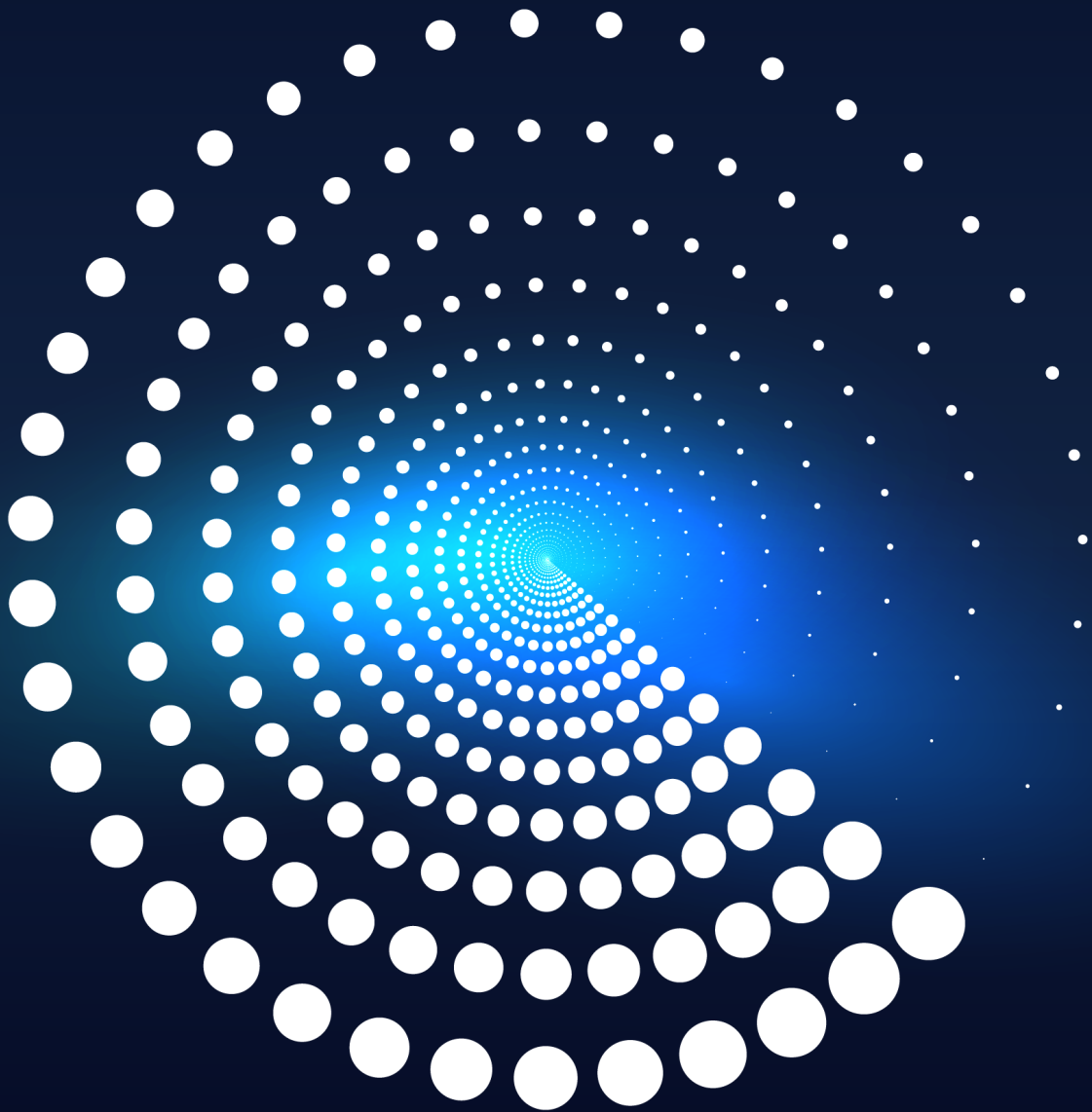


GLOBAL AML RESEARCH

Acceleration through adversity

*The state of AI and machine learning
adoption in anti-money laundering compliance*





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/ Introduction

Artificial intelligence (AI) and machine learning (ML) have been touted as a means to improve the efficiency and effectiveness of traditional financial crimes compliance practices.

While fraud practitioners have utilized these technologies for decades, the anti-money laundering (AML) industry has been slow to change, plagued by high false positive rates and manual processes intended to meet the letter and spirit of regulatory expectations.

Organizations in the industry continue to invest vast amounts of time, money and effort in the performance of basic regulatory compliance tasks. In the US alone, \$25 billion is spent on AML compliance by banks each year. Amidst a backdrop of COVID-19, banks are struggling to adapt to rapidly changing customer circumstances and behaviors, exacerbating already heavy compliance caseloads.

To rectify this, leading institutions and regulatory agencies have promoted the adoption of AI and ML technologies, and with promising results. Yet what has been the state of adoption over the past 24 months, how has the pandemic impacted uptake, and how are compliance teams using these technologies today?

To help answer these questions, SAS, in partnership with ACAMS and KPMG, surveyed more than 850 compliance professionals and ACAMS members from across the globe to build a picture of AI and ML adoption in the field of AML compliance, its challenges and where untapped opportunities may still lie.



As regulators around the world increasingly judge financial institutions' compliance efforts based on the effectiveness of the intelligence they provide to law enforcement, it's no surprise 66% of respondents believe regulators want their institutions to leverage AI and machine learning.

While many in the anti-financial crime world – the regulators and financial institutions alike – are just coming up to speed on these advanced analytic technologies, there's clearly shared hope that these tools will produce truly effective financial intelligence that catches the bad guys.

Kieran Beer

Chief Analyst and
Director of Editorial Content,



Key takeaways

Three ways data-driven AI and ML help improve AML compliance:

- Increase the quality of investigations and regulatory filings
- Reduction of false positives and resulting operational costs
- Detect complex risks by finding the patterns that traditional/manual transaction monitoring rules can't

1. KPMG, *Combating financial crime*
2. Where not all 852 respondents answered a question, statistics have been calculated based on the number of respondents that did provide a response.

01 /// Leaders & late adopters



57%

of respondents have either deployed AI/ML in production or plan to in the next 12-18 months

Despite one of the most difficult years on record, our survey found that AI and ML adoption is robust and growing.

Over a fifth (21 percent) of AML professionals are ahead of the curve and have already deployed AI and ML in their AML processes. A significant minority (15 percent) are piloting AI and ML solutions and a further 21 percent plan on adopting the tech within the next two years. In total, 57 percent of institutions have adopted these technologies in their AML compliance function or plan to do so imminently.



For institutions on the AI adoption path, they stayed the course with their AI implementation despite COVID impacts and did not derail or slow implementations.

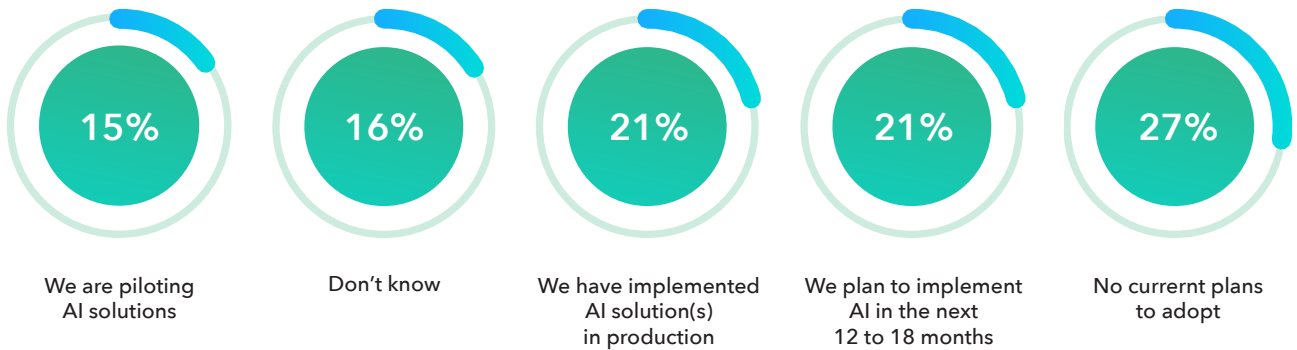
Tom Keegan, KPMG

There remains only a minority of institutions that have yet to enter the adoption environment. In general, financial institutions with greater staffing levels were more likely to see themselves as innovators and fast adopters of AI and ML technology.

This is likely because larger organizations have greater opportunities for efficiency gains through improved detection and automation. However, 16 percent of smaller companies valued below \$1 billion also viewed themselves as industry leaders and innovators.

Q:

Which statement best describes your AML Compliance program in terms of AI/Machine Learning adoption?



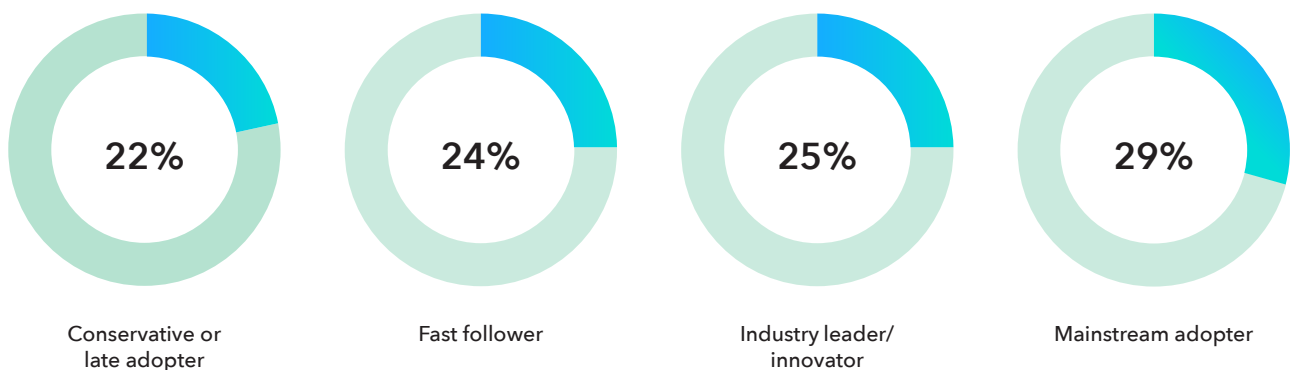
The majority of respondents have already adopted or plan to adopt AI or ML (57 percent), but some organizations continue to observe the market before they commit to the technologies. A quarter of respondents describe themselves as 'industry leaders' and 'innovators' and a sizeable cohort (24 percent) as fast followers actively watching the progress of the industry pioneers. The majority recognize themselves as

'mainstream adopters' (29 percent) who generally adopt technology once it has hit critical mass in their industry, or conservative 'late adopters' (22 percent) who resist change as long as they can.

AI and ML adoption appears to be accelerating through adversity. More organizations are reaping the rewards and it isn't just the larger institutions that can see the value.

Q:

Relative to peer institutions, which of the following terms do you feel would best describe your organization in terms of its adoption of AI/Machine Learning:



02 /// What is accelerating adoption?

For those on the path to adoption, the pandemic has acted much like an accelerator.

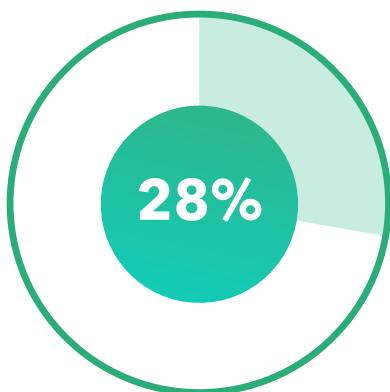
A third (33 percent) say the disruption created by COVID-19 has caused them to accelerate their plans for adoption, while 39 percent say it has not impacted their timelines. While the remaining 28 percent say the pandemic is forcing them to delay their plans, it's clear the adoption environment has remained strong and even been energized to some degree.

The increase in AI and ML adoption is likely born from the pressure to meet disruption head-on while delivering quick wins. COVID-19 has placed entirely new demands on compliance teams, and current rulesets and technologies have been found wanting. Depending on older deterministic systems has resulted in increased false positive generation and a decrease in productivity - as these systems struggle to comprehend sudden seismic changes in behavior due to the pandemic.

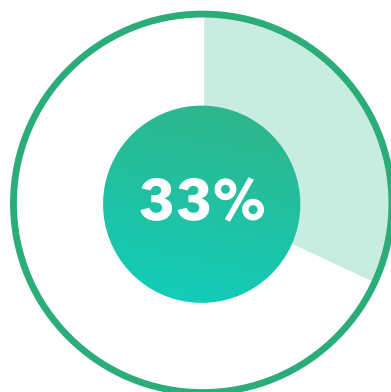
AI and ML, meanwhile, have seen big gains likely because they are dynamic by nature. AI and ML can intelligently adapt to the changes in patterns and behaviors we're seeing in the market, while also being more responsive to emerging risks. Some of the latest AI and ML technologies can be easily integrated into existing compliance systems without the need to upend or scrap the underlying infrastructure.

Q:

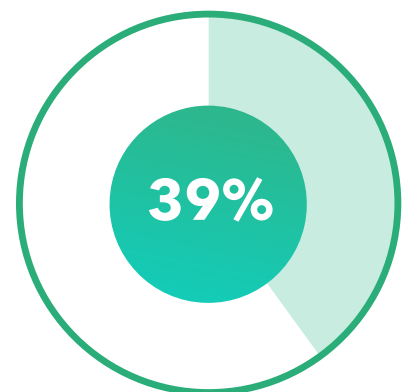
How is COVID-19 likely to affect your organization's AI/Machine Learning adoption timeline?



We will likely adopt later than planned due to COVID-19



We will likely adopt earlier due to additional challenges brought on by COVID-19



We will likely adhere to our existing timeline

It's important to note that the further along the adoption journey respondents saw their organization, the less likely they were to slow their progress due to COVID-19.

Nine-in-ten (88 percent) industry leaders or adopters said they would accelerate or keep to their adoption timeline, compared to 73 percent of conservative or late adopters. Almost a quarter (23 percent) of slow adopters claim their timeline will slip due to the pandemic, meaning there is a risk these institutions might fall further behind while the industry leaders increase their lead in efficiency and innovation.

This disparity is likely because early-adopters have already experienced some of the benefits that AI and ML technology can bring. They have seen what is possible and have faith in the results they are getting. As a result, they want to push the benefits even further. By contrast, those who have yet to adopt are less likely to see the benefits beyond an overwhelming need to cut costs and find efficiencies.

Another significant driver of adoption has been a broadly supportive regulatory environment. Two thirds (66 percent) claimed their regulator was supportive of AI/ML adoption. Regulators in the UK, US and Singapore have greatly encouraged technical innovation in AML compliance in recent years, without putting unnecessary pressure on institutions. Efforts like these appear to be paying off and moving the needle on adoption without forcing businesses to rush through the AI and ML maturity model.

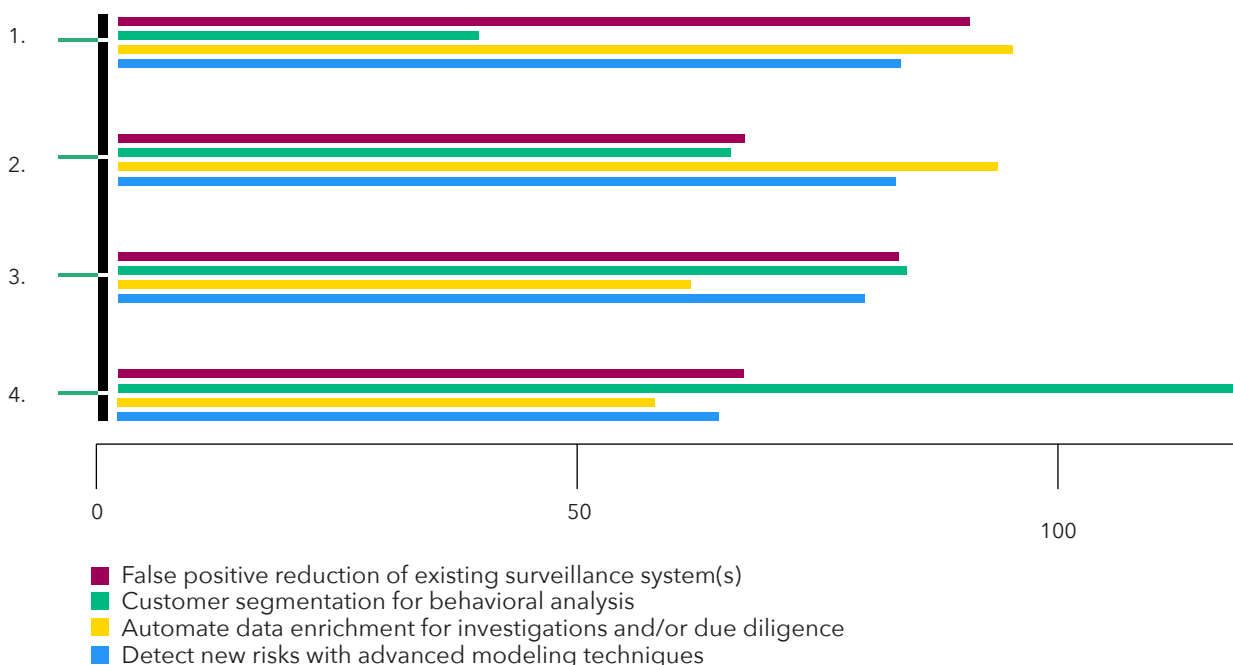
03 /// Perceptions of AI and ML

Internal viewpoints are a crucial motivator of purchase decisions - particularly when it comes to technology adoption. There was a diversity of opinions on the efficacy and value of certain AI and ML solutions, but two trends emerged - the current popularity of robotic process automation (RPA) and automation solutions, and, simultaneously, great expectations around ML's potential for using neural networks, decision trees and gradient boosting for enhanced detection and significant reduction of false positives in the future.

When asked about current priorities for adoption, responses favored processes where RPA is most effective - automating data enrichment and other manual processes. This was closely followed by detecting new risks with advanced modeling techniques. By an overwhelming margin, customer segmentation for behavioral analysis was selected as the lowest priority area for the deployment of AI and ML.

Q:

Please rank the following statements in order of priority as reasons for the deployment of AI/ Machine Learning in your organization. Use 1 for the most important reason and 4 for the least important reason.



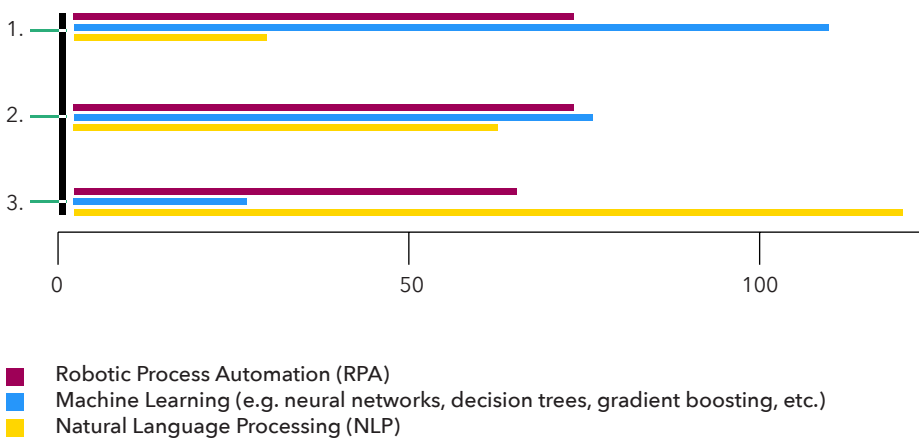
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RPA is dominant for the moment, but the application of ML appears to have a bright future. By a considerable margin, institutions believe ML will have the most significant impact on their AML processes, compared to RPA and natural language processing (NLP). This is probably because the gains associated with RPA have been realized early on, as adoption of the technology is already widespread. ML meanwhile represents largely unexplored territory and untapped potential for greater savings and efficiency. Some industry leaders are already embracing the use of deep neural networking models.

Q:

Please rank the following technologies from 1 to 3 in terms of which would have the greatest impact to your institution. Use 1 for the greatest impact and 3 for the least impact.



The deployment or integration process can be fraught with concerns over delays, complications and costs spilling over. When it comes to the practical implementation of AI and ML solutions, over half (54%) considered advisory firms and/or technology vendors to be the best source for industry best practices on the adoption of AI/Machine Learning. This is compared to just 22% who said industry trade organizations are the most trusted source.

Institutions appear more cautious when it comes to outsourcing their own compliance functions. Eight-in-ten (79 percent) respondents say they didn't outsource any compliance operations. However, we are already seeing a shift in perspective in the aftermath of the pandemic as the industry enters a very different operating environment.

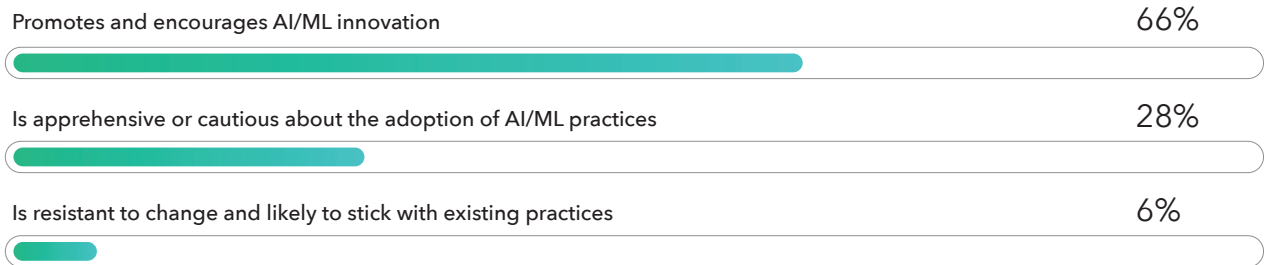


Tom Keegan, KPMG

Given COVID, companies have found that remote working is possible and productive. That has opened up a new level of interest in outsourcing their compliance operations. Most often that outsourcing performs the first level of review activity within AML. Post-COVID, I would expect that we would see a stronger outsourcing adoption curve.

Q:

Which statement best characterizes your AML regulator’s current position on AI/Machine Learning?



04 /// The AI advantage

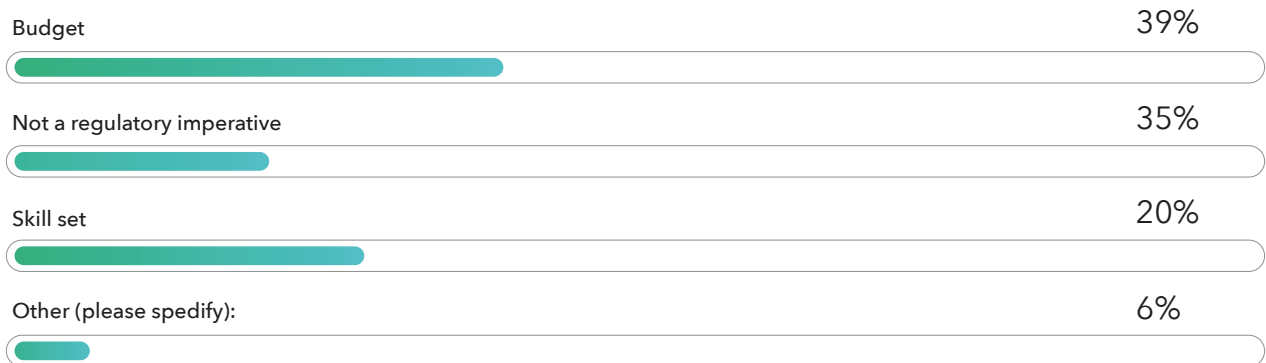
While adoption of AI and ML solutions is gaining momentum, many organizations are lagging behind due to budgetary concerns. Until the technology sees widespread adoption, there will likely continue to be an undercurrent of skepticism among late-adopters as organizations drag their feet.

Budgetary concerns (cited by 39 percent of AML professionals) are the primary issue

slowing adoption as selected by compliance professionals. This suggests that technology providers can do more to demonstrate the undeniable value of these technologies. Providing a clear breakdown of how the technology can improve certain compliance processes and the associated efficiency gains that come with that could go some way to overcoming this barrier to adoption.

Q:

Please state the reason why you are not currently planning to adopt AI/Machine Learning?



However, not far behind budgetary concerns, 35% of respondents are not currently planning to adopt AI/Machine Learning because they feel it is 'not a regulatory imperative'. This could suggest that some slow adopters haven't fully considered the wider business benefits of adoption, beyond regulatory compliance. The manual processes that technologies like RPA and ML would augment are much more likely to be inefficient and prone to human error. This is especially true in institutions where compliance functions are siloed across different data environments and teams.

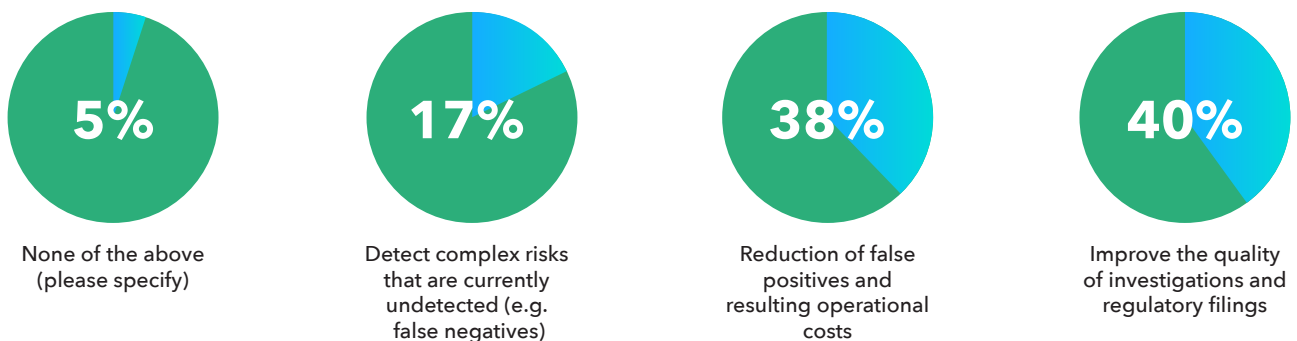
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Fortunately, there are many use cases to prove the effectiveness of AI and ML in AML compliance and many examples of success among respondents. For compliance teams that have introduced some form of AI or ML into their processes, significant gains are being achieved. The most widespread successes are in improving the quality of investigations and regulatory filings, as well as

the reduction of false positives leading to a reduction in low value activities. The detection of complex risks lies primarily in the domain of ML, which has proven its utility and will likely grow more important in the future as financial crime becomes more sophisticated.

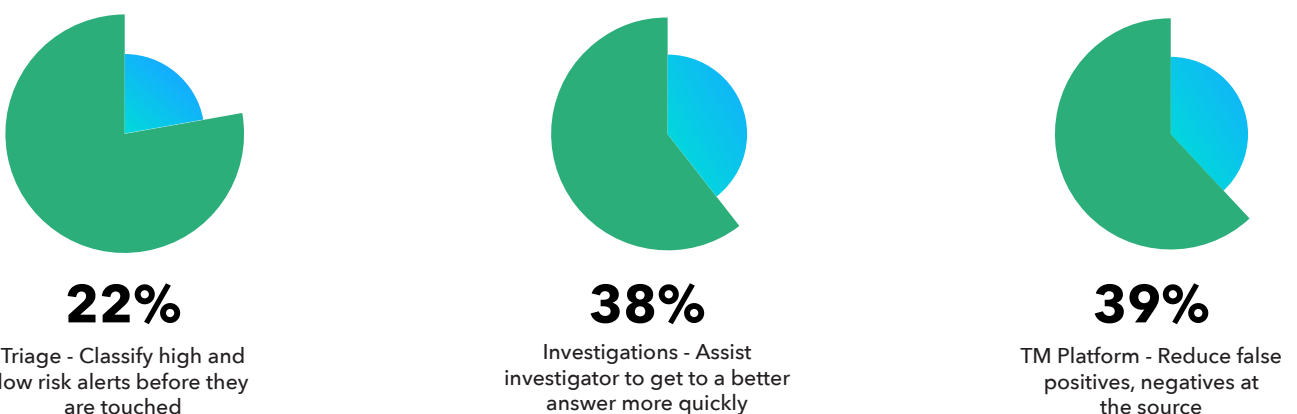
Q:

What is your organization's primary justification for the adoption of AI/Machine Learning? (Please select only one answer)



Q:

Which of the following areas currently offers the most value for your organization in terms of deploying AI/Machine Learning? (Please select one answer)



Various forms of AI and ML have a useful application in AML compliance - but each shines in different ways or is most useful at a specific stage of production.

While respondents saw NLP as the least useful form of the technology, its counterpart natural-language generation (NLG) is particularly useful in cutting the workload involved in producing the narrative for suspicious activity reports (SAR) or suspicious transaction reports (STR). With SAR and STR filing seen as the most time-consuming component of the investigative process by compliance professionals, it's likely we'll see a correction in the near future as institutions embrace NLG technology.

Case Study

Bank improves efficiency and effectiveness of its AML monitoring program with AI

A Tier II regional US bank wanted to modernize its incumbent rules-based AML transaction monitoring system. They had a library of 200 'transaction monitoring' scenarios that was difficult to manage. The bank needed to reduce the volume of low-value events, address gaps in coverage and improve SAR conversion rates

The bank used SAS to apply deep learning techniques to significantly reduce false positives. The application of an AI model with a convolutional neural network to the bank's compliance program reduced the low-value events by 55 percent, increased SAR yield by 25 percent and SAR filings by 29 percent.

Case Study

A Global Financial Institution with significant Trade Finance market presence uses AI for NextGen Trade Risk Analysis

A Tier I multinational provider of diversified financial services wanted to improve its customer experience by reducing due diligence times and improving accuracy. Their pre-existing process to review trade packages was manually intensive, requiring several hours to scan for sanctions and fraud risks. As a result, investigators were unable to keep pace with the growing volume of trade transactions and experienced high error rates due to human fatigue. There was pressure from senior management to test AI for the purpose of process automation.

To overcome these inefficiencies, the company turned to SAS. SAS deployed a combination of text mining, image recognition, and machine learning models to generate a more efficient review process. The technology provided the customer with the following quantifiable benefits:

- 9 million transactions processed
- 25 million documents processed
- 200 risk typologies automated
- >90% model accuracy achieved
- Operational efficiency improved by 25%

/ Conclusion

AI and ML are gaining serious momentum in AML compliance. There has been a significant increase in adoption during the last 12-18 months, and from more mid-market and tier II institutions.

More organizations than ever are using AI and ML to reduce false positives, ease caseloads, streamline reporting and save on operational costs. In essence, the benefits of AI and ML are trickling down and achieving greater market penetration.

COVID-19 has been a powerful motivator for adoption, building on an already supportive regulatory environment. Continued disruption and resource constraints are likely to accelerate uptake even further.

As adoption matures, however, small firms should expect to see more leading tech providers offer managed analytics platforms through hosted or cloud computing arrangements. This should make the AI and ML space more competitive while lowering the cost of entry for smaller institutions. Reducing the cost of compliance is a strong consideration, but it's the improved accuracy of decisioning and the automation of repetitive tasks that makes adoption the logical choice.

Good progress has been made across the industry, but more can be done to revolutionize the way it handles AML compliance. A growing number of institutions are leveraging AI and ML to augment their approach, while many others are catching up. The power of these technologies shouldn't be underestimated as adopters are already experiencing substantial cost and efficiency improvements. Based on these early successes, it's clear that we're witnessing the future of AML in the making.

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