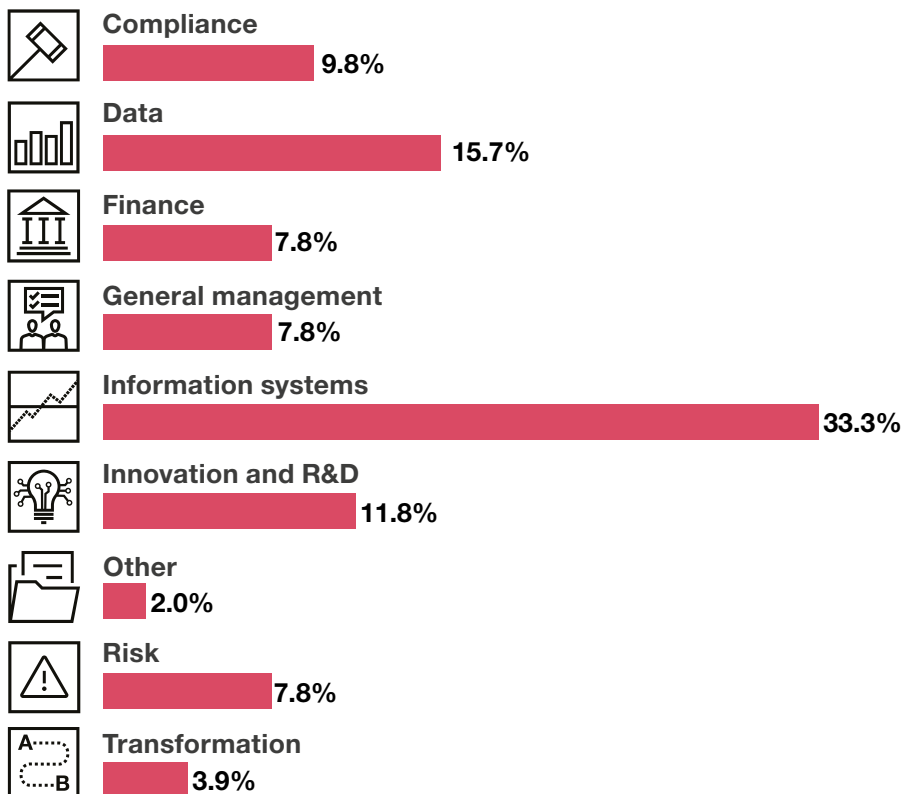
## Business sector



## Number of employees



## Line of business



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