



## Rationalization: The Critical Link in the Fraud Chain - New Insights from Empirical Analysis of the Diamond of Fraud

Mirela Matei (Pană)<sup>1</sup>, Carmen Mihaela Bulău<sup>2</sup>

**Abstract: Introduction:** Fraud is a widespread problem that causes significant financial and reputational damage. The Fraud Diamond theory proposes four key elements that enable fraudulent behavior: pressure, opportunity, rationalization, and capability (Wolfe & Hermanson, 2004). However, little empirical research has tested the relationships between these elements. This study aims to address this gap. **Methods:** A questionnaire was designed to measure the four Fraud Diamond items on 5-point Likert scales. It was distributed to a sample of 120 individuals via Google forms. Cronbach's alpha=0.81. Pearson correlations were then calculated to analyze relationships between items. **Result:** Factor analysis supported a four-factor structure corresponding to the Fraud Diamond items. All factors had strong reliability ( $\alpha > 0.8$ ). Rationalization showed significant positive correlations with all other items ( $r = .31$  to  $.57$ ,  $p < .01$ ), whereas the other items were less consistently correlated. **Discussion:** The findings provide empirical support for Fraud Diamond as a framework. Rationalization can be particularly important because it facilitates the other three elements. Interventions targeting rationalization mechanisms, such as cognitive biases, could help reduce fraudulent behavior. However, the model requires further validation in different contexts. **Conclusion:** In summary, this study developed a valid measurement scale for the Fraud Diamond items and found rationalization to be most strongly related to the other fraud items. Reducing rationing may be a promising avenue for fraud prevention. Future research should continue to empirically test fraud theories and continue the measurement instrument development process.

**Keywords:** fraud diamond; fraud prevention; behavioral finance; corporate fraud; fraud risk assessment

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## 1. Introduction

The fraud diamond theory, proposed by Wolfe and Hermanson in 2004, extended Cressey's 1953 fraud triangle theory by adding a fourth element, namely capability. Thus, the four elements of the fraud diamond are:

1. Pressure. This refers to the factors that motivate a person to commit fraud, such as financial difficulties, pressure to meet performance targets or maintain a certain lifestyle.
2. Opportunity. This element represents the circumstances that allow fraud to occur, such as weak internal controls, lack of oversight or access to assets.
3. Rationalization. This refers to the justification a person uses to explain their fraudulent behaviour, such as "I'm just borrowing money" or "I deserve more."
4. Capacity. This is the new element introduced by Wolfe and Hermanson (2004). It refers to the individual traits and skills needed to commit fraud, such as intelligence, self-confidence, the ability to lie convincingly and manage stress.

In 2011, Crowe H. found it useful to add one more element, the arrogant ego which refers to the fraudster's attitude of superiority and sense of invincibility. In 2019, Vousinas G. L. added another element, related to Stimulus, which refers to external factors that can trigger or facilitate fraud. These may include changes in the business or economic environment, legislative or regulatory changes, technological advances that create new opportunities for fraud, intense competitive pressures, and economic or financial crises. Vousinas argues that this sixth element, incentive, is essential to fully understand the context in which fraud occurs. He suggests that external incentives may activate or amplify the other elements of fraud. The Fraud Hexagon model provides a more comprehensive perspective on the factors that contribute to fraud, considering both internal (psychological and behavioural) and external (environmental and situational) factors.

These models can be useful in developing more effective fraud prevention and detection strategies because they consider a wide range of factors.

In this article we will deal with the diamond model of fraud, given that it covers all types of fraud in the analysis. By adding the element of capability, the diamond theory of fraud recognizes that the mere presence of pressure, opportunity, and rationalization is not sufficient for fraud to occur. The person must also have the necessary ability to recognize the opportunity and exploit it successfully. This extension of the theory provides a more complete perspective on the factors that contribute to fraud and can help organizations develop more effective anti-fraud

controls and strategies by considering not only the motivations and opportunities of potential offenders, but also their skills and traits.

The capacity element includes factors such as:

- a. Technical skills. The person must have the necessary knowledge and skills to exploit the identified opportunity, such as understanding accounting systems, computer hacking or forging documents;
- b. Confidence and ego. The fraudster must have the confidence to believe that they can commit the fraud without being caught, and the ego to believe that they are smarter than the system;
- c. Coercion and stress management. The individual must be able to coerce others to cooperate or remain silent about the fraud and manage the stress that comes with committing and concealing the fraudulent act;
- d. Deception. The person must be able to lie effectively and consistently to conceal the fraud.

Understanding the element of capability can help organizations adapt their fraud prevention and detection strategies.

For example:

- a. Background checks. Thorough background checks during the hiring process can help identify individuals with a history of fraudulent behaviour or the ability to commit fraud;
- b. Separation of duties. Separating responsibilities and limiting individual access to systems and assets can reduce the chances of individuals committing and concealing fraud;
- c. Behavioural analysis. Monitoring changes in employee behaviour, such as living beyond their means or showing signs of stress, can help identify potential fraudsters;
- d. Continuous monitoring. Ongoing implementation of transaction and activity monitoring systems can help detect fraudulent patterns or anomalies early on.

By considering all four elements of the fraud diamond - pressure, opportunity, rationalization and capability - organizations can develop a more comprehensive approach to fraud risk management. This includes implementing controls and countermeasures that address not only the motivations and opportunities for fraud, but also the individual characteristics and skills that allow fraudsters to carry out their schemes successfully.

Several examples illustrate how the elements of the fraud diamond—pressure, opportunity, rationalization, and capability—can come together to enable fraudulent

behaviour. Here are some notable cases and the explanation of the fraud procedure according to this model.

#### The Enron Scandal (2001)

Pressure. Enron executives were under intense pressure to maintain the company's stock price and financial performance.

Opportunity. The company's complex organizational structure and lack of transparency allowed executives to hide losses and debts in off-balance sheet entities.

Rationalization. The executives justified their actions by claiming that they were protecting the company and its shareholders.

Capacity. The perpetrators had the accounting knowledge and executive authority to manipulate the financial statements and mislead the auditors.

#### Bernie Madoff's Ponzi Scheme (2008)

Pressure. Madoff felt pressure to maintain his reputation as a successful investor and to meet clients' expectations of consistent returns.

Opportunity. Madoff's dual roles as an investment adviser and broker-dealer allowed him to fabricate transactions and account statements.

Rationalization. B. Madoff claimed that he started the scheme with the belief that he would be able to recoup losses and repay investors.

Capacity. Madoff's B. financial expertise and his firm's proprietary trading system allowed him to commit and conceal the fraud for decades.

#### Wells Fargo Fake Account Scandal (2016)

Pressure. Employees were under intense pressure to meet aggressive sales targets set by management.

Opportunity. Insufficient internal controls and oversight allowed employees to open unauthorized accounts without customer consent.

Rationalization. Some employees believed that their actions were justified because they were helping the bank achieve its goals.

Capacity. The employees had the access and knowledge to manipulate the bank's systems and create fake accounts.

#### Wirecard Accounting Scandal (2020)

Pressure. Wirecard executives have been under pressure to maintain the company's growth and profitability.

**Opportunity.** The company's complex global operations and lack of transparency allowed fraudulent activities to be concealed.

**Rationalization.** Directors may have justified their actions as necessary to protect the company's reputation and market position.

**Capacity.** The perpetrators had the financial and technical expertise to manipulate accounting records and mislead auditors.

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Kennedy (2012) indicated that types of financial statement fraud include financial fraud and asset misappropriation. Financial fraud refers to the theft of a firm's property, whether physical or monetary in nature. Misrepresentation of financial statements is also known as "cooking the book" or manipulating figures to achieve desirable results. Early detection of these fraudulent activities is based on simulating the elements of the fraud diamond theory in relation to events in and around the business and employees.

Wolfe and Hermanson's (2004) graphic presentation of the fraud diamond theory shows how the elements of opportunity, pressure, rationalization and capability are linearly related. In a relatively recent study, Huber (2017) reviews the geometry of fraud theory and argues that forensic accounting researchers and practitioners need to recognize that fraud models cannot explain fraud. He argues that there are n-dimensions to financial crime that need to be considered in any model that attempts to explain, predict, prevent, detect and prosecute financial crime, and points out that fraud is only a subset of financial crime.

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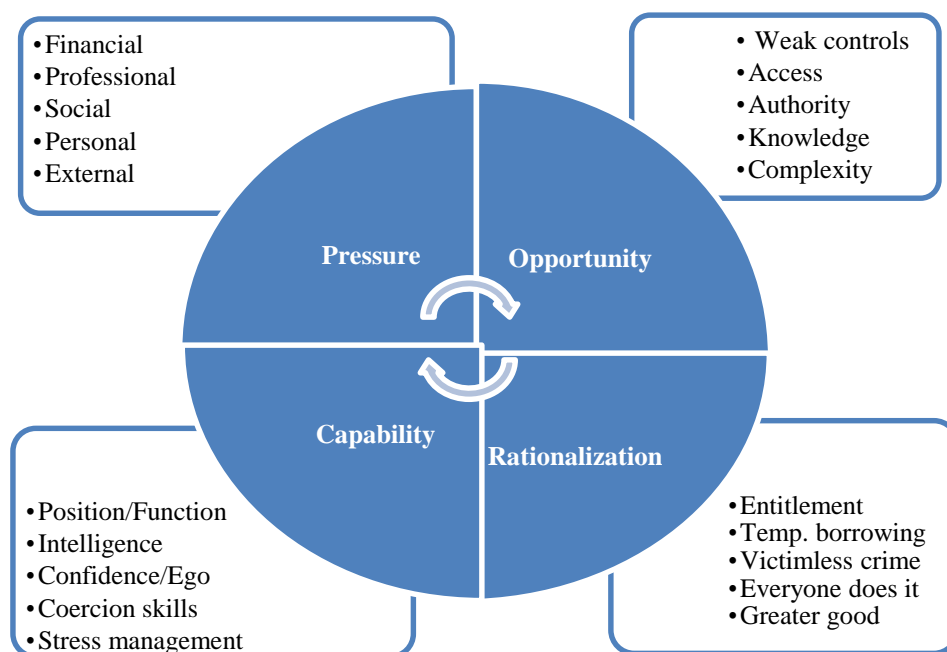
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**Figure 1. Graphic Presentation of the Fraud Diamond Theory (Wolfe & Hermanson, 2004; Huber, 2017)**

Despite the challenges, we believe that until the multifaceted approach proposed by Huber (2017), existing models are useful not so much for explaining fraud as for devising prevention and detection strategies. Considering this fact, the current study examines the association relationships that exist between the elements of the fraud diamond to formulate recommendations for fraud prevention among accountants.

## 2. Literature Review

Fraud is defined as “an act that uses deception, such as an intentional misrepresentation of the truth or false statement or concealment of a material fact to obtain an unfair advantage over another, to obtain something of value, or to deprive another of a right”. This definition outlines the key elements of fraud, which involve deception, intent and injury. Fraud is deception or an intent to deceive that will result in a risk of possible injury. This statement reinforces the idea that fraud involves an element of intent and can have harmful consequences.

In the article *Beyond the Fraud Diamond*, Ruankaew T. (2016) explained the mechanism of fraud occurrence according to the diamond theory. Perpetrators are often motivated to commit fraud due to perceived pressures, which can occur at any level of the organization and for various reasons. These pressures don't have to be real; the mere perception of them can lead to fraudulent behaviour. Research shows that fraud is often a response to economic pressures, such as greed, high spending or debt. Albrecht and colleagues (2006) found that about 95% of frauds are influenced by financial pressure.

Opportunity is the second key element for fraud to occur. In organizations, perceived opportunities, often due to weak or ineffective internal controls, significantly influence an individual's decision to commit fraud. Even if the opportunity is not real, the belief that it exists can lead to fraudulent actions. While businesses cannot control personal factors such as financial need, they can implement internal controls to mitigate these risks. Holtfreter (2004) suggests two preventive mechanisms: pre-employment screening and ongoing internal controls. Effective internal controls are critical to reducing opportunities for fraud.

Rationalization is a necessary element of fraud, where individuals justify unethical actions as morally acceptable. Scammers often do not perceive their actions as wrong, using justifications such as “I deserve it” or “everyone does it”. According to Dorminey et. al. (2010), if a person cannot rationalize their actions, they are unlikely to commit fraud.

Capacity refers to a person's ability to commit fraud based on their position or position within a company. Wolfe and Hermanson (2004) highlight key traits that allow someone to exploit fraud opportunities such as:

- a) Position of authority - the power to influence and commit fraud;
- b) Intelligence - the ability to exploit the weak points of the system;
- c) Ego and confidence - the belief in not getting caught;
- d) Stress management - managing the pressure to maintain fraud.

These traits help the individual to successfully execute and conceal fraudulent activities.

Ruankaew T. (2016) concludes that “opportunity opens the door to fraud, and pressure and rationalization can draw the person to it,” but the perpetrator must also have the ability to recognize the opportunity to commit fraud. This mechanism highlights the complexity of fraud and the multiple factors that contribute to its occurrence. By understanding these sequences and elements of the fraud diamond, organizations can develop more effective fraud prevention and detection strategies by addressing each element individually.

The elements of the diamond theory of fraud are observable and unobservable – rationalization has been considered unobservable (it is within the knowledge of the perpetrator), ability and opportunity can be considered observable, while pressure can be approached as mixed. Studies that have dealt with the relationships between fraudulent diamond elements are different, for example, Dorminey et. al. (2010) consider opportunity essential in fraud. According to Asare et. al. (2015), fraud detection is the responsibility of accountants, who rely heavily on rationalization in the process of financial fraud detection. Rationalization involves identifying material misstatements in the financial statements.

We present in Table 1 several common rationalizations used to justify fraudulent behavior.

**Table 1. Beliefs and Justifications of Fraudulent behavior in Organizations**

<b>Affirmation/Belief</b>	<b>Justifications</b>
<i>Everyone does it</i>	<i>This is common practice in our industry. If I don't, I will be at a competitive disadvantage.</i>
<i>Temporary loan only</i>	<i>I'll return the money before anyone notices. It's not theft, it's just a short-term loan.</i>
<i>I deserve it</i>	<i>I have worked hard for this company, and I am not appreciated enough. I deserve to get more</i>
<i>For the good of the company</i>	<i>If they don't, the company will suffer. I help the organization survive or thrive</i>
<i>I'm not hurting anyone</i>	<i>It's a big company, they won't miss this small amount. There are no real victims.</i>
<i>I'm underpaid</i>	<i>My salary is below market. This is just a way to offset my income at a fair level.</i>
<i>Pressure from management</i>	<i>My bosses put pressure on me for results. I have no choice but to do this to achieve my goals.</i>
<i>It's only one time</i>	<i>It's an exceptional situation. I will never do that again after I get over this crisis.</i>
<i>All managers do this</i>	<i>This is standard practice for those in leadership positions. I'm just doing what is expected of someone in my role.</i>

<i>It's for a good cause</i>	<i>"I use this money to help someone in need or for a noble cause. The end justifies the means." Gibbs and Mahony (2019) note that this rationalization is particularly dangerous because it allows the individual to see themselves as a "hero" instead of a criminal.</i>
<i>The company owes me</i>	<i>I worked so much unpaid overtime. This is just compensation for my time.</i>
<i>It's too complicated to get everything right</i>	<i>The rules are too complex and time-consuming. This shortcut doesn't hurt anyone and saves time.</i>
<i>It's not illegal, just unethical</i>	<i>Technically, I'm not breaking any laws. It may be in the grey area, but it's not wrong.</i>
<i>Someone else will be promoted/rewarded if I don't</i>	<i>If I don't take advantage of this opportunity, someone else will. Better to be me than someone else.</i>
<i>It's just a creative accounting problem</i>	<i>It's not real fraud, we're just interpreting the accounting rules more favourably.</i>

These rationalizations demonstrate the psychological complexity behind fraudulent behavior and emphasize the importance of addressing not only opportunities and pressures but also how people justify unethical actions. Understanding these rationalizations can help organizations develop more effective fraud prevention strategies and foster a stronger ethical culture.

### 3. Research

#### 3.1. Method

The purpose of this research paper is to contribute to the early detection of financial fraud by examining the relationships between the elements of the fraud diamond theory (pressure, opportunity, rationalization and capability) and designing interventions for accounting staff. To this end, each element of the fraud diamond was operationalized through specific items, resulting in the Accountant Fraud Risk Perception Rating Scale.

#### 3.2. Research Participants

A total of 120 accountants were randomly selected for the study from companies in Romania. Of these, 68 were employed in the private sector, while the remaining 52 participants worked in the public sector.

Participant demographics

Gender distribution: 72 female (60%) and 48 male (40%) accountants

Age range: 25-60 years, with a mean age of 38.5 years (SD = 9.2)

Work experience: Ranging from 2 to 35 years, with a mean of 12.7 years (SD = 7.5)

#### Educational preparation

85% had a bachelor's degree in accounting or a related field

30% had additional postgraduate qualifications (eg Masters, professional certifications)

#### The organizational context

Private sector (n=68):

Industries represented: manufacturing (30%), services (25%), retail (20%), IT (15%), other (10%)

Company sizes: small (<50 employees, 35%), medium (50-250 employees, 45%), large (>250 employees, 20%)

Public sector (n=52):

Government agencies (40%), state-owned enterprises (30%), educational institutions (20%), health organizations (10%)

#### Geographic distribution

The participants were selected from various regions of Romania to ensure a diverse representation:

Bucharest-Ilfov region (35%)

Transylvania (25%)

Moldova (20%)

Muntenia (15%)

Other regions (5%)

### **3.3. The Selection Process**

The participants were randomly selected from a database of companies and public institutions in Romania. Invitations were sent to potential participants by email, with a 60% response rate. To ensure a balanced representation, stratified random sampling was used to maintain the desired ratio of private and public sector accountants.

### **3.4. Inclusion Criteria**

1. Currently employed as an accountant or in a role with significant accounting responsibilities;

2. Minimum 2 years of professional experience in accounting;
3. Fluent in Romanian.

#### Exclusion criteria

1. Part-time accountants who work less than 20 hours per week;
2. Accountants with less than 2 years of experience in their current organization;
3. All participants gave their informed consent before participating in the study.

### 3.5. Measuring

The Accountant Fraud Risk Perception Rating Scale (AFRPRS) was created for this research to measure accountants' perceptions of fraud risk based on the four elements of the fraud diamond theory. All items are directly scored, with higher scores indicating increased levels within each dimension.

The SEPCRF comprises 20 items, categorized into four subscales aligned with the elements of the fraud diamond:

Pressure (5 items, e.g. "Financial targets in my organization create undue pressure on employees")

Opportunity (5 items, e.g. "There are inadequate controls to prevent fraudulent activities")

Rationalization (5 items, e.g. "Some employees might justify unethical behaviour if they feel underpaid")

Ability (5 items, e.g. "Certain people in the organization have the ability to circumvent internal controls")

#### Response format

A five-point Likert scale was used for all items: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

#### Score

The score range for the entire scale is from 20 to 100 points.

All items are directly scored, with higher scores indicating higher levels of perceived fraud risk for each dimension.

Subscale scores can range from 5 to 25 points.

### 3.6. Procedure

The purpose of the research was to propose for examination of the fraud diamond model.

*Hypothesis.* We assume that there are significant relationships between the components of the fraud diamond model.

Following the analysis of non-parametric Spearman associations between the behavioural components of the fraud diamond, we obtained the following results:

1. Pressure - Opportunity:  $r = 0.31$ ,  $p=0.001$  (weak to moderate positive correlation). This relationship suggests that when pressure increases, there also tends to be a slight increase in perceived opportunities for fraud. This could indicate that individuals under financial or professional pressure may become more alert to potential fraud opportunities around them.
2. Pressure - Rationalization:  $r = 0.53$ ,  $p=0.000$  (moderate to strong positive correlation), indicates a significant link between pressure and the tendency to rationalize fraudulent behaviour. The greater the pressure, the more likely individuals may be to justify their inappropriate actions.
3. Pressure - Capability:  $r = 0.36$ ,  $p=0.001$  (weak to moderate positive correlation). The data suggest that pressure can slightly influence an individual's perception of their ability to commit fraud. It could indicate that under pressure, people may overestimate their ability to commit and conceal fraudulent acts.
4. Opportunity - Rationalization:  $r = 0.49$ ,  $p=0.000$  (moderate positive correlation), indicates a significant link between the perception of opportunities and the tendency to rationalize fraud. When people see more opportunities, they may be more inclined to find justifications for fraudulent actions.
5. Opportunity - Ability:  $r = 0.57$ ,  $p=0.000$  (moderate to strong positive correlation). This is the strongest correlation in the data set, suggesting an important link between the perception of opportunities and the evaluation of one's ability to commit fraud. Individuals who perceive more opportunities tend to feel more able to commit and conceal fraudulent acts.
6. Rationalization - Capacity:  $r = 0.55$ ,  $p=0.000$  (moderate to strong positive correlation). This strong correlation suggests that individuals who tend to rationalize fraudulent behaviour also feel more capable of committing fraud. This may indicate a mutually reinforcing relationship between mental justifications and confidence in one's abilities to commit fraudulent acts.

**Table 1. Associations between the Components of the Fraud Diamond**

	Pressure	Opportunity	Rationalization	Capability
Pressure	1	0.31	0.53	0.36
Opportunity		1	0.49	0.57
Rationalization			1	0.55
Capability				1

All correlations are positive, ranging from weak to moderate-strong. This suggests that all components of the fraud diamond influence each other to some extent. The strongest correlations involved Rationalization and Capability, indicating that cognitive and self-evaluative aspects play a central role in fraud potential. Pressure appears to have the least direct influence on the other components, although it remains an important factor, particularly in relation to Streamlining. These results emphasize the importance of a holistic approach to fraud prevention and detection, considering the complex interaction between psychological, situational and behavioural factors.

We find that rationalization has the strongest associations with the other components of fraud behaviour. This observation led us to formulate and search in the literature these measures can reduce the rationalization of fraudulent behaviour.

Before formulating the measures that can be implemented in organizations, we searched the specialized literature for studies analysing the reasons why employees may resort to fraudulent behaviour. Relatively recent studies confirm that personal financial pressure remains a major factor in committing fraud. For example, Lokanan (2015) found that personal financial difficulties are a significant predictor of fraudulent behaviour. These pressures can come from significant debt, gambling, a lifestyle that exceeds your means, or unforeseen medical expenses. Dissatisfaction at work may also occur (related to feeling underappreciated or underpaid, lack of advancement opportunities, and conflicts with superiors/colleagues. To these may be added opportunities and lack of control, unrestricted access to assets/information sensitive.

Organizational culture can be a factor in normalizing fraudulent behaviour, as Schuchter and Levi (2016) concluded from a study of 13 fraudulent companies in Austria and Switzerland. The authors state that there is an inner voice that inhibits fraud before it happens, and this voice becomes silent under the influence of corporate culture and rationalization intervenes. The organizational elements most involved in fraud are the lack of a clear ethical code, tolerance towards minor ethical behaviours, and pressure for unrealistic goals.

Pressure from management is supported by some research, such as that by Murphy and Free (2016). Ramamoorti (2008) explored in detail the psychological and behavioural aspects of fraud, stating that “while corporate governance reform



legislation such as the Sarbanes-Oxley Act of 2002 can help limit the opportunity for fraud, ethics and individual integrity do not can be legislated". To the management pressure can be added the competitive pressure, to surpass the performances of colleagues. Warren et. al. (2014) emphasized the importance of ethical education in fraud prevention, which results in misunderstanding of the long-term consequences of fraud, a lack of awareness of legal and professional implications.

Another aspect researched was how periods of organizational change can create opportunities for fraud (Power, 2013), mergers, acquisitions or restructuring creating uncertainty and changes in control systems creating opportunities Mergers, acquisitions or restructuring creating uncertainty and changes in control systems that temporarily create temporary opportunities.

To the above can be added a certain sense of entitlement generated by the belief that the individual deserves more than he receives, resentment towards the company or management. Sometimes there can be peer pressure, from colleagues involved in fraud, the fear of being marginalized or excluded, especially in the conditions of the perception that others have committed fraud and have not been caught.

Returning to rationalization, as an element of the fraud triangle (Cressey, 1953) it is reinforced by the perception that everyone is doing it, that it is the right thing to do, or that it is something the company owes, or the justification that it is just a temporary loan.

The positive correlations between the elements of fraud according to the fraud diamond theory (pressure, opportunity, rationalization, and capability) have several important implications. First, they have a cumulative effect that can amplify the overall risk of fraud in an organization. Second, the elements of fraud do not operate in isolation but interact in complex ways (e.g., increased financial pressure may lead to greater rationalization of fraudulent behaviour, which in turn may cause individuals to seek more opportunities).

#### **4. Conclusions and Recommendations**

Reducing streamlining in fraud requires a multifaceted approach that addresses both organizational and individual factors. By implementing strategies, organizations can create an environment where fraud rationalization becomes more difficult, thereby reducing the overall risk of fraudulent behaviour. These organizational strategies refer to:

1. Consolidation of organizational ethical culture. Schuchter and Levi (2016) emphasize the importance of a strong and ethical organizational culture in fraud prevention. Organizations can implement and communicate a robust code of ethics,

ensure leaders model ethical behaviour (tone at the top) and encourage open discussion of ethical dilemmas.

2. Improving ethical education. Warren et. al. (2014) argue that ethics education can reduce the rationalization of fraud. Organizations can provide regular ethics and compliance training, incorporate relevant scenarios and case studies into training programs, and emphasize the long-term consequences of fraud.

3. Addressing feelings of inequity. Murphy and Free (2016) suggest that feelings of inequity can lead to rationalization. Organizations can ensure fair and transparent compensation and promotion policies, implement effective channels for employee feedback and grievance resolution, and recognize and reward ethical behaviour.

4. Clear communication of the consequences of fraud. Power (2013) emphasizes the importance of risk awareness. Organizations can communicate anti-fraud policies and the consequences of their violation, present case studies of detected frauds and their consequences, and implement an effective whistleblowing program.

5. Addressing organizational pressures. Lokanan (2015) argues that excessive organizational pressures can lead to rationalization. Organizations can set realistic and balanced performance goals, provide adequate resources to accomplish tasks and encourage a healthy work-life balance.

6. Improving employee support. Ramamoorti (2008) emphasizes the importance of psychological factors in fraud. Organizations can offer employee assistance programs (EAPs) to help with personal or financial issues, implement wellness and mental health programs, encourage a supportive work environment, and include.

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