

# Lesson 10: RegTech

## Module 1: FinTech Fundamentals

Digital Finance

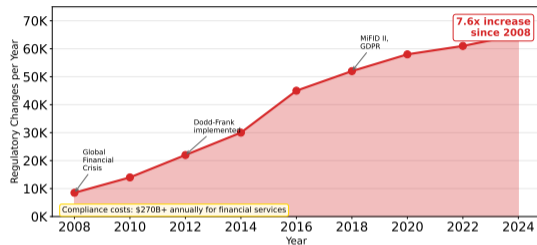
# Regulatory Complexity Crisis

## Compliance Burden

- 300M+ pages of regulation
- 206B globally (2024 LexisNexis study)<sup>a</sup>
- 500+ updates per day
- Manual processes fail

<sup>a</sup>Source: <https://risk.lexisnexis.com/global/en/about-us/press-room/press-release/20240221-true-cost-of-compliance-us-ca>

## Global Financial Regulatory Changes

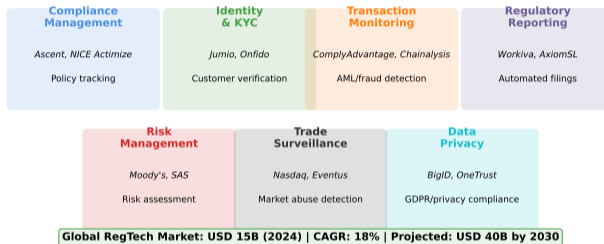


Source: Thomson Reuters Cost of Compliance Report (2023)

Financial institutions face 300M+ pages of regulation with 500+ daily updates—manual compliance is impossible. [Source: McKinsey, Gartner 2024]

## RegTech Landscape Overview

RegTech = Technology solutions for regulatory compliance

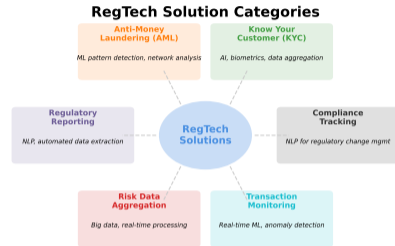


Source: grandviewresearch.com, juniperresearch.com (RegTech Market)

RegTech applies technology to regulatory compliance—automating monitoring, reporting, and risk management.

## Five Core Areas

- Compliance management
- Transaction monitoring
- Regulatory reporting
- Risk management
- Identity verification



Source: deloitte.com (RegTech Universe), jbs.cam.ac.uk (CCAF)

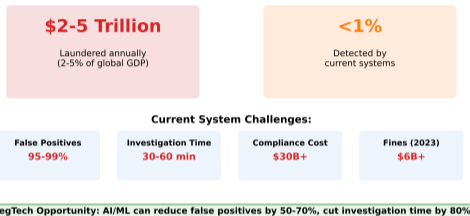
**Five core RegTech areas: compliance management, transaction monitoring, reporting, risk management, and identity.**

# Anti-Money Laundering (AML)

## AML Challenge

- **\$2T** laundered annually
- 0.1% detected (UN estimate)
- **\$26B** in fines (2008-2023)
- False positive rate: 95%

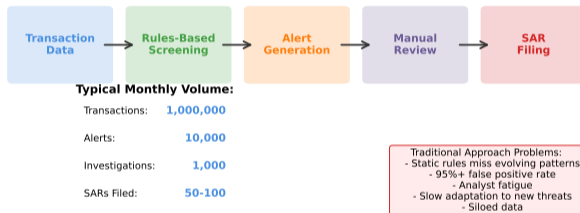
## The Scale of Money Laundering



Source: [unodc.org/money-laundering](https://unodc.org/money-laundering), [fatf-gafl.org](https://fatf-gafl.org) (2024)

**\$2T laundered annually with only 0.1% detected—\$26B in fines since 2008, 95% false positive alerts. [Source: Industry reports 2024]**

## Traditional AML Process Flow



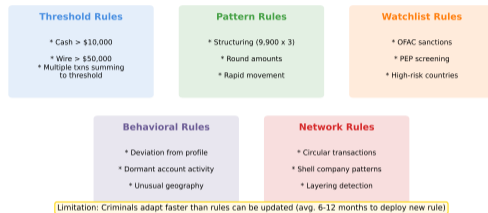
Source: [fincen.gov](https://www.fincen.gov), [fatf-gafi.org](https://www.fatf-gafi.org) (AML Process)

Traditional AML relies on rule-based systems—manual investigation creates bottlenecks and high costs.

## Rule-Based Systems

- Threshold triggers (\$10K)
- Velocity checks
- Geographic patterns 90-95

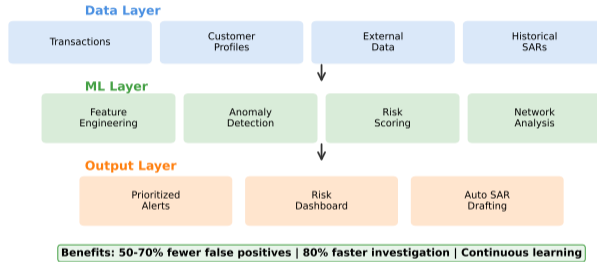
## Traditional AML: Rules-Based Detection



Source: [fincan.gov](https://www.fincan.gov), [ofac.treasury.gov](https://www.ofac.treasury.gov) (AML Rules)

Rule-based monitoring uses threshold triggers (\$10K) and velocity checks—generating 99% false positives. [Source: Industry reports 2024]

## ML-Powered AML Architecture



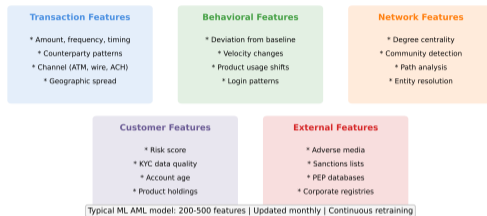
Source: fatf-gafi.org, fincen.gov (AML)

ML-based AML uses neural networks and graph analysis—reducing false positives significantly.

## Behavioral Features

- Network graph analysis
- Time-series patterns
- Entity relationships
- Reduces FP to 70%

## ML Features for AML Detection



Source: fatf-gafl.org, fincan.gov, acams.org (AML Features)

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**Network graph analysis and time-series patterns reduce false positives from 99% to 70%.**

## AI-Powered Screening

- Real-time sanctions screening
- Natural language processing
- Dynamic risk scoring
- 2,000+ financial institutions

## ComplyAdvantage: AI-Powered AML

Real-world RegTech Case Study



### ComplyAdvantage Data Sources:

- \* 10,000+ sanctions & watchlists
- \* Adverse media (50+ languages)
- \* PEP databases (1.4M+ profiles)
  - \* State-owned enterprises
  - \* Crypto wallets & exchanges

**Results: 70% reduction in false positives | 60% faster screening | Used by 1,000+ FIs**

Source: [complyadvantage.com](https://complyadvantage.com) (AML Solutions)

ComplyAdvantage serves 2,000+ financial institutions with AI-powered real-time sanctions screening.

## Reporting Requirements

- MiFID II: 65 data fields
- EMIR: Trade reporting
- Basel III: Risk metrics
- Frequency: Daily/real-time

## Regulatory Reporting Requirements



**Reporting Challenges:**

- 60+ regulators for global banks
- Varying formats (XML, XBRL, CSV)
- Different data taxonomies
- Manual reconciliation errors
- Penalties for late/incorrect filings

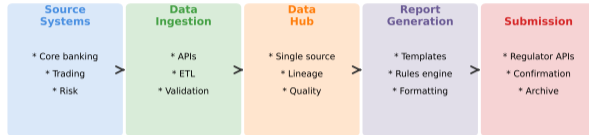
**RegTech Solution:**

- Automated data extraction
- Format transformation
- Validation rules
- Audit trails
- On-time submission

Source: b3i.org, fcb.org, esma.europa.eu (Reporting Requirements)

**MiFID II requires 65 data fields; EMIR mandates trade reporting—daily/real-time frequency demands automation.**

## Automated Regulatory Reporting Flow



### Automation Benefits:

**90%**  
Reduction in  
manual effort

**99.9%**  
On-time  
submission

**70%**  
Cost  
reduction

**<1%**  
Error  
rate

Source: walterskluwer.com, axioms1.com (RegTech Reporting)

Automated reporting extracts, transforms, validates, and submits data—reducing manual work by 80%.

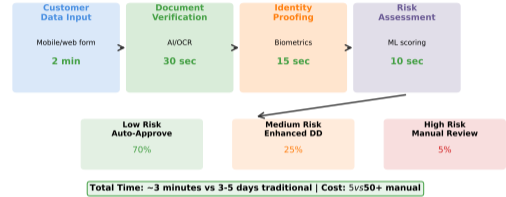
# Know Your Customer (KYC) Technology

## Digital KYC

- Document verification (OCR)
- Biometric authentication
- PEP/sanctions screening
- Continuous monitoring

## Automated KYC/CDD Process

Know Your Customer / Customer Due Diligence



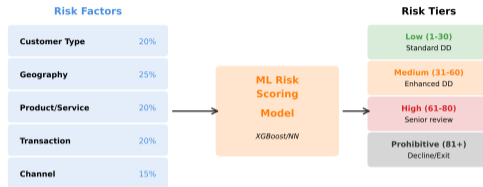
Source: jumia.com, anfdo.com, fatf-paf1.org (KYC)

Digital KYC combines OCR document verification, biometrics, and continuous monitoring for real-time compliance.

## Dynamic Risk Scoring

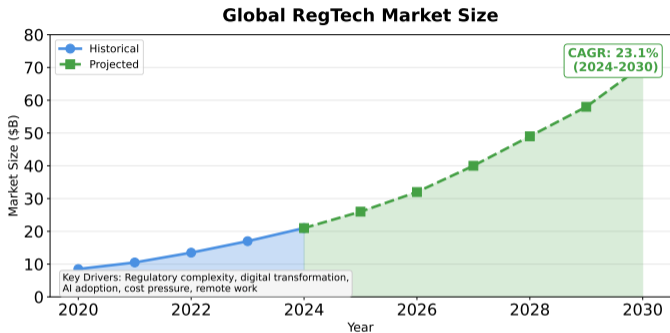
- Real-time risk calculation
- Multi-dimensional factors
- Regulatory change tracking
- Stress testing automation

## Customer Risk Scoring Model



Source: fatf-gafr.org, fca.org.uk (Risk Scoring)

Dynamic risk scoring integrates multi-dimensional factors with regulatory tracking and automated stress testing.



Source: [grandviewresearch.com/industry-analysis/regulatory-technology-market](https://www.grandviewresearch.com/industry-analysis/regulatory-technology-market)

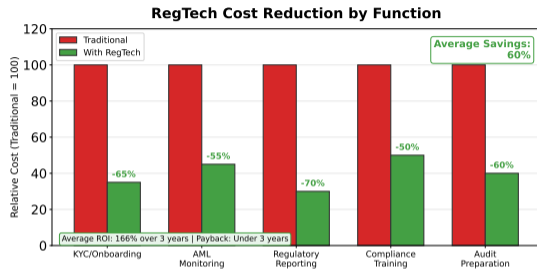
Global RegTech market projected to grow from \$2024: \$13-16B, 2028: \$30-87B (varies by source)<sup>1</sup> to \$45B by 2028—driven by regulatory complexity. [Source: Juniper Research 2024]

<sup>1</sup>Source: <https://www.researchandmarkets.com/reports/5939382/regtech-global-market-report>

# Cost Reduction Analysis

## Efficiency Gains

- AML analysts: 50% reduction
- Reporting costs: 70% lower
- False positive rate: 30% reduction
- Time to compliance: 80% faster



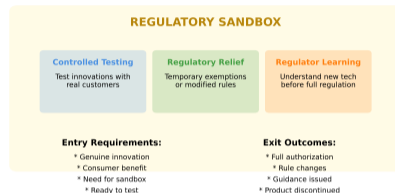
Source: deloitte.com, accenture.com RegTech studies (2024)

**RegTech delivers 50-80% cost reductions—AML analysts down 50%, reporting 70% cheaper, 80% faster compliance.**

## Innovation Testing

- FCA (UK) pioneer
- Limited-scope testing
- Regulatory guidance
- 80% go to market

## Regulatory Sandbox Concept

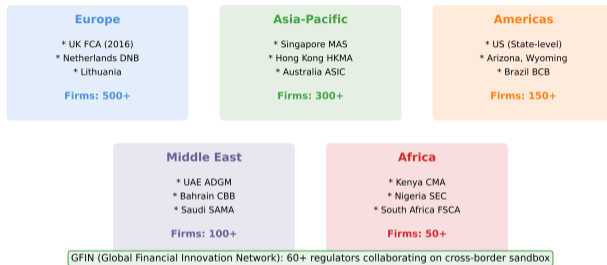


**Pioneer: UK FCA (2016) | Now: 50+ countries with sandboxes | 700+ firms have participated**

Source: [fca.org.uk](http://fca.org.uk), [bis.org](http://bis.org) (Regulatory Sandbox)

Regulatory sandboxes allow limited-scope testing with guidance—FCA pioneered this with 80% go-to-market rate.

## Global Regulatory Sandboxes



Source: [fca.org.uk](https://www.fca.org.uk), [bis.org](https://www.bis.org), [worldbank.org](https://www.worldbank.org) (2024)

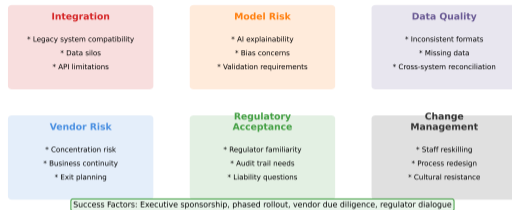
50+ countries have launched regulatory sandboxes—UK, Singapore, Australia, and Hong Kong lead adoption.

# Challenges and Limitations

## Implementation Barriers

- Legacy system integration
- Data quality issues
- Regulatory acceptance lag
- Explainability requirements

## RegTech Adoption Challenges



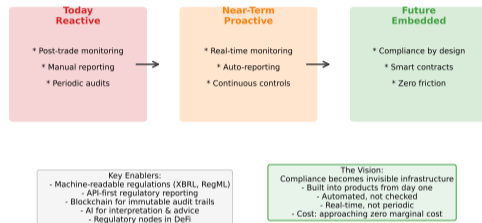
Source: fca.org.uk, eba.europa.eu (RegTech Challenges)

**Key barriers: legacy integration, data quality, regulatory acceptance lag, and AI explainability requirements.**

## Next Generation

- Real-time compliance
- Machine-readable regulation
- Automated policy updates
- Suptech convergence

## The Future: Embedded Compliance



Source: deloitte.com, weforum.org, bis.org (FlagTech Future)

**Future: real-time compliance, machine-readable regulation, automated policy updates, and SupTech convergence.**

## Key Takeaways

- **Problem:** \$270B compliance costs, 95% false positives
- **ML AML:** Reduces false positives from 99% to 70%
- **Automation:** Reporting costs down 70%, time down 80%
- **Sandboxes:** 80% of tested innovations go to market
- **Future:** Real-time embedded compliance automation

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RegTech transforms compliance from cost center to competitive advantage—automation is essential. [Source: Juniper Research 2024]