

## Lesson 10: RegTech

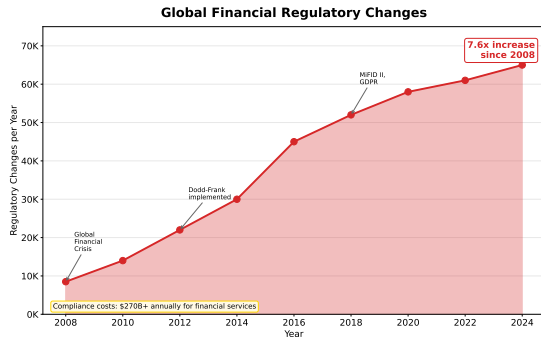
### Module 1: FinTech Fundamentals

Digital Finance

# Regulatory Complexity Crisis

## Compliance Burden

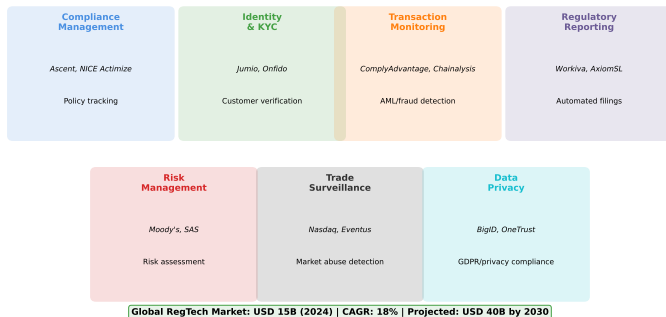
- 300M+ pages of regulation
- \$270B annual compliance cost
- 500+ updates per day
- Manual processes fail



Financial institutions face 300M+ pages of regulation with 500+ daily updates—manual compliance is impossible.

## RegTech Landscape Overview

RegTech = Technology solutions for regulatory compliance

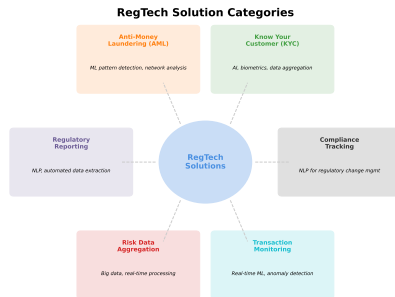


Source: Grand View Research, Juniper Research (2024)

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 RegTech Universe (2024)

**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: UN Office on Drugs and Crime, FATF, McKinsey (2024)

**\$2T laundered annually with only 0.1% detected—\$26B in fines since 2008, 95% false positive alerts.**

## Traditional AML Process Flow



### Typical Monthly Volume:

Transactions:	1,000,000
Alerts:	10,000
Investigations:	1,000
SARs Filed:	50-100

Traditional Approach Problems:

- Static rules miss evolving patterns
- 95%+ false positive rate
- Analyst fatigue
- Slow adaptation to new threats
- Siloed data

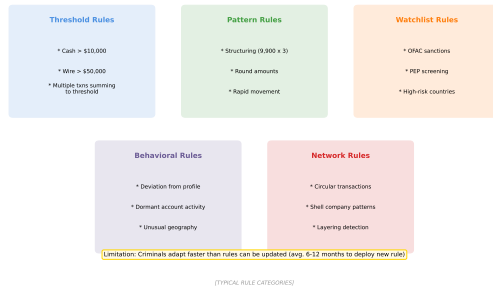
[ILLUSTRATIVE WORKFLOW]

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

## Rule-Based Systems

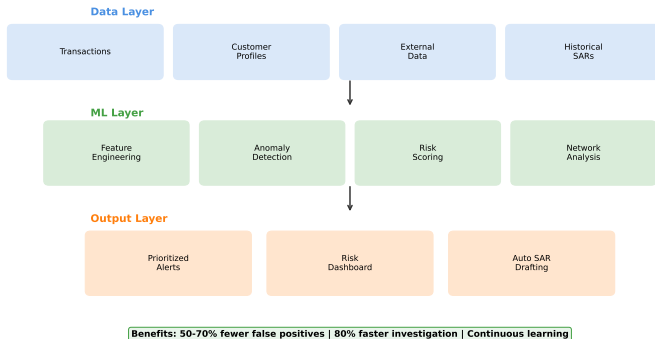
- Threshold triggers (\$10K)
- Velocity checks
- Geographic patterns
- 99% false positives

## Traditional AML: Rules-Based Detection



Rule-based monitoring uses threshold triggers (\$10K) and velocity checks—generating 99% false positives.

## ML-Powered AML Architecture



[CONCEPTUAL ARCHITECTURE]

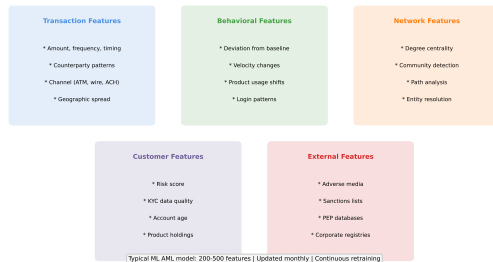
ML-based AML uses neural networks and graph analysis—reducing false positives significantly.



## Behavioral Features

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

## ML Features for AML Detection



(TYPICAL FEATURE ENGINEERING)

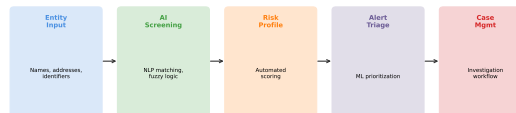
**Network graph analysis and time-series patterns reduce false positives from 99% to 70%.**

## 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 company materials (2024)

**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

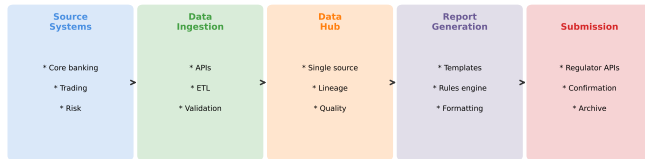
**RegTech Solution:**

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

Source: BIS, FSB regulatory reporting surveys (2024)

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

## Automated Regulatory Reporting Flow



### Automation Benefits:



[CONCEPTUAL WORKFLOW]

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

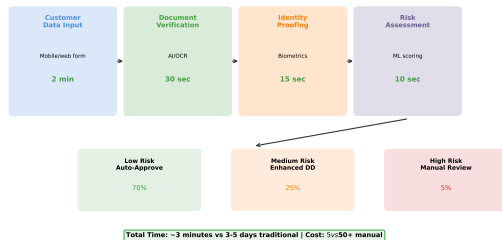
# Know Your Customer (KYC) Technology

## Digital KYC

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

## Automated KYC/CDD Process

Know Your Customer / Customer Due Diligence



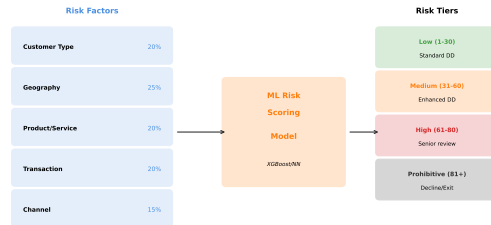
Source: Jumo, Onfido customer case studies (2024)

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

## Dynamic Risk Scoring

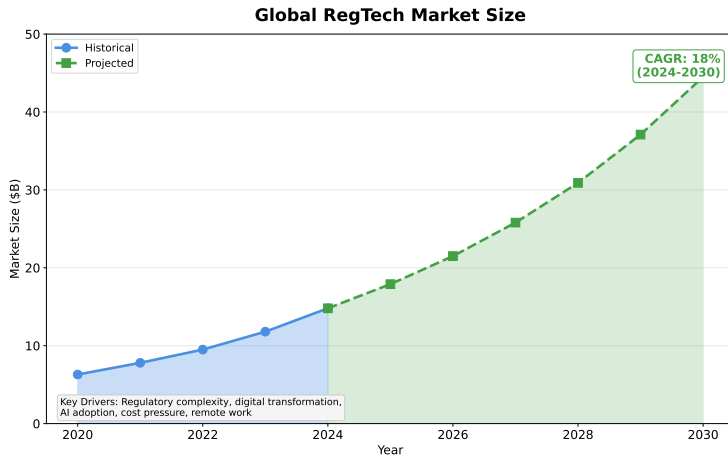
- Real-time risk calculation
- Multi-dimensional factors
- Regulatory change tracking
- Stress testing automation

## Customer Risk Scoring Model



[ILLUSTRATIVE MODEL STRUCTURE]

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



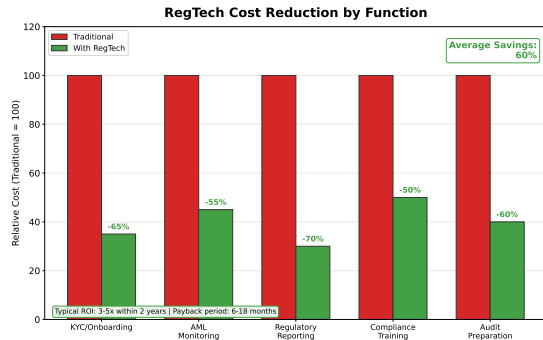
Source: Grand View Research, MarketsandMarkets (2024)

**Global RegTech market projected to grow from \$12B to \$45B by 2028—driven by regulatory complexity.**

# 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 RegTech study, McKinsey analysis (2024)

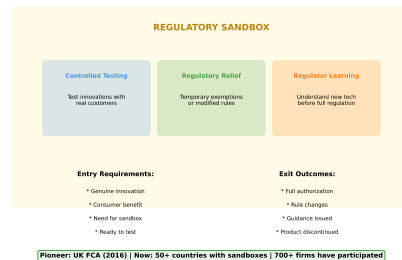
**RegTech delivers 50-80% cost reductions—AML analysts down 50%, reporting 70% cheaper, 80% faster compliance.**



## Innovation Testing

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

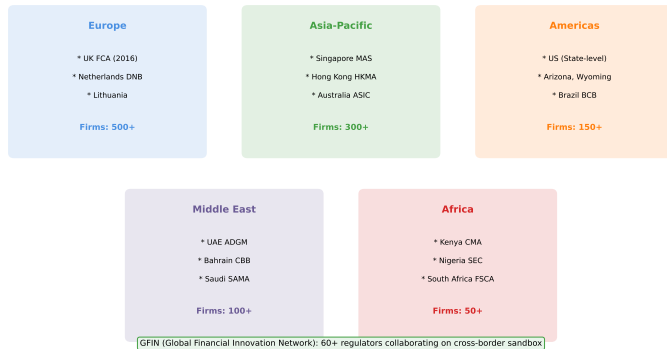
## Regulatory Sandbox Concept



Source: FCA, BS regulatory sandbox report (2024)

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

## Global Regulatory Sandboxes



Source: World Bank, BIS, individual regulator websites (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



Success Factors: Executive sponsorship, phased rollout, vendor due diligence, regulator dialogue

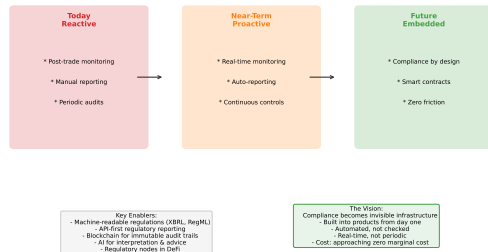
[INDUSTRY ANALYSIS]

**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



[FORWARD-LOOKING ANALYSIS]

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

- **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.