

## Lesson 10: RegTech

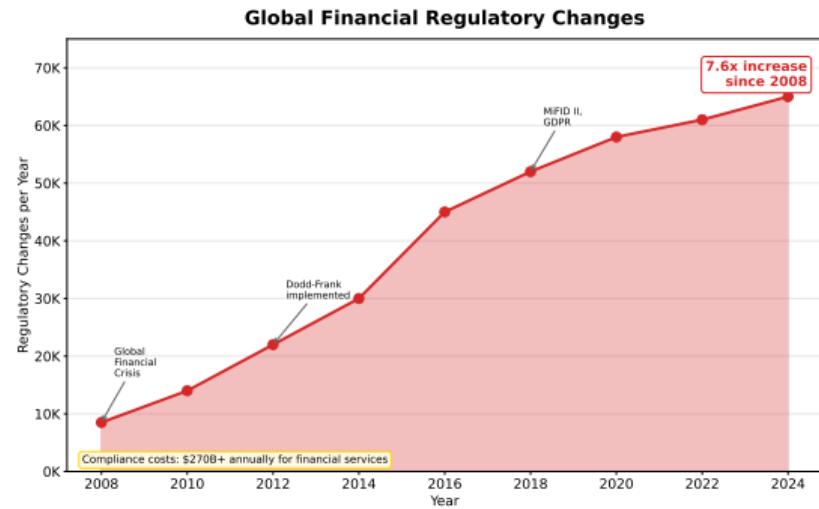
### Module 1: FinTech Fundamentals

Digital Finance

# Regulatory Complexity Crisis

## Compliance Burden

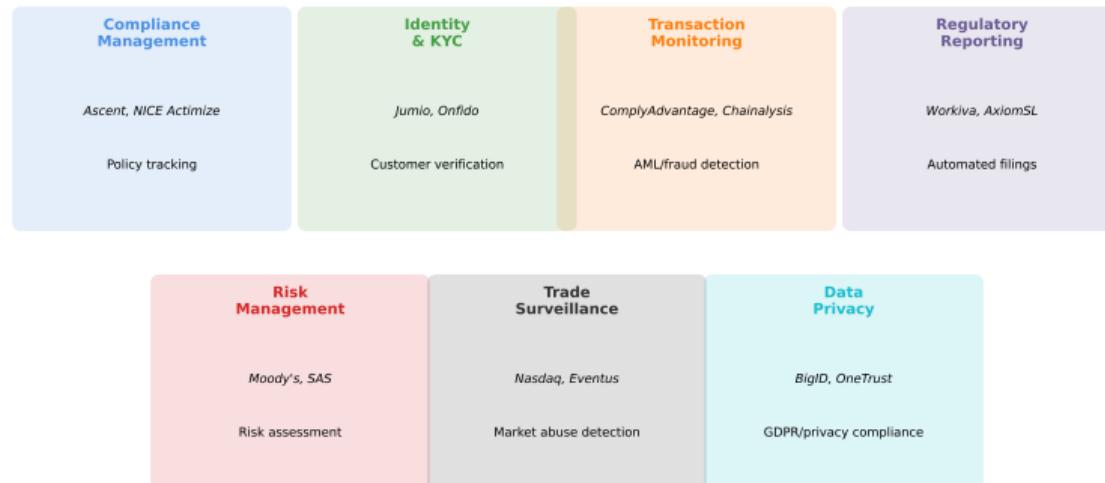
- 300M+ pages of regulation
- \$270B annual compliance cost
- 500+ updates per day
- Manual processes fail



Source: Thomson Reuters Regulatory Intelligence (2024)

## RegTech Landscape Overview

RegTech = Technology solutions for regulatory compliance



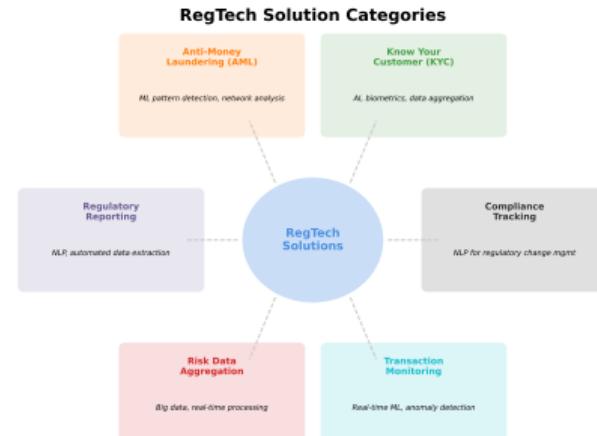
Global RegTech Market: USD 15B (2024) | CAGR: 18% | Projected: USD 40B by 2030

Source: Grand View Research, Juniper Research (2024)

# RegTech Categories

## Five Core Areas

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



Source: Deloitte RegTech Universe (2024)

# 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



## Current System Challenges:

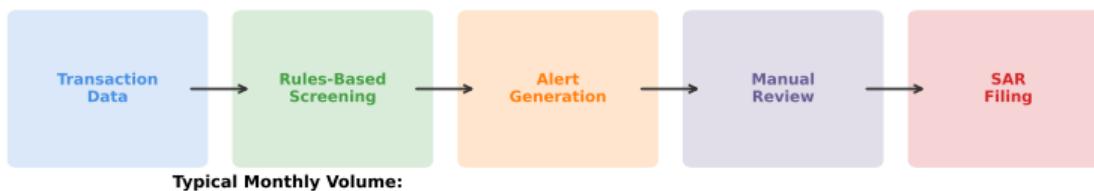


RegTech Opportunity: AI/ML can reduce false positives by 50-70%, cut investigation time by 80%

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

# Traditional AML Process

## 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

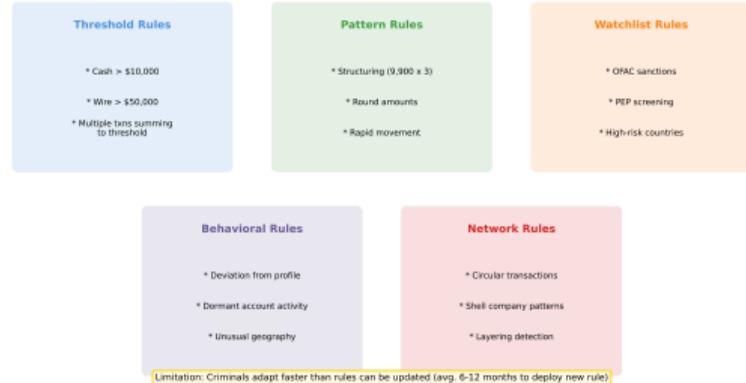
[ILLUSTRATIVE WORKFLOW]

# Transaction Monitoring

## Rule-Based Systems

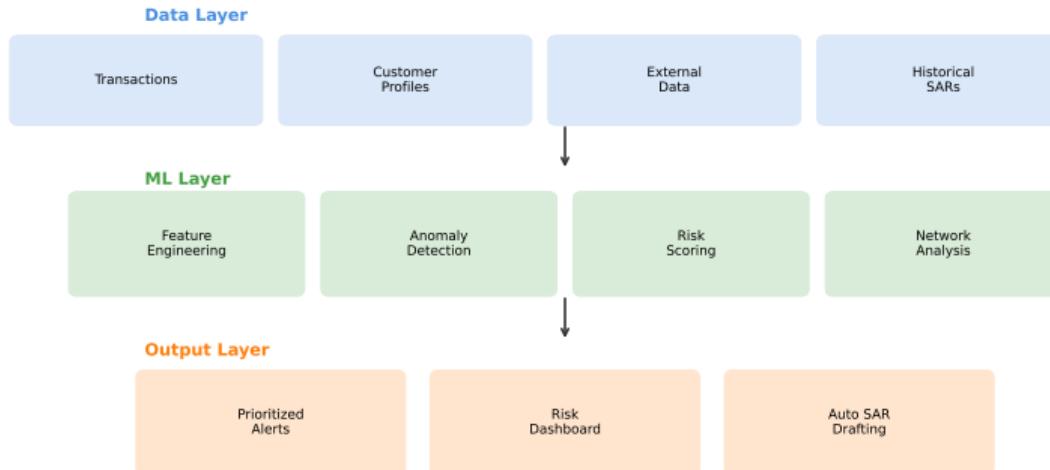
- Threshold triggers (\$10K)
- Velocity checks
- Geographic patterns
- 99% false positives

## Traditional AML: Rules-Based Detection



(TYPICAL RULE CATEGORIES)

## ML-Powered AML Architecture



**Benefits:** 50-70% fewer false positives | 80% faster investigation | Continuous learning

(CONCEPTUAL ARCHITECTURE)

## Behavioral Features

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

## ML Features for AML Detection



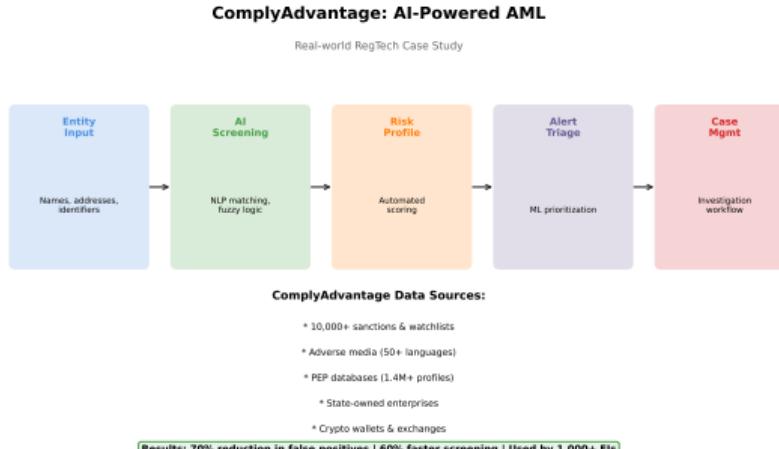
Typical ML AML model: 200-500 features | Updated monthly | Continuous retraining

(TYPICAL FEATURE ENGINEERING)

# ComplyAdvantage Case Study

## AI-Powered Screening

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



Source: ComplyAdvantage company materials (2024)

# Regulatory Reporting Automation

## Reporting Requirements

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

## Regulatory Reporting Requirements

AML/SAR	Prudential	Transaction	Tax
* FinCEN (US) * FCA (UK) * BaFin (DE)	* Basel III/IV * CRD IV * CCAR	* MiFID II * EMIR * Dodd-Frank	* FATCA * CRS * 1099s

Freq: Event-driven

Freq: Quarterly

Freq: T+1 daily

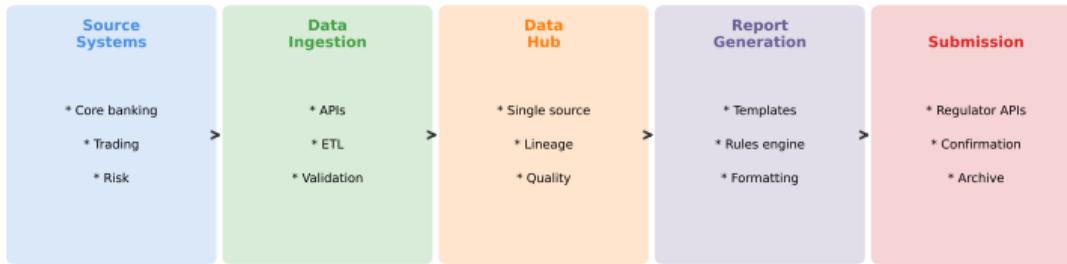
Freq: Annual

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

**RegTech Solutions:**  
- Automated data extraction  
- Format transformation  
- Validation rules  
- Audit trails  
- On-time submission

Source: BIS, FSB regulatory reporting surveys (2016)

## Automated Regulatory Reporting Flow



### Automation Benefits:

**90%**

Reduction in manual effort

**99.9%**

On-time submission

**70%**

Cost reduction

**<1%**

Error rate

[CONCEPTUAL WORKFLOW]

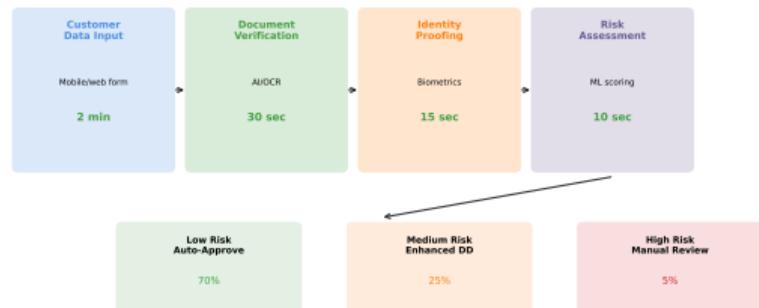
# Know Your Customer (KYC) Technology

## Digital KYC

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

## Automated KYC/CDD Process

Know Your Customer / Customer Due Diligence



Total Time: ~3 minutes vs 3-5 days traditional | Cost: 5vs50+ manual

Source: Jumio, Onfido customer case studies (2024)

# Risk Assessment Platforms

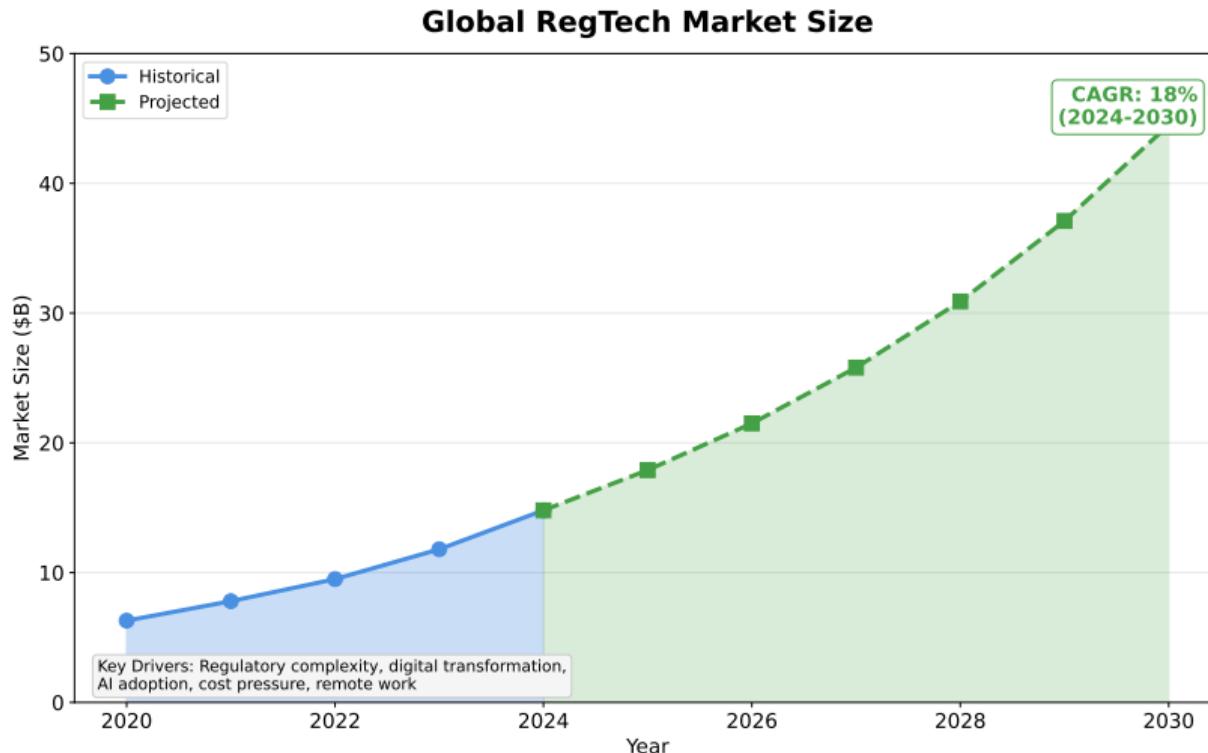
## Dynamic Risk Scoring

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

## Customer Risk Scoring Model



(ILLUSTRATIVE MODEL STRUCTURE)

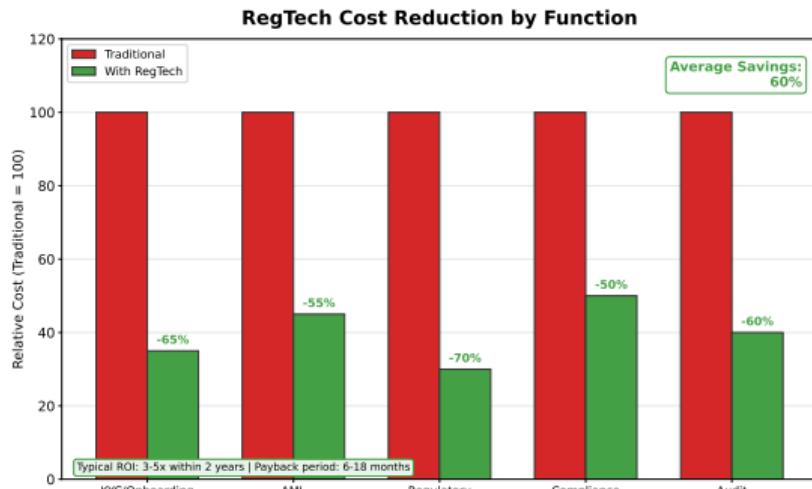


Source: Grand View Research, MarketsandMarkets (2024)

# Cost Reduction Analysis

## Efficiency Gains

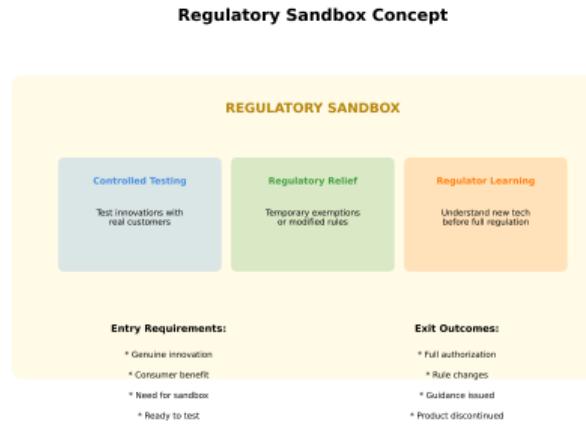
- AML analysts: 50% reduction
- Reporting costs: 70% lower
- False positive rate: 30% reduction
- Time to compliance: 80% faster



# Regulatory Sandboxes

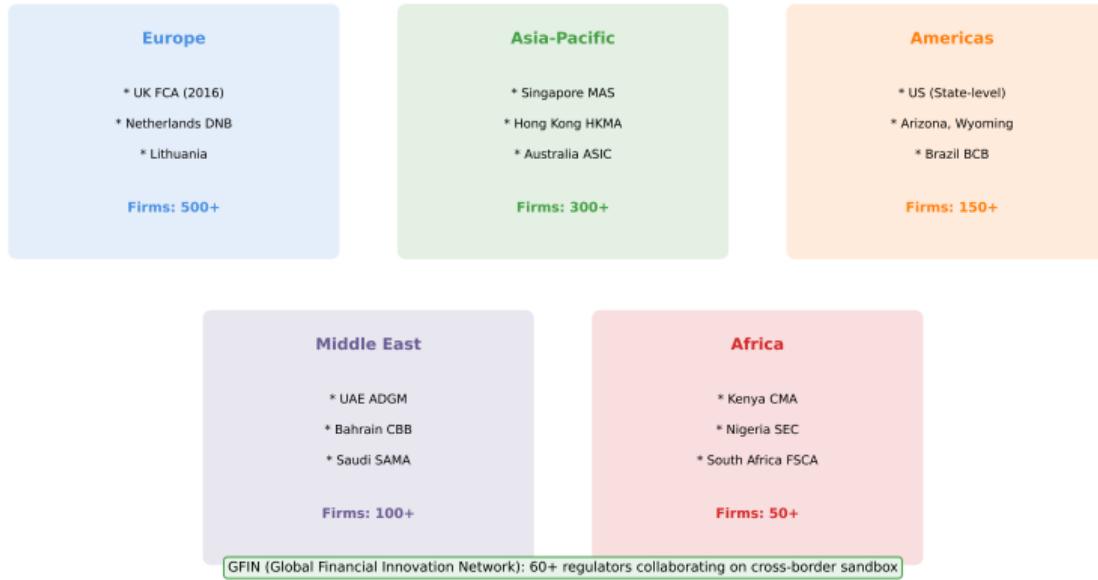
## Innovation Testing

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



Source: FCA, BIS regulatory sandbox report (2024)

## Global Regulatory Sandboxes



Source: World Bank, BIS, individual regulator websites (2024)

# Challenges and Limitations

## Implementation Barriers

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

## RegTech Adoption Challenges



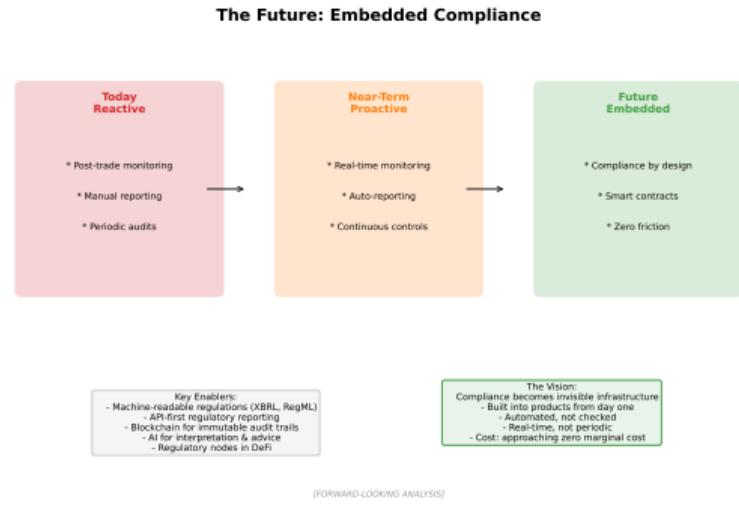
**Success Factors:** Executive sponsorship, phased rollout, vendor due diligence, regulator dialogue

[INDUSTRY ANALYSIS]

# Future: Embedded Compliance

## Next Generation

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