HOW AI AND BLOCKCHAIN ARE SHAPING REGTECH

Whitepaper

FINTECH & PAYMENTS

JUNIPER RESEARCH

1.1 Introduction

Regtech is a rapidly evolving area of technology, especially in a world that has a constant increase in demand for regulatory compliance. Regtech offers solutions to businesses in response to an increasingly digitalised world that boomed since the start of the COVID-19 pandemic.

1.2 Definition and Scope

We use the UK FCA's definition of regtech, which is:

'A subset of Fintech that focuses on technology that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities.'

Regtech is a broad industry that can help businesses protect themselves from fraud and comply with regulatory requirements, leading to an increase in demand for automated and cost-effective solutions. However, due to an increase in the demand for regulatory compliance globally, sectors other than finance have also seen an increase in regtech companies. Some examples include eCommerce, cybersecurity, healthcare and gaming. Digital onboarding and how to onboard remotely in a safe and user-friendly way that meets KYC requirements has become of critical importance in recent years.

1.3 The Past and Future of Regtech

The origin of regtech can be traced back to the fallout of the global financial crisis of 2008, which caused a contraction of liquidity in global financial markets. In response to the crisis, the Dodd-Frank Wall Street Reform and Consumer Protection Act was enacted in 2010; creating several changes to the way banks operate. Dodd-Frank amended many existing rules and created many new standalone provisions, with the aim to identify and respond to emerging threats before they cause widespread damage to the financial system.

In more recent years, there have been global changes in regulations to data privacy, with well-known examples such as GDPR (General Data Protection Regulation) and FINRA (Financial Industry Regulatory Authority). Failure to oblige with these regulations can result in heavy fines for companies. Although characteristics of these payments may vary in country, region, and trade corridor-specific settings, they have overarching commonalities and face location and customer-agnostic challenges.

1.4 Regtech Market Landscape

The trend of increased digitalisation following the COVID-19 pandemic has continued, with notable growth seen in the financial services sectors, eCommerce, healthcare and cybersecurity. The adoption of regtech solutions can be attributed to an increased level of crime putting customers, patients and businesses at risk. Regtech solutions offer deployment of highly automated and user-friendly methods which can assist large financial institutions to small start-ups. The main applications for regtech platforms include:

- Improve efficiency and effectiveness: Reducing the time needed for customer onboarding and KYC verification.
- Detect fraud and improve security: Identifying fraud and potential data security risks.
- Adaptation: Adapting to new regulations and staying compliant.
- Automation: Automating regulatory reporting.

Figure 1: Regtech Market Landscape

Source: Juniper Research

- Compliance: Real-time monitoring and tracking of the current state of compliance and upcoming regulations.
- Transaction Monitoring: Solutions for real-time transaction monitoring and auditing, leveraging the benefits of distributed ledger through blockchain technology and cryptocurrency.
- Regulatory Reporting: Automated data distribution and regulatory reporting, using Big Data analytics, real reporting and cloud compatibility.
- Risk Management: Detecting compliance and regulatory risks, assessing risk exposure and anticipating future threats.
- Identity Management & Control: Facilitating counterparty due diligence and KYC procedures, AML (Anti-money Laundering), anti-fraud screening and detection.

1.5 Regtech Technological Infrastructure

Regtech is understandably a broad area that is made up of many different elements. In this section, we will explore the different technologies that have been utilised in the development and deployment of regtech.

1.5.1 Artificial Intelligence

AI can be leveraged within regtech to automate data processing and derive insights from data. Onboarding processes can use AI to efficiently verify new clients, identify weaknesses in existing risk and control frameworks and help guide intelligent allocation of financial resources.

i. AI for Transaction Monitoring

Transaction monitoring is a key task in the prevention of money laundering, which is a significant cost to the economy. TMS (Transaction Monitoring Systems) are an integral part of fraud prevention and AML compliance. However, transaction monitoring is amongst the most difficult compliance actions for large financial institutions. Purely rules-based TMS are unable to effectively manage this massive task. Currently, 90% of the alerts that are issued by systems are disregarded, and 80% of the remaining 10% turn out to be false positives caused by the system. It is obvious that the intricacy of the issue cannot be solved using the present rules-based methodologies. False positives waste time and money in the KYC/AML process. Companies' ultimate goal must be to maximise process efficiency while minimising the costs related to regulatory compliance. As a result, AI is increasingly being used as a TMS improvement strategy. This represents a substantial advancement in fraud prevention, with the main challenges being the usage of AI and access to data

sources. AI is ideally suited to improve TMS, and this possibility is already being realised.

Using machine learning approaches, an AI system will gradually improve its ability to comprehend data, which will increase the effectiveness of the procedure. Data on prior occurrences of money laundering can be fed to an AI system in this field to properly train it. In actuality, this will mean that AI will produce fewer false positives than a conventional TMS, thus decreasing the workload of the compliance team. The data that can be used for transaction monitoring may also be improved. AI can comprehend notes and other, more varied types of data by utilising NLP (Natural Language Processing), which can improve transaction monitoring procedures. Companies may be able to uncover pertinent information more rapidly, maintain consistency, and improve responsiveness to recognised issues by automating the repetitious AML operations (onboarding, transaction monitoring, and fraud).

The ability to scale up to the level needed for active transaction monitoring is made possible by the fact that many AI systems make use of cloud-based infrastructure. Cloud computing may be able to handle spikes in transaction volume, enabling AI to efficiently monitor transactions continuously, no matter the situation. This scalability will be aided by the incorporation of machine learning capabilities into platforms like Microsoft Azure, Google Cloud Platform, and Amazon Web Services. When judgements must be justified to regulators, it might be challenging to defend systems that are unclear as a result of the introduction of too much AI autonomy in this function. As a result, there has been ongoing discussion regarding the appropriate level of autonomy for AI systems, leading regtech suppliers to offer a variety of services. This includes real-time TMS, data-driven AML and machine learning solutions, and sanction screening.

ii. AI for Bad Behaviour Monitoring

ML (Machine Learning) refers to the use and development of computer systems that are able to learn and adapt without following explicit instructions, such as using algorithms and statistical models to analyse and draw interferences from patterns in data. ML can be utilised to make smarter evaluations and actively learn industry norms, as well as boosting data processing boundaries. Machine learning has been used to identify bad actors in financial institutions. Email and messages can be monitored, and machine learning is trained to detect misconduct, cultural risks, employee satisfaction insights and health and safety.

Regtech companies like Behavox offer a voice solution which identifies fraud hiding in voice communications, uses a speech-to-text transcription that improves in accuracy with usage due to its unsupervised learning model. Models can also detect financial crime, market manipulation, misuses of non-public information, conflicts of interest and improper handling. When internal investigations are undertaken, search alerts and relevant communications from data sources against an individual can be identified and stored in one place. Machine learning can be utilised to analyse network data to identify potential fraud rings or collusion between employees, such as if multiple employees are accessing the same accounts or transactions, which could indicate a potential non-compliance. Furthermore, predictive models can be built to identify high-risk individuals or activities. A model could be trained to predict which employees are more likely to engage in fraudulent behaviour and combine other factors such as job role and access level.

iii. AI for KYC/AML Checks

The area of KYC/AML checks is another one which is highly vulnerable to disruption from AI systems. At present, KYC for both B2B and B2C is time consuming. For B2C, identity documents need to be assessed for validity, checking against consumer credit databases often required to confirm identity and propensity to pay for a given banking product. Individuals are checked against any sanctions lists to ensure they are not subject to any international sanctions.

iv. AI as a Regulation Compliance Tool

One of the major challenges for regulatory compliance professionals is keeping up with changing regulatory frameworks. Given the rapid rate of change in the area, this presents a challenge. Given the complexity of the aforementioned documents, even comprehending the present regulations is challenging. MIFID II, for instance, has 30,000 pages. The application of AI makes it possible to extract important discoveries and pertinent information; making it easier to understand rules. The pertinent controls can subsequently be linked to the important issues; improving FIs' capacity to comply.

v. AI for Email Security

In email security, people are often the weakest link, with human error causing the majority of data breaches at 88%. Employees are gatekeepers to organisations' most sensitive systems and data, how modern data security strategies rely on people doing the right thing 100% of the time. Regtech platforms such as Tessian can identify malicious or accidental email leaks by using historical email data and behaviour intelligence to detect and prevent data loss. Furthermore, machine learning can be used to authenticate email senders and detect spoofed emails, by using ML algorithms that flag suspicious email addresses, headers and other metadata. This can contribute to preventing phishing attacks, by identifying malicious URLs that have previously been involved in email attacks. Malware detection can also be used, where ML can be used to identify and block emails containing malware such as viruses and ransomware.

AI is clearly a powerful tool that is well integrated into a large proportion of regtech solutions. Despite AI's capabilities of increasing efficiency and reducing workload, it is not without its challenges. These limitations include:

- Attitudes to AI use
- The 'Black Nox' Challenge
- AI Bias
- Cost
- Process Change

1.5.2 Blockchain

Blockchain is a digital database or ledger that is distributed among the nodes of a peer-to-peer network. Regtech solutions can utilise blockchain to provide an immutable ledger to ground operations and prevent fraud. As regtech processes become more digitalised, the dependency on back-office personnel and compliance departments can be reduced by digital verifiable workflow.

i. Blockchain for KYC

KYC processes involve vast amounts of manual data processing and high staffing levels. Blockchain is highly suited to help banks and large financial institutions when KYC data is held by specific departments. However, it is not actively shared. This complicated process compromises banks with a lack of transparency. However, with blockchain, FIs can share the verification trail of KYC data, by removing the double handling and increasing the security of the KYC process.

ii. Blockchain for GRC (Governance, Risk, Compliance)

Blockchain can be an ideal platform for regulatory compliance teams because they establish a historically trusted audit trail that can be verified in real-time. Blockchain services can have a major impact on governance, risk and compliance, which includes IT governance, corporate audits, policy management, enterprise risk management and smart contacts. In the UK, parliament recently introduced a bill that would see all official documents relating to the UK's £1.3 trillion ($1.6 trillion) trade industry digitised and stored on the blockchain, in an effort to lessen its reliance on paper. If passed, the UK could be the first major economy to 'go paperless' with its bureaucratic process. From a GRC perspective, the implementation of blockchain technology presents an unprecedented opportunity for businesses to collaborate securely, by sharing data to build trust and transparency.

iii. Blockchain for Cryptocurrency

Cryptocurrency and DeFI (Decentralised Finance) are adopting blockchain to challenge the centralised banking system, by eliminating the fees that banks and other financial institutions charge for using their services. Regtech has assisted cryptocurrency companies to stay on top of regulatory changes in the industry and improve their fraud protection.

Elliptic, a vendor pioneering the regulating of cryptocurrency through blockchain, forecasts the value of cryptoassets laundered through chain- or asset-hopping will increase by almost 60% year-on-year to reach $6.5 billion in 2023 and $10 billion by 2025 . DeFi is constantly evolving, and there is further need for development of regulation, as the ecosystem becomes riddled with infrastructural mishaps, hacks

and scams. As the world of cryptocurrency becomes regulated and between crypto institutions, financial institutions and regulators, there is large opportunities for crypto houses. In April 2023, the EU parliament gave the go-ahead to cryptocurrency regulations, with the aims to protect investors, and safeguard against financial crime and market manipulation.

Blockchain offers clear potential in the regtech space, because it can transform important information into something transparent and immutable without compromising data security. However, blockchain is still in its infancy and there are some challenges such as:

- The blockchain deployment gap.
- The general reluctance to share between financial institutions and service providers.
- The cost of implementation.

1.6 The future AI and Blockchain in Regtech

It is clear that looking forward, digital onboarding will be a central area of regtech, with AI and other advance technology at its centre. This includes solutions that can verify identities using selfie onboarding or building and checking identities against KYC data. These verification methods, among many others, are not standalone or the complete picture by themselves, and therefore, in the near future, there will be a greater fusion between different digital onboarding mechanisms.

1.6.1 Increased AI for Automation

With more data being collected daily, whether be on consumers, patients, businesses and metadata, the demand for compliance teams also increases. With more details to verify when someone opens a new account or metadata on behaviour that can help identify the risk of fraud, AI can reduce the workload and increase compliance teams' effectiveness and accuracy. AI can also help compliance teams reduce false positive and false negative results. User-friendly platforms and API help build the bridge between digital onboarding mechanisms.

1.6.2 Increased Use of Blockchain for Security

Blockchain can help keep secure, transparent and immutable record of compliance activities. For example, blockchain creates a trail of KYC verification, which can provide confidence in security but also speed up onboarding for consumers. Blockchain can also help automate compliance processes, reducing the risk of errors and fraud. Smart contacts, for example can be used to automatically enforce regulatory requirements and comply with real-time updated regulations. We expect more digital onboarding and risk management systems to incorporate more blockchain-based systems.

1.6.3 The key Opportunities of AI and Blockchain

AI and blockchain can both respectively greatly improve digital onboarding and risk management systems. AI and blockchain reinvent the digitisation of processes such as onboarding and unlock the following benefits:

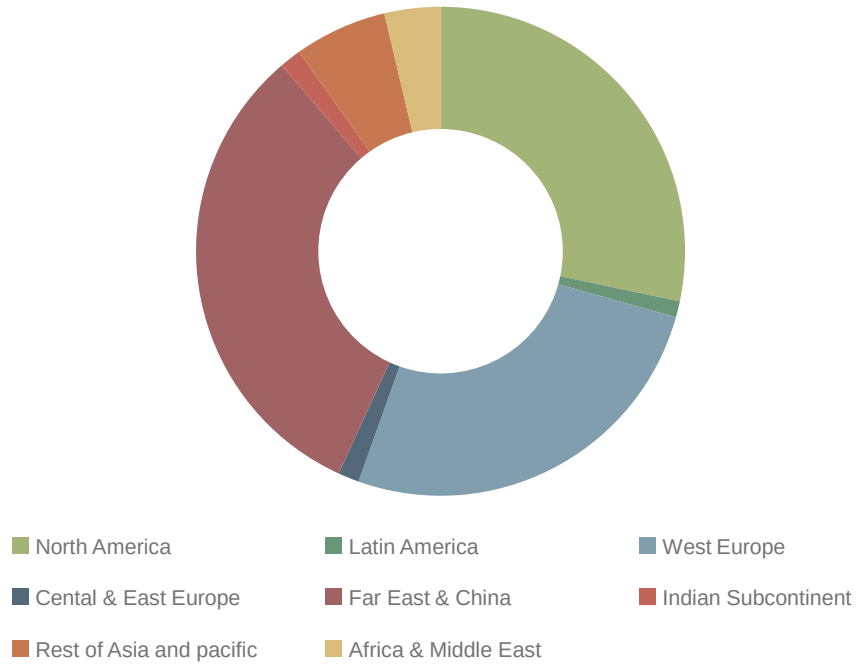
- Scalability: By adopting AI and blockchain-based systems, digital onboarding can use automated processes and become highly scalable. This can help onboarding platform keep pace with the growing digital operations.
- Decrease workload and save time: With the introduction of AI and blockchain-based systems, risk and compliance teams can alleviate the burden of manual work, decrease the time spent by staff and effectively reduce cost.
- Improving user and customer experience: With AI and blockchain, digital onboarding decisions can be near-instantaneous, rather than there being a delay with older systems that require manual review. By creating an instant experience with the user, this can be used as leverage for marketing campaigns.

1.7 Forecast Summary

Regtech spend will surge to $207 billion globally by 2028, with AI & machine learning unlocking efficiencies. Spend on regtech by financial institutions and other industries will increase by 124% between 2023 and 2028 globally, from $83 billion in 2023.

- Increasingly complex regulatory requirements are driving corporates to adopt a range of new technologies to facilitate compliance. New approaches include the use of shared blockchain ledgers to improve anti-money laundering and fraud compliance at cryptocurrency exchanges. Natural language processing is also used to detect malicious actors in emails and phone calls, successfully identifying misconduct, conflicts of interest and financial crime. With increased deployment of these technologies, we anticipate increasing levels of enterprise investment, as they recognise the vast efficiencies regtech can create.
- The research found that the leading players offered streamlined identity verification automated by AI, and were able to successfully position themselves in many different industries, as regtech expands beyond just financial services. In order to stay ahead of their competition, vendors must develop solutions that utilise AI and machine learning, which can automate processes such as identity verification.
- The most successful vendors will leverage AI to reduce the manual requirements needed by compliance teams and allow them to focus on tasks that require human elements, lowering costs and increasing productivity significantly, at a time of strong cost pressures.

Figure 2: Total Spending Attributable to Regtech in 2028 ($m), Split by 8 Key Regions: $207 Billion



Source: Juniper Research

Order the Full Research

Uncover extensive trends coverage and evaluation of the dynamic regtech market in this invaluable new report. Featuring segment analysis by 8 different industry sectors, this report also reveals Juniper Research's Competitor Leaderboard; focusing on 23 key vendors that specialise in digital onboarding and the data security side of regtech. Benefit from the comprehensive forecast suite encompassing regtech market growth and digital onboarding across two key segments; delivering vital data on banking, and property onboarding.

Key Features

- **Market Dynamics:** Discover key trends and market expansion challenges within the development of regtech technological infrastructure. Assessing how advanced technology such as machine learning and blockchain are being developed into solutions that help the financial industry achieve anti-money laundering regulations and combat fraudulent activities. Plus insight and evaluation of different digital onboarding methods and approaches.
- **Key Takeaways & Recommendations:** Key opportunities for vendors highlighted across the regtech market landscape; making for an essential read for key stakeholders.
- **Benchmark Industry Forecasts:** 5-year forecasts for key metrics, including the total spend on regtech, as well as the number of new bank accounts opened using digital onboarding and the total time and cost savings from KYC checks carried out using AI, split by banking and property onboarding. Data is also split by our 8 key forecast regions and 60 countries.
- **Juniper Research Competitor Leaderboard**: Key player capability and capacity assessment for 23 regtech vendors, including the following vendors:
    - Ascent
    - Drata
    - Hummingbird
    - Quantexa
    - Symphony AyasdiAI
    - Unit21

What's in this Research?

1. **Market Trends & Strategies:** Detailed analysis and strategic recommendations for the regtech market, analysis of its vendors potential in different segments and a comprehensive assessment of trends shaping future prospects.
2. **Competitor Leaderboard:** In-depth analysis of 23 vendor capabilities, via the Juniper Research Competitor Leaderboard (PDF).
3. **Data & Forecasts:** The forecast suite includes the total spend on regtech, as well as the number of new bank accounts opened using digital onboarding and the total time and cost savings from KYC checks carried out using AI, split by banking and property onboarding.
4. **Interactive Forecast Excel:** Highly granular dataset comprising over 22,600 datapoints; allied to an interactive scenario tool, giving users the ability to manipulate Juniper Research's data.
5. **harvest Digital Markets Intelligence Centre:** 12 months' access to all the data in our online data platform, including continuous data updates and exportable charts, tables, and graphs (ONLINE).

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