

The background of the slide is a photograph of two women in business attire shaking hands on a modern office balcony with a glass railing. The balcony is set against a backdrop of a large, multi-story office building with a complex steel and glass facade. In the upper right corner, there are two overlapping semi-transparent squares, one orange and one pink.

# *Financial Forensics: Advanced Tactics for Combating Accounting Fraud*

## **HOW TO PREVENT ACCOUNTING FRAUD IN FINANCIAL SECTOR**

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# With You today



## **Budi Santoso, SE, Ak, MForAccy, PCGS, CA, CFE, CPA (Aust.), QIA**

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Budi Santoso is Director in PwC's Forensic Services and Financial Crime Territory Leader, based in the Jakarta office. Budi has more than 20 years of experience in Indonesia and other countries in South East Asia conduct corruption/fraud and money laundering investigations; asset trace & recovery; dispute & litigation support; design, implement and evaluate anti-fraud programs (both prevention and detection), develop artificial intelligence based fraud detection system and anti money laundering including transactions monitoring system, third party due diligence system etc.; perform fraud risk assessment; internal control assessment and improvement; compliance due diligence; US FCPA & UK ABAC reviews; business process reviews; good corporate governance reviews; and perform complex worldwide business intelligence before investing for Western and Far East companies. An experienced trainer, he is also capable in leading modernizing & transforming corporate GRC (performance, risk management, compliance & internal audit). Budi participated in the selection of OJK 2022-2027 Commissioners who pass up to the President.

### **RELEVANT EXPERIENCES**

- ★ 10 years : worked for the elite Indonesian Corruption Eradication Commission (KPK), serving as Head of the Commissioner's Office, Head of the Prevention Secretariat, and also as an investigator/examiner (2005-2015)
- ★ 2 years : Senior Manager in the Fraud Investigation and Disputes team at Ernst & Young (EY) Indonesia (2016-2018)
- ★ 2.5 years : Senior Director in the Business Intelligence & Investigations at Kroll in the Singapore office (2018-2020)
- ★ 3.5 years : Director in the Forensics & Financial Crime Unit Leader at PricewaterhouseCoopers (PwC) in the Jakarta office (2020-present)

### **EDUCATION AND CERTIFICATION**

- ★ Bachelor of Economics in Accounting from Sebelas Maret University (Solo-Indonesia) – 2004
- ★ Official education at Indonesia Police Academy (Semarang-Indonesia) - 2006
- ★ Master of Forensic Accounting from University of Wollongong (New South Wales-Australia) - 2009
- ★ Postgraduate Certificate in Corruption Studies, University of Hong Kong (Hong Kong-China) – 2012
- ★ National Integrity System (NIS) short course, Malaysia Anti-Corruption Academy (Kuala Lumpur-Malaysia) - 2013
- ★ Governance & anti corruption short course from the International Law Institute, Georgetown University (Washington DC-USA) – 2015
- ★ Transparency & Accountability short course at Griffith University (Queensland – Australia) - 2023
- ★ Certified Fraud Examiner (CFE)
- ★ Chartered Accountant (CA)
- ★ Certified Practicing Accountant (CPA Aust.)
- ★ Qualified Internal Auditor

### **PROFESSIONAL ASSOCIATIONS**

- ★ 7 years for the Association of Certified Fraud Examiner (ACFE) Indonesia Chapter (2024), previously Director of Training (2017-2024)
- ★ 2 years for Board Member ACFE Singapore Chapter (2018-2020)
- ★ 2 years for Certification Board of Indonesia Qualified Internal Auditor Association (2022-2027)
- ★ 3 years : Visiting Lecturer at Atma Jaya Catholic University & Sebelas Maret University in Forensic Accounting class (2020 – present)

# Agenda

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- 1 The importance of fraud prevention in the financial sector**
- 2 Definition and Types of Accounting Fraud and the Correlation with Financial Engineering**
- 3 Techniques Used in Accounting Fraud in the Financial Industry**
- 4 The Impacts**
- 5 Common Signs and Red Flags & Responding to Fraud Incidents**
- 6 Overview of Laws and Regulations Against Accounting Fraud**
- 7 Internal Controls and Fraud Prevention Strategies**
- 8 Technology Solutions: Automated & AI based Fraud Detection Software and Tools**
- 9 SupTech & RegTech**

# Fraud prevention strategies are *safeguard* to financial institutions and their stakeholders

The importance of fraud prevention in the financial sector cannot be overstated due to the substantial risks and consequences associated with financial fraud. Therefore, it is essential for financial institutions to prioritise and continually update their fraud prevention strategies.



**A MEDIAN OF  
\$100,000 IN LOSSES  
CAUSED BY FRAUD  
INCURRED IN  
FINANCIAL SECTOR**

Data was compiled from **2,100** real cases of fraud in **133** countries by **90,000** anti-fraud professionals.  
*Source: ACFE, 2022*

## KEY REASONS



In the financial sector, accounting fraud can take several distinct forms, designed to manipulate financial records and deceive stakeholders

**Accounting fraud** is the deliberate misrepresentation, misstatement, or omission of financial statement data to mislead financial statement users, particularly investors and creditors.



# Detailed techniques are used in accounting fraud within the financial sector

## Loan Loss Provision Manipulation

1

Financial institutions often need to estimate potential losses from loan defaults.

Overstating or understating these provisions can either inflate profits or smooth them over time.

## Interest Income Smoothing

2

Manipulating the timing or recognition of interest income to stabilize financial results across periods.

This could involve the strategic timing of recognizing interest income from loans or investments.

## Improper Valuation of Financial Instruments

3

Valuing complex financial instruments (e.g., derivatives, mortgage-backed securities, or other investment vehicles) at inflated or deflated values to misrepresent the institution's financial position.

## Misreporting of Liquidity

4

Misrepresenting the liquidity ratios can give a misleading sense of security about a financial institution's ability to cover short-term liabilities. Techniques might include short-term borrowing at period-end to boost cash balances temporarily.

## Understating Risk Exposure

5

Under-reporting the true risk exposure of financial positions or operations.

This can involve not fully disclosing the risks associated with financial instruments or investment positions.

## Window Dressing Financial Statements

6

Techniques to enhance the financial statements temporarily at the reporting date to improve the financial ratios used by analysts and investors.

This could involve short-term trades, adjustments in portfolio management, or shifting the timing of recognition.

SS

# Accounting fraud can have far-reaching and severe impacts on a company, stakeholders, and the broader economy...

01

## FINANCIAL LOSSES

- Investors and shareholders
- Company

02

## DAMAGE TO CREDIBILITY AND REPUTATION

- Corporate reputation
- Trust erosion

03

## LEGAL AND REGULATORY CONSEQUENCES

- Litigation
- Regulatory penalties
- Criminal charges



## OPERATIONAL DISRUPTIONS

- Management turnover
- Employee morale

05

## MARKET AND ECONOMIC IMPACT

- Stock market volatility
- Sector credibility

06

## IMPACT ON AUDITING AND ACCOUNTING PROFESSIONALS

- Professional scrutiny
- Changes in auditing practices: stricter

07

# Financial engineering can be misused to gain benefit illegally (accounting fraud?)



**Financial engineering** refers to the application of mathematical techniques to solve financial problems, design financial instruments, and develop investment strategies. It often involves the use of complex derivatives, structured finance products, and various forms of quantitative models to achieve specific financial goals, such as risk management, profit maximization, or cost reduction.

**Risk Management**



**Effective Monetary Policy**



**Portfolio Optimisation**



**Liquidity Provision**



**Accounting fraud** involves deliberately manipulating financial statements to create a false impression of a company's financial health. This can include overstating revenue, understating expenses, or hiding debts. The aim is typically to mislead investors, regulators, and other stakeholders about the company's financial condition.

## Correlation between Financial Engineering and Accounting Fraud:

1



**Misuse of Techniques**

Financial engineering becomes correlated with accounting fraud when its techniques are misused to obscure the true financial state of a company. For example, complex financial products might be used to hide liabilities off the balance sheet or to smooth earnings over time in a way that misleads investors.

2



**Complexity and Opacity**

The inherent complexity and lack of transparency in some financial engineering practices can provide opportunities for dishonest executives to manipulate financial outcomes. Complex structures can make it harder for auditors and regulators to detect malpractice.

3



**Off-Balance Sheet Financing**

This technique involves **moving liabilities off a company's balance sheet** to make the company appear financially healthier. It's achieved through the use of financial instruments like leases, joint ventures, or partnerships that don't have to be reported on the balance sheet.

3



**Regulatory Arbitrage**

Financial engineering can be used for regulatory arbitrage, exploiting gaps or ambiguities in financial regulations. This can sometimes verge into fraudulent territory if it involves deliberate deception or illegal activities to circumvent the spirit of the law.

4



**Creative Acquisition Accounting**

In merger and acquisition deals, financial engineering can be used to manipulate the books to **make the acquisition appear more beneficial than it might be**. The goal here can be to inflate intangible assets or goodwill, allowing the acquirer to write off expenses over a longer period and artificially boost profitability in the short term.

Financial engineering is not inherently fraudulent; it is a legitimate and important aspect of modern finance. It only becomes problematic when used unethically or illegally

# Financial engineering abuse and accounting fraud have occurred in the past

## Example: The Global Financial Crisis (GFC) 2008 - Subprime Mortgage Scandal



*This example illustrates how financial engineering can be used to **create complex products and structures** that may **not align with ethical practices or regulatory compliance**, which impacts on the global economy and led to significant changes in financial regulations and oversight.*

Several banks and financial institutions faced legal actions and paid substantial fines and settlements for their roles in these activities. For example, in 2014, Bank of America agreed to pay a \$16.65 billion settlement for misleading investors about the risks of its mortgage-backed securities.

### **Misrepresentation of Mortgage Quality:**

Financial institutions were involved in the origination and distribution of subprime mortgages, which were often repackaged into complex financial products such as mortgage-backed securities (MBS) and collateralized debt obligations (CDOs). In some cases, the quality of these underlying mortgages was misrepresented in the financial statements and prospectuses of these securities.

### **Off-Balance Sheet Entities:**

Banks used off-balance-sheet entities to move these risky securities off their books, making the banks appear more financially stable than they were. This practice hid the level of risk they were exposed to from subprime mortgages and related products.

### **Improper Valuation of Assets:**

There were instances where financial institutions did not accurately value their holdings of MBS and CDOs, leading to inflated asset values on their balance sheets. This overvaluation of assets was part of the larger problem of mispricing risk, which was rampant in the years leading up to the GFC.

**Failure to Disclose Risks:** Companies involved in creating and selling complex financial products often failed to disclose the true level of risk associated with these products to investors, which is a form of accounting fraud.

The collapse of Lehman Brothers and the failure of several other major financial institutions were significant events that highlighted these abuses. The unraveling of these complex financial products led to a massive loss of confidence in the global financial system and required unprecedented government intervention.

# Common signs and red flags indicating possible fraudulent accounting practices

*Although these red flags do not necessarily prove the existence of fraud, but these should prompt a closer examination of the financial records and practices.*



1

RAPID INCREASE IN FINANCIAL PERFORMANCE

2

CHANGES IN AUDITORS OR LEGAL ADVISORS

3

COMPLEX OR UNUSUAL FINANCIAL STRUCTURES

4

SIGNIFICANT, UNEXPLAINED VARIANCES FIGURES

5

ISSUES HIGHLIGHTED BY AUDITORS

6

ANOMALIES IN SPECIFIC FINANCIAL STATEMENT ITEM

7

RESISTANCE TO PROVIDING INFORMATION/DISCLOSURE

8

USE OF INTERIM FINANCIALS THAT DIFFER FROM YEAR END STATEMENTS

Unusually fast growth or profitability, especially compared to other industry players, without a clear, logical explanation.

Frequent changes in auditors, especially if previous auditors were dismissed without transparent reasons, or changes in legal counsel under similar circumstances.

Overly complex financial transactions or corporate structures that do not have a clear business purpose and seem designed to obscure ownership or financial status.

Large, unexplained discrepancies between projected and actual financial results, which might indicate manipulation of figures to meet targets.

Qualified audit opinions or auditors' reports that highlight issues with financial statements can be a major red flag; or frequent restatements of financial statements to correct "errors".

Significant off-balance sheet liabilities, sudden changes in asset quality or valuation, or unusual increases in short-term borrowings at the period end.

Delays in providing information during audits or reluctance to grant access to certain data or employees.

Frequent or significant adjustments made in the year-end financial statements that were not reflected in the interim reports.

# Responding to fraud incidents: handling the aftermath of fraud detection effectively is crucial to limit the damages and to restore trust

Detailed strategies for dealing with fraud once it is detected, legal reporting obligations, and managing public relations



1

## WHEN FRAUD IS DETECTED...

### Immediate response and containment:

1. Secure the evidence
2. Suspend suspected employees

### Investigation:

1. Assemble an investigation team
2. Document the investigation

### Assessment:

1. Evaluate the impact
2. Identify weaknesses

### Notification:

1. Regulatory reporting
2. Law enforcement

2

## LEGAL PROCEDURES AND REPORTING REQUIREMENTS

Compliance with laws and regulations:  
Understand obligations (e.g., SOX in the US)

Cooperation with authorities: provide assistance during investigations, providing access to documents, evidence and interviews with staff

### Legal follow-up:

1. Pursue recovery
2. Defend against litigation

3

## MANAGING PUBLIC RELATION AFTER FRAUD INCIDENT

### Immediate public communication:

1. Craft a careful statement
2. Regular updates

Transparency: be as open as legally and practically possible about the findings of the investigation and the steps being taken.

### Stakeholder engagement:

1. Direct communication
2. Employee communication

### Rebuilding trust:

1. Implement reforms
2. Ethics and compliance training

# Laws and regulations are established in enhancing the transparency, accuracy and accountability of financial reporting

## Noteworthy overview of some key laws and regulations against accounting fraud

### SARBANES-OXLEY ACT (SOX) – 2002



1

Enacted in response to major corporate and accounting scandals, including those involving Enron and WorldCom.

- **CEO/CFO certification**
- **Internal controls**
- **Auditor independence**
- **Whistleblower protection**

### DODD-FRANK WALL STREET REFORM & CONSUMER PROTECTION ACT – 2010



2

Passed in response to the 2008 financial crisis to prevent a repeat of the excessive risk-taking that led to the crisis.

- **Whistleblower incentives and protections**
- **Corporate governance**
- **Financial stability**

### INTERNATIONAL FINANCIAL REPORTING STANDARD (IFRS)

3

IFRS standards are international accounting standards issued by the International Accounting Standards Board (IASB).

- **Global standard**, encouraging a single set of high-quality, global accounting standards
- **Harmonisation**

### ANTI-MONEY LAUNDERING (AML) LAWS

4

Global standards to prevent money laundering often overlap with efforts to combat accounting fraud, particularly where it involves falsifying financial records to hide the origins of illegally obtained money.

- **Know-Your-Customer (KYC)**
- **Suspicious Activity Reports (SARs)**

### GENERAL DATA PROTECTION REGULATION (GDPR) – EU

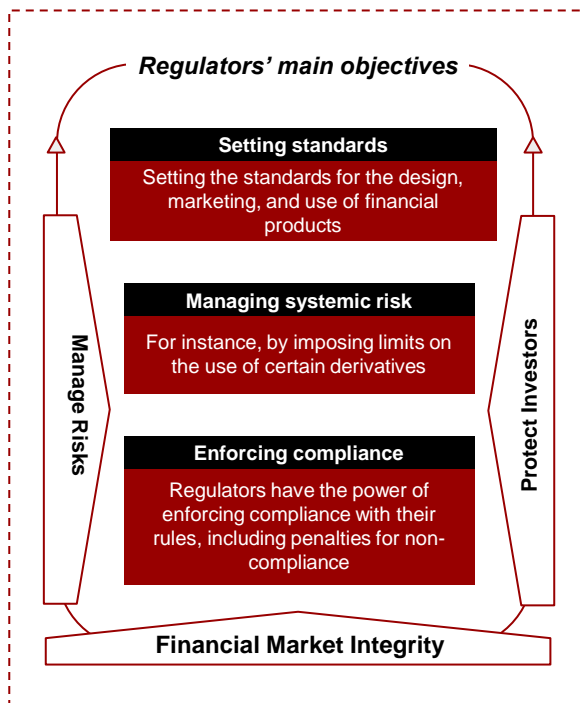


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While primarily focused on data protection, GDPR affects accounting fraud by requiring robust management and security of personal and financial data, which helps prevent fraudulent misuse.

# The existing regulations in combating the abuse and/or misuses of financial engineering

## The roles of regulators in preventing financial engineering abuse and/or misuses



## The current regulatory frameworks utilised to oversee financial engineering activities

- 1 Basel III**

The regulation reinforced banks to hold more and better quality capital and maintain more robust liquidity buffers.

  - Pillar I**: Enhanced minimum capital & liquidity requirements
  - Pillar II**: Enhanced supervisory review process for firm-wide risk mgmt. & capital planning
  - Pillar III**: Enhanced risk disclosure & market discipline
- 2 Dodd-Frank Act**

The regulation is relevant for organisations that transacts in OTC derivatives.

  - It restricts banks from engaging in proprietary trading and certain speculative investments
  - It creates the Consumer Financial Protection Bureau to protect customers from deceptive financial practices
  - It enhances greater risk management

## The gaps analysis & room for future improvements in regulating financial engineering

Basel III and the Dodd-Frank Act have made significant strides in promoting stability in the financial sector.

However, **regulations need to be regularly updated**, especially with the new financial engineering techniques being developed all the time.

### Potential areas for improvement

- |           |   |
|-----------|---|
| <b>01</b> | Shadow banking system is less regulated than traditional banks despite its growth |
| <b>02</b> | FinTech operations that are outside existing regulatory frameworks                |
| <b>03</b> | Opportunity for regulatory arbitrage due to financial operations cross-border     |

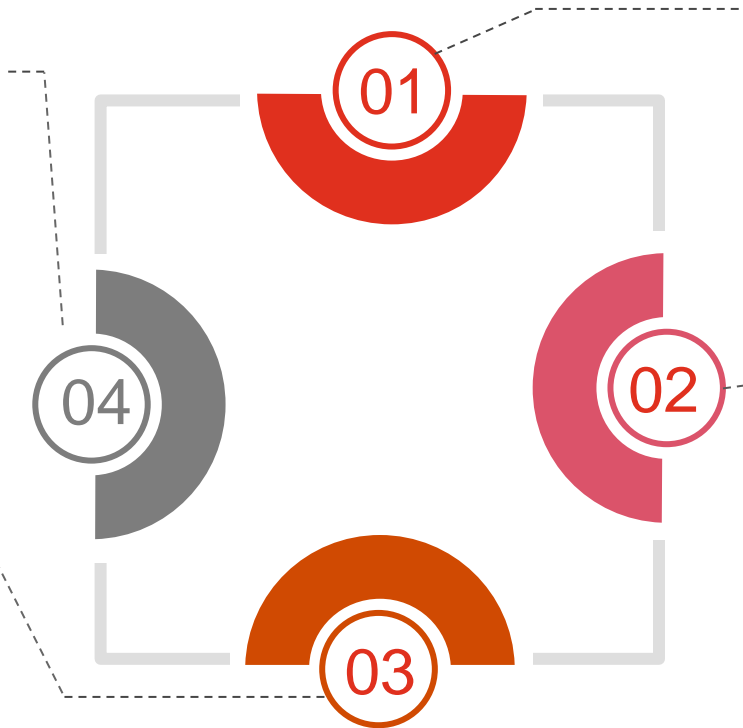
# Integration of internal controls and fraud prevention strategies is required to significantly mitigate the risk of accounting fraud

## Ethical and compliance programs

- Training and awareness
- Regulatory compliance
- Ethics officer or compliance committee

## Regular review and adaptation of controls

- Dynamic adjustments
- Learning from incidents



## Robust internal control system

### Components:

- Control environment (incl. Clear organisation structure, assignment of authority, commitment)
- Risk assessment
- Control activities
- Information and communication
- Monitoring activities

## Fraud detection and prevention techniques

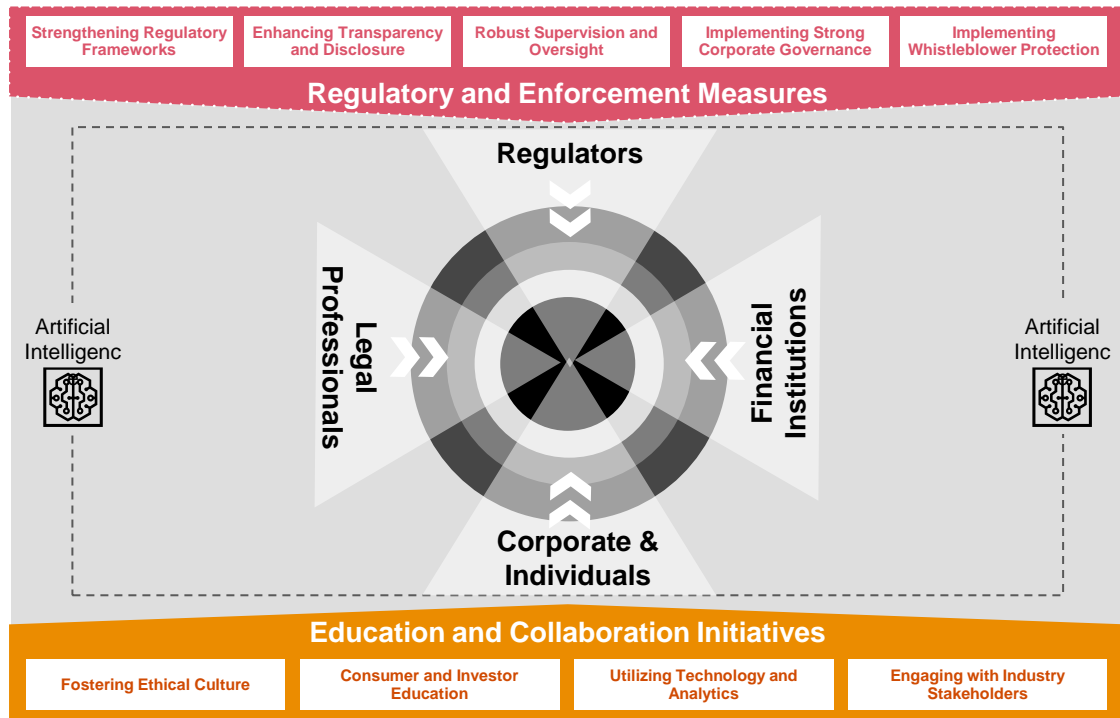
### Proactive measures:

- Segregation of duties
- Systematic audits and reviews
- Fraud risk management ("FRM")

### Technological tools:

- Automated solutions
- Data analytics and big data

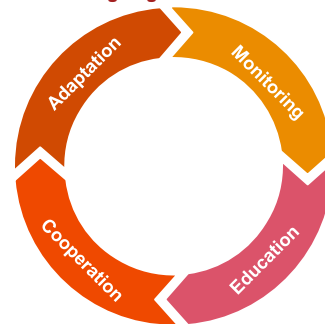
# Financial engineering and legal engineering should be used responsibly, ethically, and in line with regulatory and societal expectations



Create stability

Innovation and efficiency	
Transparency	Accountability
Integrity	Social responsibility

With ongoing commitments to



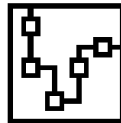
**By embracing these principles, society can harness the benefits of financial engineering and legal engineering while minimizing its potential risks and abuses**

# Technological empowerment to enhance financial institutions' capabilities to detect, prevent and respond to accounting fraud

## Fraud detection software and tools

	Fraud Detection Software	Behavioral Biometrics	Regulatory Technology (RegTech)	Integration and Interoperability	Advanced Security Measures	Real-Time Processing
	<p><b>Feature #1 Anomaly Detection</b> – modern FDS identifies transactions that deviate from normal patterns (e.g., unusual account transfers).</p>	<p><b>Function #1 User Behaviour Analysis</b> – monitor and analyse users' behavioural pattern when interacting with bank systems.</p>	<p><b>Implementation #1 Compliance Monitoring</b> – automate the tracking of regulatory changes and ensure that FIs comply.</p>	<p><b>System Integration #1 Enterprise Integration</b> – FDS are integrated with other enterprise systems like CRM and ERP.</p>	<p><b>Encryption and Tokenization</b> – Protecting data by encrypting data in transit and at rest, and using tokenization to secure sensitive information.</p>	<p><b>Capability #1 Real-Time Data Analysis</b> – Many FDS can analyse transactions in real-time, providing immediate alerts and enable quick responses.</p>
	<p><b>Feature #2 Predictive Analytics</b> – by analysing historical data, trends and patterns that may lead to fraud can be forecasted.</p>	<p><b>Function #2 Continuous Authentication</b> – check users' identity continuously throughout a session, enhancing security.</p>	<p><b>Implementation #2 Transaction Monitoring System</b> – these systems are crucial for AML and KYC compliance, providing real-time monitoring.</p>	<p><b>System Integration #2 Interoperability with Existing Systems</b> – Effective FDS are designed to be interoperable with existing systems and databases.</p>	<p><b>Secure Access Controls</b> – Implementing advanced access controls to ensure that only authorised personnel can access sensitive financial info and systems.</p>	<p><b>Capability #2 Real-Time Dashboards</b> – These provide ongoing insights into financial activities and alerts.</p>

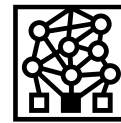
## Supporting emerging technologies



BLOCKCHAIN



AI/ML



DATA MINING



BIG DATA ANALYTICS

# Implementing AI-driven anomaly detection is essential for financial institutions to enhance financial integrity, ensure regulatory compliance, and mitigate risks



Implementing AI-driven anomaly detection involves **setting up systems** that can **learn from historical financial data**, **apply sophisticated algorithms** to identify irregularities, and **evolve** with new financial practices and regulatory requirements.

## Benefits

Enhances the accuracy of financial reporting

Improves operational efficiency

Reinforces internal controls against errors and fraud

*By leveraging AI, financial institutions can ensure more robust financial reporting, compliance with evolving regulatory standards, and effective management of financial and operational*

## Supporting AI technologies



PATTERN RECOGNITION



MACHINE LEARNING



PREDICTIVE ANALYTICS



NATURAL LANGUAGE PROCESSING



BIG DATA ANALYTICS

# In the context of the accounting within a bank, AI can play a crucial role in identifying anomalies



***Anomalies may not necessarily be directly related to external fraud but could indicate internal discrepancies, errors, or inefficiencies in financial reporting and management***

## Examples that relevant to the internal accounting and finance operations

Misclassification of Expenses	Discrepancies in Tax Liabilities	Anomalies in Capitalization vs. Expense Decisions	Unexpected Changes in Cost of Funds
Anomalies in General Ledger Entries	Payroll Anomalies	Suspicious Changes in Allowance for Doubtful Accounts	Anomalies in Off-Balance Sheet Items
Deviations in Financial Ratios	Suspicious Journal Entries	Unexplained Fluctuations in Cash Flow Statements	Discrepancies in Accrued Expenses
Unusual Changes in Account Balances	Unusual Vendor Payments	Deviations in Bank Reconciliations	Unusual Foreign Exchange Transactions
Inconsistencies in Inter-company Transactions	Abnormal Loan Provisioning	Anomalies in Investment Valuations	Inconsistencies in Capital Structure Adjustments
Fluctuations in Interest Income or Expense	Disparities in Fixed Asset Registers	Irregularities in Hedging Activities	Anomalies in Related Party Transactions
Variations in Depreciation and Amortization Methods	Inconsistencies in Revenue Recognition	Irregularities in Non-Interest Income	Fluctuations in Operating Leases
Variations in Insurance Reserves	Unaccounted-for Digital Asset Transactions		



# AI plays a crucial role in detecting anomalies related to expense and revenue management, ensuring financial transparency and integrity

## Common misconduct ...



### Misclassification of Expenses

- 1 Classifying the typical bank charges as finance costs
- 2 Staff training or recruitment cost as part of staff cost
- 3 Misclassifying capital expenditures as operating expenses



### Inconsistencies in Revenue Recognition

- 1 Premature revenue recognition
- 2 Improper timing of revenue recognition
- 3 Revenue from uncertain sources



### Anomalies in General Ledger Entries

- 1 Transactions recorded at unusual times
- 2 Transactions involving round sums without proper documentation
- 3 Transactions without adequate documentation or explanation



### Discrepancies in Tax Liabilities

- 1 Discrepancies between calculated tax liabilities and those reported
- 2 Unrecognized tax liabilities
- 3 Potential errors in tax calculations

## ... can be solved by AI

*AI can detect when transactions are consistently misclassified in the accounting records, either due to human error or potentially for manipulative purposes.*

*AI can spot unusual patterns in revenue recognition that don't align with actual sales activities or contractual terms.*

*AI can assist in uncovering potential errors or fraudulent activities, such as embezzlement or financial statement manipulation.*

*AI tools can identify discrepancies, and flagging potential errors that could impact financial reporting and compliance.*

# Monitoring financial transactions is essential to detect anomalies that could indicate errors or fraudulent activities

*By monitoring account balances, journal entries, and vendor payments, AI can identify unusual changes and suspicious activities, enhancing financial transparency.*



## Common misconduct ...

## ... can be solved by AI

1	<b>Unusual Changes in Account Balances</b>	Flag sudden, unexplained increases or decreases in account balances that don't align with known business activities or financial cycles.
2	<b>Suspicious Journal Entries</b>	Flag journal entries that lack proper authorization, documentation, or appear to be manually manipulated to meet certain financial outcomes.
3	<b>Unusual Vendor Payments</b>	Detect payments to vendors that are inconsistent with past transactions.
4	<b>Unusual Changes in Account Balances</b>	Detect inconsistencies or unauthorized changes in the methods used for calculating depreciation or amortization.
5	<b>Suspicious Journal Entries</b>	Identify significant fluctuations in interest income or expense that are not explained by changes in interest rates or loan volumes.
6	<b>Unusual Vendor Payments</b>	Detect anomalies in the calculation or adjustment of reserves for insurance products offered by the bank, such as loan protection policies.





*“The more sophisticated the financial crimes, the more advanced your detection should be”*

*“However, it is not enough to prevent and detect financial crimes, but also to predict them” (Busan)*





# Thank you!



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