

Digital Intelligence in Procurement: Strengthening Controls and Combating Fraud

Introduction

Procurement fraud does not arise from a single weak control. It arises as a consequence of a whole system involved, proper planning and manipulation of the system, involvement of unauthorized management, ignoring the internal controls checks.

In this article I would like to explore all these possible weaknesses and explain how gaps in procurement procedure can create opportunities for fraud and manipulation. And then how AI, ML and data analytics tools work as anti-fraud technologies to overcome these weakness and frauds.

The Association of Certified Fraud Examiners (ACFE), in its report to the nations, estimated that a loss of 5% of revenue due to fraud each year based on cases studied. The report analyzed 1921 occupational fraud cases from 138 countries, and corruption was identified in 48% of the cases.

The World Bank also identifies warning of fraud and corruption in procurement. These findings show that fraud prevention should be treated as responsibility of management and governance rather than only audit concern.

Common Procurement Fraud Risks

In this section, I would like to explore the common procurement fraud risk that may arise in this function. These include creating fictitious suppliers, fake or duplicate invoices, placing most orders with the same suppliers, ordering goods in large quantities, goods not meeting the required standards, description of goods not being properly mentioned.

Failure to properly disclose the relationships of employees or management with suppliers may also create a possibility of fraud. The risk of fraud does not arise only at the stage of payment but can happen throughout the overall procurement procedure. Failure to follow up the procedure of procurement such as obtaining quotations, conducting rate and quality comparison analysis, approval of quotation, generating purchase orders (PO), preparing goods receipt notes (GRNs) and final payments, should also be checked.

Artificial Intelligence and Machine Learning

Artificial Intelligence (AI) and Machine Learning (ML) can make procurement process more efficient, cost effective and provide accurate results. With help of AI large and complex data can provide excellent results. AI and ML identify and prevent fictitious suppliers, duplicate or fake invoices, control quality of goods and alert about large and unusual transactions.

Machine learning can analyze historical and current data relating to suppliers, purchase order, goods receipts records, prices, quantities, description of goods and bank account details of suppliers. AI based monitoring of large volumes of transactions can highlight risky areas. AI and ML should support professional judgements rather than replace management accountants or internal auditors. Here, an important point is that input data in AI and ML must be correct and accurate in order to produce accurate results.

OECD research also notes that AI and machine learning can support the identification, prediction and mitigation of fraud and corruption risks, including irregularities in public spending and procurement.

Data Analytics: The Foundation of Continuous Monitoring

Among all anti-fraud technologies, data analytics plays an important role in monitoring the organization's internal control system and procurement function. Most effective strategies by data analytics are as follows:

- Identifying suppliers receiving unusual high volumes or values of transactions
- Reviewing the history and pattern of business relationships with suppliers



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Practical Case Study

Consider an organization that purchases electrical and construction materials from hundreds of suppliers. Management notices that procurement costs are increasing despite relatively stable demand. To understand the reason, the organization uses data analytics to review suppliers and procurement transactions.

The analysis identifies several warning patterns requiring further reviews:

- About suppliers' bank account details
- Repeated purchases or purchases orders just below the approval thresholds
- Excessive purchasing compared with actual requirements
- Repeated invoices from the same suppliers
- Suppliers and management relationship
- About Suppliers history

These warning patterns do not prove that fraud has occurred but they provide as a starting point to identify the risky areas for further investigation and analysis. So, Management and internal audit can examine for a detailed review of suppliers' records, purchases orders, quotations, approvals, goods receipts, invoices and payment details.

In this way, data analytics can move the review from broad examination of hundreds of suppliers to a focused bases risk-based investigation of suppliers and transactions showing unusual patterns.

- Analyzing goods descriptions, quantities, qualities, prices and other details
- Identifying sudden changes in supplier ledgers and bank account details
- Detecting payments made before getting approvals or goods receipts
- Monitoring frequent or unusual changes in purchase orders (POs)

These tools can check and identify red flags at an early stage and focus resources on higher-risk transactions. Recent OECD work identifies data and predictive analytics for detecting fraudulent activities and improving risk assessments.

Blockchain and Procurement Transparency

Blockchain is a distributed ledger technology designed to record transactions in a secure and tamper-resistant manner. In procurement, it can support preventive controls by maintaining transparent records of transactions, approvals and other procurement activities.

When combined with appropriate systematic rules and smart contracts, blockchain-based systems can restrict or prevent a process from moving forward when defined conditions, approval requirements or thresholds have not been met. This can reduce the risk of unauthorized transactions, record manipulation and bypassing established controls.

Blockchain is therefore mainly valuable for improving transparency, accountability and the reliability of procurement records. It's effectiveness still depends upon accurate information being entered into the system, together with appropriate governance and access controls. OECD research identifies blockchain as an emerging technology that can support accountability, vendor compliance and transparency.

E-Procurement and Automated Controls

A properly well-designed and automated procurement system can improve efficiency, transparency and control. E-procurement means managing procurement through a structured and digital system. In this system required procurement activities are carried out through proper documentation, approvals pre and post control activities and adoption of system protocols.

For example, an invoice should proceed for processing only when the required purchase order, approvals, goods receipt and other relevant information have been completed and recorded. Such controls can reduce manual intervention, prevent incomplete transactions from moving forward and strengthen the procurement process.

The OECD's 2025 work on digital transformation of public procurement identifies applications across pre-tendering, tendering and post-tendering, including supplier's performance monitoring, fraud detection, risk assessment, automated invoice processing and blockchain-supported transparency.

Role of Management Accountants and Internal Auditors

Advanced technologies, AI tools and data analytics alone cannot eliminate the risk of fraud or misconduct. Management accountants and internal auditors still remain responsible for ensuring that technology enabled control are well designed, implemented, monitored and regularly evaluated for results.

ML and AI depends on quality and accuracy of input data, proper supervisions continuous monitoring and professional evaluations and defined threshold. Inaccurate and incomplete input data may lead to inaccurate results.

Management accountant can also connect procurement fraud analytics with financial planning, cost effective and evaluating the performance. A procurement anomaly that initially appears operational may ultimately affect profit margins, project cost and cash flow. Professional input, monitoring and evaluation the results are essential when advanced technologies are used.

Challenges and Limitations

Technology introduces new capabilities like time saving, accurate results and cost effectiveness. But, on the other hand, creates new risks and challenges. Procurement needed review, system updating and the introduction of technologies in order to eliminate the risk of fraud.

AI and ML tools should not be trusted blindly. Regular human review and professional supervision remain important. The effectiveness of technology depends on data quality proper system configuration and continuous system monitoring.

New technology adoptions can itself be challenging because of cost, employee's acceptance, training, system integration and changing existing work patterns. For successful adoption therefore required planning, management support and continuous evaluation.

Recommendations

Organization's procurement function required to assess either through advanced technology or just by strengthen internal policies and control systems. Technologies should be adopted according to actual requirements, risk level and available resources rather than simply because it is available.

Four factors are important in this regard:

- **Clean and accurate Suppliers Data:** Ensuring suppliers data, banking details and transaction data accurate and complete



- **Identify procurement red flags:** Establish clear indicators for unusual employees' suppliers' relations, suddenly changes in prices, invoices and payment patterns
- **Introduced Auto Preventive Controls:** Use system-based approaches, Entry Checks, Alerts to prevent and highlight unusual transactions
- **Maintain Human Reviews:** Maintain regularly basis management accountant and internal audit reviews, monitoring and take significant corrective actions.

Conclusion

Throughout the overall article, I describe that in modern era, Technologies like AI, ML, Data analytics tools and other forms are important in procurement function eliminating the risk of fraud and misconduct in an organization, but at the same time human review, monitoring and results evaluation still more important.

AI, ML, Data analytics, blockchain and e-procurement can strengthen procurement controls, but technology is not a substitute for sound procedures and professional judgment.

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