How to Achieve Blockchain Regulatory Compliance in 2025

# Introduction

Blockchain technology has found application across several industries in the past decade, proving both its transformative and disruptive potential. Today, blockchain's decentralized ledgers have become indispensable tools, bringing disintermediation in the finance, supply chain, health, and other domains.

This unfolding adoption of blockchain has prompted regulatory intervention around the world. Governments in different countries have in recent years increasingly explored ways to supervise activities, operations, and products, leveraging blockchain technology.

Markedly, 2024 has been [a historic election year,](https://www.idea.int/initiatives/the-2024-global-elections-supercycle) with over 70 countries holding national elections as of December. The impact of these elections’ outcomes on shaping policies and regulations for emerging technologies like blockchain can’t be overstated. Looking ahead, 2025 is especially poised to be a defining year for blockchain from a regulatory perspective, with strong expectations that compliance momentum will grow.

The regulatory spotlight is mainly on the Markets in Crypto-Assets (MiCA) Regulation, whose pending provisions will come into effect on 30th December. Besides MiCA, other regulatory frameworks with upcoming application dates are the Digital Operational Resilience Act and the EU’s revised Transfer of Funds Regulation.

In this blog, we discuss the importance of blockchain regulatory compliance, existing key frameworks, challenges to compliance, best practices for achieving compliance and future expectations.

# Overview of Blockchain Regulatory Compliance

## What is Blockchain Regulatory Compliance?

In a broad sense, compliance refers to adherence to directives, rules, or standards established to guide processes or systems. Blockchain regulatory compliance pertains to meeting the requirements set out by relevant authorities.

The notable areas of compliance are:

·         AML controls

Various authorities worldwide have laid down anti-money laundering (AML) and terrorist financing rules to thwart the misuse of blockchain-based systems or assets to facilitate illicit financial transactions.

·         KYC standards

Know-your-customer (KYC) guidelines require platform operators and service providers to incorporate identity verification checks into their user onboarding processes.

·         Data privacy rules

Blockchain-involved companies that process user data can be subject to global, regional, or domestic guidelines governing data collection, storage, and transfer, depending on where they operate. The General Data Protection Regulation (GDPR), for instance, applies to virtual asset service providers in the European Union and the European Economic Area.

·         Securities law

In some jurisdictions, blockchain-based assets may be legally recognized or classified under scopes where financial market rules apply.

## The Role of Compliance in Blockchain Projects

Compliance is key to building and maintaining trust between stakeholders in any industry. This couldn’t be truer for the nascent Web3 space. Regulatory compliance proves the credibility of blockchain projects and demonstrates the development teams’ commitment to responsible innovation.

Not least, compliance prevents reputational harm or legal issues such as enforcement inquiries and potential penalties arising from violations In June 2023, the US Securities and Exchange Commission filed separate charges against [Binance](https://www.sec.gov/newsroom/press-releases/2023-101) and [Coinbase](https://www.sec.gov/newsroom/press-releases/2023-102) alleging compliance failures and contraventions. In November 2023, the US regulator also took action against [Kraken](https://www.sec.gov/newsroom/press-releases/2023-237) on similar charges of operating without registration. The SEC faulted the exchange’s internal controls and recordkeeping practices.

This year, the US Department of Justice [charged](https://www.justice.gov/usao-sdny/pr/prominent-global-cryptocurrency-exchange-kucoin-and-two-its-founders-criminally) Seychelles-based KuCoin in March for failing to adhere to AML laws. Most recently in November, European regulators censured Wise over shortcomings in its AML controls after a 2022 review by the National Bank of Belgium found that the company lacked proof of addresses for some of its customers. Wise previously [incurred](https://www.adgm.com/media/announcements/adgm-fsra-fines-wise-nuqud-ltd-usd-360000-for-contraventions-of-anti-money-laundering-requirements) a penalty from the Abu Dhabi Global Market’s Financial Services Regulatory Authority in August 2022 for non-compliance with AML requirements.

In December, the Federal Court of Australia fined Bit Trade, the local operator of the Kraken exchange in Australia, A$8 million for compliance failure in a civil proceeding brought forward by the Australian Securities and Investments Commission. Kraken faulted the lack of clarity in Australia’s crypto regulations following an initial court ruling in August.

# Key Blockchain Regulatory Frameworks in 2025

## Global Regulatory Bodies & Their Frameworks

### FATF guidelines for AML and on-chain monitoring

The Financial Action Task Force is the international authority on money laundering and terrorist financing. As the global AML standard-setter, the FATF has provided non-legal guidance in the form of 49 recommendations to be followed by countries in designing regulatory frameworks. These recommendations include preventive measures such as customer due diligence, record-keeping of customer information, and AML/CFT controls.

The FATF recognizes that legal and financial systems differ on a country basis. As such, it doesn’t demand the implementation of its recommendations in a strict one-size-fits-all manner. Instead, it has specified minimum standards to be upheld, with a focus on meeting the underlying objectives. The FATF’s Recommendation 16 which encompasses the Travel Rule, for instance, serves as an international standard but is adopted, interpreted, and enforced differently from country to country.

### European Union’s MiCA for crypto asset standardization

The Markets in Crypto-Assets Regulation is a cross-jurisdictional framework representing the EU’s legislative efforts to uniformize guidelines for the classification, issuance, and trading of digital assets in the region. MiCA also entails some AML principles, but its guidance isn’t as comprehensive as that laid out by FATF recommendations.

Passed by the European Parliament in April 2023, the regulatory regime introduces a one-stop licensing scheme that allows crypto-asset service providers to operate throughout the bloc by acquiring a CASP license in any member state. CASP license requirements include internal documentation, headquarters' location within Europe, and an EU-based management board.

### U.S. FinCEN requirements for blockchain-related businesses

The Financial Crimes Enforcement Network is a bureau of the U.S. Department of the Treasury established to support money laundering and the financing of terrorism combative efforts.

FinCEN outlines obligations for domestic financial institutions and foreign entities that act as counterparties in transactions involving the U.S. financial system. These include sanction compliance, record keeping, and AML/KYC measures.

## On-Chain Monitoring and Security Compliance

As part of measures to curb the increased use of blockchain-based assets to enable money laundering, terrorist financing and other financial crime, global and regional regulators have set standards and guidelines that financial institutions must adhere to. These include directives which require reporting of potentially suspicious transaction activity to authorities.

### Tools and strategies mandated by FATF and EU directives

Effectively, Web3 entities whose operations entail processing user transactions should have onchain monitoring capability. This can be achieved by using transaction monitoring systems, analytic platforms and forensics tools which can create and share regulatory reports.

The FATF recommendations and the EU’s Fifth Anti-Money Laundering Directive encourage the use of these tools to help execute compliance strategies. On-chain monitoring tools enable service providers to monitor blockchain transactions in real-time, track wallet activity, and visualize the movement of assets between wallets.

### Importance of transaction transparency and fraud prevention

Transparency refers to the ability to trace the origin and destination of assets on the blockchain. Fraud prevention focuses on identifying and mitigating the risks of financial crimes.

Blockchain monitoring tools and analytical solutions are useful for extracting and interpreting onchain data enabling businesses to uncover fraudulent activity. AML/CFT compliance solutions help verify the identities of transaction counterparties, ensuring compliance with know-your-customer and anti-money laundering requirements.

## Regional Differences in Blockchain Compliance

Regulators in different countries have adopted diverse approaches with respect to blockchain regulation, each shaped by prevailing economic and legal contexts.

### Contrast between the EU, U.S., and Asia

#### Europe

The recently introduced MiCA regulation represents a harmonized approach to regulation by standardizing principles in Europe. However, MiCA isn’t the only European-level framework that stakeholders should be aware of. The Digital Operational Resilience Act, which has a broader scope encompassing European financial institutions, will go into effect in January 2025.

#### The U.S.

The U.S. has been criticized for lacking consistency in its enforcement-biased regulatory approach. The US Department of Justice, Securities and Exchange Commission, Commodity Futures Trading Commission and other regulators at the state level have in the past taken actions against Web3-involved companies.

Under the Biden administration, the Financial Innovation and Technology for the 21st Century Act sought to clarify the regulatory roles and boundaries of authorities involved in oversight capacity.

A [product](https://www.congress.gov/bill/118th-congress/house-bill/4763/all-actions?s=1&r=1&q=%7B%22search%22%3A%5B%22Financial+Innovation+and+Technology+for+the+21st+Century+Act.%22%5D%7D) of joint efforts by legislators, company executives, and other stakeholders, FIT21 was tabled in the U.S. House of Representatives in July 2023 and passed in May 2024. As of September 2024, the bill had been received in the Senate and referred to the Committee on Banking, Housing, and Urban Affairs.

Latest reports indicate that the Trump administration intends to empower the CFTC to regulate the spot market for crypto and other tokens deemed digital commodities, as well as the exchanges and platforms where they are traded.

There have also been calls for the US to establish regulatory sandboxes to promote the development of blockchain technology.

#### Asia

In Asia, the regulatory approach is analogous for some countries and divergent in others.

Mainland China, for instance, enforces strict regulations and limitations on blockchain-related activities like crypto trading.

Conversely, Hong Kong is slightly receptive and embraces a principles-based regulatory approach. The country’s central bank, the Hong Kong Monetary Authority, has prescribed AML/CFT guidelines, among other rules. Hong Kong also relies on a [regulatory sandbox regime](https://www.hkma.gov.hk/eng/news-and-media/insight/2024/03/20240312/) to promote innovation in financial services and products under relaxed regulations. The Hong Kong Securities and Futures Commission [launched](https://www.sfc.hk/en/Welcome-to-the-Fintech-Contact-Point/SFC-Regulatory-Sandbox) a sandbox for financial service providers in September 2017. In March 2024, the HKMA [introduced](https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/03/20240312-4/) a sandbox arrangement for stablecoin issuers.

In Singapore, the Monetary Authority of Singapore practices oversight on digital asset custody, cross-border payments, and token transfers through the Payment Services Act. Like Hong Kong, Singapore has a regulatory sandbox environment. In April 2022, the Singapore Parliament [passed](https://sso.agc.gov.sg/Act/FSMA2022) the Financial Services and Markets Act, which sought to enhance the “agility and effectiveness” of the MAS.

The Financial Service Agency enforces compliance in Japan and can revoke licenses where misconduct occurs. Self-regulatory organizations also play a role in monitoring compliance – the Japan Security Token Offering Association and Japan Virtual Currency Exchange Association, are formally recognized in this regard. Japan, however, lacks an omnibus regulatory framework governing blockchain-based token offerings like Singapore’s FSMA.

The Bangko Sentral ng Pilipinas issues and administers the regulatory framework in the Philippines. The central banking institution ensures virtual currency exchanges operate in conformance with its guidelines, which include AML/CFT and data protection rules. The Philippine government supports [regulatory sandboxes](https://techforgoodinstitute.org/blog/expert-opinion/accelerating-innovation-the-philippines-journey-with-regulatory-sandboxes/) and instituted the BSP's regulatory sandbox framework in 2019.

### How projects can navigate jurisdictional complexities

Regulatory guidance in different jurisdictions can sometimes be inconsistent. Even where international or global standards are recommended, implementation and enforcement vary.

In addition, regulatory requirements are often revised to keep up with evolving requirements. These complexities have created a regulatory compliance dynamic that demands constant adaptation.

There is a need for cross-border collaboration to address these complex jurisdictional issues. The existence of common threads and unifying elements in the frameworks adopted in different regions provides a foundation for collective efforts

# Challenges of Blockchain Regulatory Compliance

## Blockchain Regulatory Issues and Legal Barriers

### Complexity of cross-border transactions

Cross-border blockchain transactions add nuances and intricacies to the process of compliance. The lack of international consensus on blockchain regulation further complicates the compliance exercise.

### Ambiguity in crypto asset classifications

Despite efforts to address the contentious issue of digital asset classification, there remains confusion among market participants. The resulting uncertainty has made compliance difficult and led to legal disputes between regulators, brokerage firms, investors, and consumers. The U.S. SEC lawsuit against Ripple Labs in 2020 best highlights this legal polarization.

## Challenges for Blockchain Privacy and Compliance

### Balancing privacy with transparency

Web3 entities processing user data are required to protect sensitive information while granting visibility into their practices and processes. In some cases, user privacy, transaction integrity, and trust in the system can clash as contradictory interests. Attaining privacy may involve restricting access to certain information, while transparency inherently calls for openness.

### Impacts of GDPR and similar regulations on blockchain privacy

Blockchain’s inherent transparent design can also conflict with the requirements of data protection regulations like GDPR. Reconciling this incongruity and striking a compliant balance necessitates substantial effort and novel strategies.

There are ongoing research efforts to realize privacy-preserving mechanisms that can support regulatory compliance. A 2023 [research paper](https://www.sciencedirect.com/science/article/pii/S2096720923000519?via%3Dihub) coauthored by Ethereum co-creator Vitalik Buterin and three others discussed privacy pools-like protocols as a potential solution. The co-authors propose an opt-in privacy pool infrastructure using zero-knowledge proofs and the concept of ‘association sets’ to distinguish trustworthy users from questionable ones.

## Technical and Operational Limitations of Blockchain Compliance

### Scalability issues for implementing compliance solutions

The decentralized architecture and features of blockchains, like cryptographic protocols, complicate integrations with compliance solutions. In addition, some blockchains have scalability limitations, which can hinder compliance. For instance, network congestion can lead to delayed transaction confirmations, which impedes real-time transaction monitoring.

### Cost of maintaining compliance programs

A good compliance program entails regular audits, AML/KYC programs, and licensure, which can be expensive. Ongoing maintenance expenses and other compliance-related investments in personnel and infrastructure can also significantly escalate the costs incurred.

# Best Practices for Achieving Blockchain Regulatory Compliance

The first step in navigating the complex blockchain regulatory landscape is understanding the historical context of applicable rules and standards. This entails reviewing the regulatory frameworks in question, their scope, their interpretation and how they have changed over time.

## Proactive Compliance Strategies

### Engaging with regulators early

Compliance teams should endeavor to engage regulatory authorities at the earliest opportunity. This way, they can get sufficient time and leeway to address any concerns that arise.

In addition, companies need to properly educate regulators on their offerings, breadth of operations, internal controls, and other risk management measures. Cultivating a positive regulatory relationship sets the tone and well-positions stakeholders to contribute to formulating guidelines.

### Conducting regular audits and on-chain monitoring

Financial institutions should, at the minimum, maintain the ability to mitigate crime risks impacting their offerings. Routine audits help identify potential risks, such as security vulnerabilities and smart contract flaws. In addition to pinpointing issues in compliance programs, audits help demonstrate the effectiveness of implemented strategies.

## Leveraging Blockchain Compliance Companies

Blockchain compliance companies offer tools and services tailored for entities looking to satisfy regulatory requirements and remain compliant. These solutions have different features, DeFi coverage, and pricing hence the need to evaluate them carefully against specific compliance needs. Hacken, Elliptic, Chainalysis, and TRM Labs are some of the leading blockchain analytics and investigative solutions providers.

# Blockchain Regulatory Compliance Tools and Technology

Growing regulatory complexity, increasing cybersecurity threats, and rising penalties for non-compliance have highlighted the crucial role of regulatory technology that automates processes like analysis and reporting. Compliance tools not only reduce human errors but also help manage costs involved.

## On-Chain Monitoring Tools

Monitoring tools help compliance teams screen transactions or wallets, flag potential risks, and generate reports for compliance purposes. Hacken Extractor is one such powerful solution equipped to support blockchain project teams and regulators in strengthening security posture and streamlining compliance efforts.

Hacken Extractor‘s capabilities include advanced 24/7real-time monitoring, AI-enabled alerts on potential attacks, and built-in protection mechanisms through predefined response plans. Its user-friendly and self-service platform also provides customizable protection features to meet specific needs.

Other leading providers, such as Chainalysis and Elliptic, also offer robust solution suites that include transaction monitoring, forensic investigation, and wallet screening tools.

## Blockchain Security Enhancements

Strong encryption techniques, secure wallets, and regular security audits streamline compliance, helping satisfy regulatory expectations. An effective incident response plan consisting real-time risk assessment, rapid fraud detection and timely intervention can help minimize the impact of risks.

# Future Trends in Blockchain Regulatory Compliance

## Evolution of Blockchain Law

### Emerging focus areas like DeFi, NFTs, and CBDCs

The rise of decentralized finance, non-fungible tokens, and other niches has drawn more users to the Web3 space. These use cases have further elevated blockchain to the forefront of global market discussions.

Consequently, more statutory guidance and legal rules targeting these niches are expected in the coming years as emerging use cases see more adoption. Enforcement efforts are equally set to increase as the enforcement reach grows.

### Predictions for regulatory changes in significant regions

In light of the Republican sweep of the 2024 US elections, there are elevated expectations for a well-defined and above-board regulatory framework under President-elect Trump. Perhaps indicative of a regulatory shift, SEC chairman Gary Gensler communicated his resignation this month and will leave office in January.

Trump previously said that he would establish a new council to advise on crypto policy at the Bitcoin 2024 Conference. His administration includes some crypto-friendly nominees and appointees in key positions, including SEC Chair and Treasury Secretary. The administration also established the first White House crypto role to coordinate government-wide digital asset policy and regulation initiatives.

The newly-selected (link to voting) House Financial Services Committee Chair [remarked](https://www.cnbc.com/video/2024/12/13/rep-french-hill-on-crypto-we-need-a-market-structure-for-digital-assets.html) in December that formulation of digital assets rules will be a priority for the incoming administration in the new year as it seeks to establish a regulatory framework in the first 100 days.

President-elect Donald Trump announced that Bo Hines to lead his “Crypto Council” as the Executive Director of the Presidential Council of Advisers for Digital Assets. (Trump nomination message link).

Trump had previously appointed David Sacks (link) to spearhead crypto and AI policy in the Crypto Czar role at the White House.

Some industry executives (link to Coinbase's Vice President of International Policy Tom Duff Gordon remarks in the Navigating Crypto's Regulatory Seas: Compliance, Challenges, and Innovation panel discussion) also forecast Trump's crypto agenda to spur digital asset regulatory initiatives in other jurisdictions around the world.

Various pieces of legislation have been introduced in other countries and are at different progression stages.

In the UK, members of the Upper House of Parliament backed the Digital Assets Property Bill drafted by the Law Commission at its second reading. The bill which was introduced in September (link) seeks to address some murky areas specifically in terms of how crypto is treated by the legal system.

In November, the Economic Secretary to the Treasury of the UK, Tulip Siddiq, [affirmed](https://www.gov.uk/government/speeches/keynote-address-at-the-tokenisation-summit-uk-government-approach-to-tokenisation-and-regulation) intentions to progress with an all-encompassing regulatory framework for crypto assets in 2025. The draft legislation was already a subject of discussion under the previous government but saw delays because of the July elections, which the Conservative Party lost.

Reports suggest that the Labor Party government will proceed with the previous government’s regulation plans for the sector with few adjustments. Notably, guidelines for stablecoins and other crypto-assets will be instituted at the same time as opposed to an initial proposal for a phased strategy. Siddiq also talked about a Digital Securities Sandbox, which aims to promote the responsible development of distributed ledger technology products.

Labor aim to create a new authorization regime for crypto companies after taking over from the crypto friendly Conservatives. Economic Secretary Tulip Siddiq said in October that the government had been reviewing the previous government's plans for crypto and will deliver its policy programme for crypto assets soon.

In the UK, the Treasury and the Financial Conduct Authority have been working on appropriate financial regulation of crypto assets.

In a November [blog](https://www.fca.org.uk/news/blogs/developing-our-approach-crypto-regulation), the FCA outlined its plans to introduce the new regulatory regime in 2026 following discussions with various stakeholders. Per the FCA crypto [roadmap](https://www.fca.org.uk/publication/documents/crypto-roadmap.pdf) highlighting key dates and milestones, the regulator projects the legislation to come into force in 2026.

In Australia, authorities have faced [similar criticism](https://blog.kraken.com/news/important-context-behind-asics-recent-judgment-and-why-australia-should-prioritise-implementing-a-clear-crypto-regulatory-framework) of regulating the digital assets space by enforcement without providing sufficient guidance. In October 2023, the Treasury published a [proposal paper](https://treasury.gov.au/sites/default/files/2023-10/c2023-427004-proposal-paper-final.pdf) seeking feedback on a framework constituting the licensing and custody principles for digital asset service providers. The scope of this proposed regulatory framework was updated in June 2024 to include a framework for governing stablecoins.

## Technological Innovations Supporting Compliance

Newer technologies have shown promise in enhancing compliance by automating tasks and improving risk assessments through predictive analysis.

### AI/ML for predictive monitoring

Artificial Intelligence has unlocked the power to shift the compliance approach from reactive to proactive. The integration of machine learning in compliance management has addressed limitations in manual compliance techniques thanks to the ability of ML solutions to handle vast volumes of data and quickly process information.

Harnessing the power of AI in compliance yields benefits such as automated due diligence and prediction of risks or anomalies that could lead to potential regulatory issues.

### Decentralized identity solutions for seamless KYC

Decentralized identity solutions provide an alternative approach to implementing Know-Your-Customer (KYC) controls.

Under this type of digital identity management, users initiate the process of obtaining verifiable credentials (VCs) using their digital wallets by creating digital identities and generating public-private key pairs. Trust issuers, upon receiving the request, verify the user's identity and generate a VC, which is sent to the user.

Decentralized identity solutions based on blockchain have the potential to streamline KYC processes. Blockchain's immutable ledgers can store records of credential issuance and transfers, providing transparency and enhancing security. These blockchain-based decentralized solutions can integrate smart contracts programmed to automate verification processes, further enhancing functionality.

# Conclusion: Building a Compliant Blockchain Ecosystem

Achieving and maintaining compliance is a continuous exercise, not a one-time undertaking. Keeping this in mind, blockchain-involved companies must work around existing challenges and complexities by embracing the best compliance strategies.

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