

FRAUD HEXAGON ANALYZER: AN EXCEL-POWERED RISK INDICATOR

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ABSTRACT

Financial reporting fraud (FFR) continues to be a widespread concern to organisations, resulting in significant financial losses, reputational harm, and reduced stakeholder confidence. Current fraud detection techniques are typically reactive, limited by poor datasets, and inadequate for tackling the evolving nature of fraud. This project aims to fill a significant gap by introducing a Fraud Hexagon Analyser based on the Fraud Hexagon framework, a comprehensive model by integrating six essential elements: pressure, opportunity, rationalisation, capability, arrogance and collusion. This innovation project utilises an interactive Excel dashboard combined with predictive analytics and Fraud Hexagon concepts to provide a user-friendly, scalable, and economical fraud risk assessment solution. The dashboard provides users with the ability to visualize and analyze fraud risk indicators in real time by taking data from annual reports and looking to visualize it through the data visualization, automated risk assessment and notification settings to assist the user to quickly discover and prioritize flaws, it is user friendly, and it is available to public listed companies in Malaysia with publicly available annual reports. The originality of this approach lies in the use of the Fraud Hexagon through user friendly and available tools like Excel, therefore leaving it largely dependent upon the will of the user to satisfy easy and satisfactory implementation at low costs. The dashboard buys into how traditional fraud detection functions conduct fraud detection because they direct all their effort into investigation after an incident; it can identify risk trends and anomalies and is proactive in nature which should help organizations create supportable preventive actions. Public listed companies as potential users of the tool may receive many benefits as it would be inexpensive, only requiring adaptation to their particular needs to effectively use it, and would provide lots of practical, actionable material to help them to mitigate fraud without an abundance of technical capabilities involved. This project fills an important role of a considerable absence of these tools in the fraud prevention toolbox applying the Fraud Hexagon framework to provide by using an innovative approach to Excel. The proposed tool is innovative, accessible, and strategic, thereby it is also potentially, evaluative therefore ensuring the commercial viability of the tool, while also ensuring social and economic benefits.

KEYWORDS: *Fraud Hexagon Analyser, Financial Reporting Fraud.*

PROBLEM STATEMENT AND OBJECTIVES

Fraudulent financial reporting - or FRF - continues to be an enormous threat for organizations around the world, resulting in significant financial losses, reputational harm, and disrupted trust from stakeholders. Current fraud detection techniques remain largely reactive, limited by small data sets, and often not very effective when faced with increasingly sophisticated fraud schemes. Fast and cheap fraud detection methods are also cost-prohibitive given the need for advanced software and technology expertise that most organizations already lack.

The project is a direct response to the critical gaps above, introducing the Fraud Hexagon Analyzer, an Excel-based interactive dashboard that applies the Fraud Hexagon Theory into an action plan. The Fraud Hexagon Theory is a comprehensive and complex framework that expands upon the traditional Fraud Triangle to include six components: pressure, opportunity, rationalization, capability, arrogance, and collusion. In doing so, the primary aims of this solution include:

- (1) Transforming reactive fraud detection into an action-oriented predictive risk assessment,
- (2) Providing a great tool that is easy to use and affordable that uses widely available technology in Excel,
- (3) Providing data-driven insights that enable organizations to proactively put in place corrective action.

DESIGN AND METHODOLOGY

The Fraud Hexagon Analyzer works as an interactive Excel dashboard of theoretical rigor and real-world application. The key components of this system include:

- (1) Fraud Hexagon Analysis - Each of those six dimensions of fraud are validated or invalidated against weighted algorithms:
 - Pressure (like financial stress and unrealistic performance goals)
 - Opportunity (like weak internal control and complex transactions)
 - Rationalization (like odd justifications for accounting treatment)
 - Capability (like executive stature over reporting)
 - Arrogance (like feeling of overconfidence in getting away with it)
 - Collusion (like questionable related-party transactions)
- (2) Risk Scoring and Visualization - The dashboard assessments establish real-time fraud risk scores and presents findings using various dynamic visualizations through charts, heat maps and radar graphs.
- (3) Automated Alerts - Configurable alerts and alerts for flagging high-risk findings such as unusual spikes in revenue or disclosures that do not match previous disclosures.

TARGET USERS AND KEY ADVANTAGES

The tool is specifically designed for public listed companies, auditors, and compliance teams, particularly in emerging markets like Malaysia where regulatory enforcement is still developing. Its competitive advantages include:

- No technical expertise required – Fully Excel-based with no need for programming knowledge
- Cost-effective implementation – Avoids expensive fraud detection software (e.g., ACL, IDEA)
- Theoretical robustness – First practical application of the Fraud Hexagon model in a business tool

INNOVATION AND DIFFERENTIATION

This solution represents a significant advancement over conventional fraud detection methods in three key aspects:

- **Proactive Prevention** – Unlike traditional tools that focus on post-fraud analysis (e.g., Benford's Law), the Hexagon Analyser identifies fraud precursors before losses occur.
- **Behavioural Science Integration** – The Fraud Hexagon framework captures psychological and organizational factors often missed by purely quantitative approaches.
- **Democratization of Fraud Analytics** – By using Excel, the tool makes advanced risk assessment accessible to small and medium enterprises that lack resources for sophisticated systems.

SOCIETAL AND ECONOMIC BENEFITS

The implementation of this tool offers substantial benefits at multiple levels:

- Financial Protection** – Potential to reduce global fraud losses estimated at \$4.7 trillion annually (ACFE, 2023)
- Enhanced Market Integrity** – Strengthens investor confidence through improved corporate transparency
- Regulatory Compliance** – Supports adherence to MFRS and Bursa Malaysia reporting requirements

COMMERCIAL VIABILITY AND MARKET POTENTIAL

With the global fraud detection market projected to reach \$129 billion by 2027, the Fraud Hexagon Analyser is well-positioned for commercial success through:

- Freemium Model** – Basic Excel template available for free download
- Premium Subscriptions** – Advanced features and sector-specific modules
- Corporate Licensing** – Custom implementations for audit firms and regulators

The tool's 10x cost advantage over AI-based solutions and its theoretical superiority to rule-based systems create a strong competitive edge.

CONCLUSION AND FUTURE DEVELOPMENT

The Fraud Hexagon Analyser represents a paradigm shift in fraud prevention by merging cutting-edge behavioural theory with practical, accessible technology. Future enhancements will incorporate AI-powered text analysis for management discussion narratives and blockchain integration for real-time data validation. Particularly valuable for emerging markets with high fraud risks but limited budgets, this innovation has significant potential to strengthen financial governance globally while maintaining affordability and ease of use.

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