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FUTURISTIC APPROACH OF FORENSIC FRAUD INVESTIGATION IN MONEY EMBEZZLEMENT, ASSET MISAPPROPRIATION AND LARCENY

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ABSTRACT

The field of financial crimes is always changing, thus forensic fraud investigation must take a proactive approach. This work explores the future aspects of fighting theft, asset theft, and embezzlement while emphasising the difficulties in resource management, data analytics, and market intelligence from a vigilant standpoint. Traditional investigation techniques are not up to par with the ever-evolving financial markets and ever more sophisticated criminal activities. In order to go through enormous datasets and spot fraudulent activity, it is imperative that modern data analytics techniques be used, such as computer training and artificial intelligence. Nevertheless, incorporating new technologies into current research frameworks comes with a unique set of difficulties, including limitations on resources and worries about data protection. This study gravitates on the challenges and futuristic approach of conducting forensic fraud investigation with the help of primary data gathered through mixed methods research approach and provide a plausible conclusion to the same. With the endeavours of technology and changing landscape, this study emphasises on the certain parameters of fraud investigation which were not discussed in prior.

Keywords: Forensic Investigation, Fraud Investigation, Forensic Accounting, Vigilance, Fraud.

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INTRODUCTION

With the passage of time and from the last few active decades of economic development around the globe, forensic accounting has come out to be ground breaking field with innumerable cases of financial fraud, money laundering, money embezzlement, larceny etc. There has been high profile cases of fraud and scams globally, be it individual or by an organization with various ways of financial misuse and malpractices. The forensic accounting realm has definitely changed the way investigations are looked after with its transformation to conduct the activities all around. The only reason for the prevalence of honesty, at most, is the dread of getting caught by forensic accounting. In a similar vein, the majority of experts attend the training when forensic accounting emerges. To cover the gap needed by employees in the investigations industry. The majority of companies are also using a large number of forensic accounting specialists to look for financial irregularities that may be planned in conjunction with organisation personnel in order to guarantee the smooth operation of their corporation. Consequently, the perspective and practices of organisations in the twenty-first century are rapidly changing. (Ibrahim Mert, 2022)

Forensic accounting, which is often referred to as financial investigations or forensic accountancy, is the study and detection of financial misconduct that businesses may commit internally. In order to identify instances of financial report malfeasance, accounting professionals must utilise a variety of abilities to identify malpractices. Among the abilities include auditing, detective work, and financial abilities, which allow them to look into the financial situation of businesses or people. Researching a broad variety of topics, such as economic losses resulting from torts or contract violations, is a part of forensic accounting. They also look into company security fraudulent activity, evasion of taxes, & laundering of funds. Digital forensics, insolvency, and valuation of companies are additional topics that fall within the purview of forensic accounting. Furthermore, forensic accountants are capable of conducting a financial examination of a company and producing an analysis appropriate for use in court. In other words, they look beyond only financial data and offer expertise to cope with business realities. For this reason, accounting for finances is frequently used in court to explain financial crimes including cases concerning scams or money laundering.

So, to get going further, let's shed light on what basically is fraud? Fraud can be defined as any action that holds the representation of deception to accomplish false financial power or gain. According to the *Black's Law Dictionary*¹, it's an act of dishonesty or cruel intent by a group of individual or a single for their accomplishment of monetary gains.

The Fraud Triangle is the most generally known theory explaining why certain individuals commit fraud. Professor of criminology, *Dr Donald Cressey*² whose studies on criminals gave rise to the phrase "trust violators," created the Fraud Triangle.

¹ B.A. Garner, Editor in Chief, *Black Law's Dictionary*. 8th edition, 2004

² Dr Donald Cressey, Criminologist



Fig.1 Fraud Triangle

(Source: Association of Certified Fraud Examiners)

According to the Fraud Triangle theory, an individual is more likely to engage in fraudulent activity if all three elements—unshareable financial need, perceived opportunity, and rationalization—are present. In the Manual, Dr Cressey clarifies as follows:

Individuals with opinions stated corresponding to a few of the following when prompted by the trust offenders to clarify the reason they didn't violate their role preceding to or whether they weren't in breach of any additional principles of trust that they may hold in the past with relevance to the below quotes: (i) 'It was not necessary or not needed for this to be like this time' (ii) 'The thought never came into my head.' (iii) 'I had the thought that it was dishonesty then, but now it looks the other way around'. (ACFE, 2024)

Similar to earlier research, misappropriation of assets plans accounted for 87% of the instances that came forward to us and were the cheapest sort of deception, having an average loss of \$120,000. These were additionally by far the most prevalent type of fraudulent activity in the workplace.

Through previous research it was found that, although accounting for just 8% of the instances in the analysis, fraudulent financial statement methods resulted in the largest median loss, amounting to \$1 million. In between, accounting for slightly over one third of cases that were recorded and resulting in an average loss of \$250,000, were extortion schemes. There are much more forms of fraudulent activity in the asset-misappropriation sector than in the other two primary groups of accounting misconduct and corruption.

Association of Certified Fraud Examiners (ACFE) with their report to the Nations in 2012³ showcases the classification of occupational fraud and their sub divided types in the below Figure 2.

³Association of Certified Fraud Examiners-2012 Report to the Nations

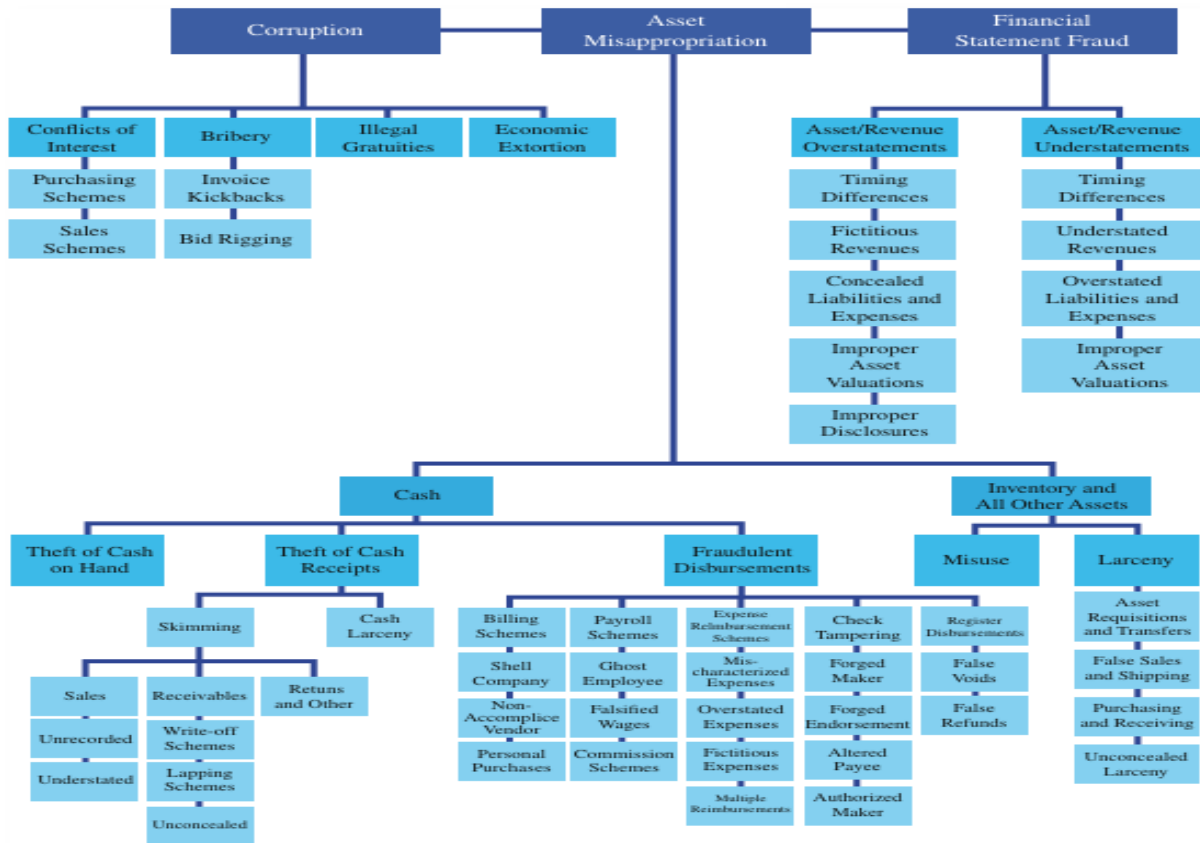


Fig.2 Occupational Fraud Classification⁴

Source: Association of Certified Fraud Examiners

TYPES OF FRAUD:

- **Business frauds:** These are illegal actions committed by a person or organisation with the intention of benefiting the offending organisation.
- **Security Scams:** Also referred to as share theft and investment scams, securities fraud is a dishonest technique in the world of stocks that leads investors to make judgements about purchases or sales based on incorrect data, frequently leading to losses and breaking securities regulations. One of the main issues is the provision of hazardous investment possibilities to inexperienced investors who are unable to assess risk well and cannot afford a loss of cash. In a similar vein, clients who need to contest the protection companies' determined payment of claims seek the assistance of an accounting firm. Claims for resulting damage are handled by forensic accountants which are related to property damage or injury to insurance or policy losses etc and other types.
- **Insurance Related Fraud:** Illegal activities in the financial services sector come in a variety of forms. For instance, medical insurance registration fraud, fake claims, healthcare gambling, and returns scam.

⁴ Association of Certified Fraud Examiners-2012 Report to the Nations

- **Financial institution or Banking Fraud:** These involve the employment of possibly unlawful methods to gain cash, assets, or other property that belongs to a banking institution or other financial organisation, or to deceitfully pose as in order to obtain cash from investors. Bank fraud is frequently considered a criminal act. In India, bank fraud is a significant problem. It is rising with time in all of the financial industry's primary operating areas. In the modern world, financial fraud is a significant unlawful industry.
- **Cyber Offenses and Fraud:** Cyber offenses as seen in the present year 2024, has seen a huge leap of cases being digitally trailed as the terrorism of cyber criminals has immensely increased over the past few years, with every entity turning into digital paradigm in this shift of industrial revolution has seen many a case related to such scams and fraud. Basically, it involves the use of computer network to harm or injure an individual or group of individuals or an institution with the help of internet network system by the help of emails, chatrooms, messaging services, social media and other means of online transactions through modern payment applications and their loopholes employed to injure financial condition of the mass.
- **Identity Theft:** Another fast growing and commonly encountered fraudulent activity is through identity theft which basically is posing as a different individual and claiming certain financial gain through the use of someone else's identity. It is the most vastly growing kind of fraudulent activity in the present world, from simpler to simpler by using an individual's bank details or credit cards to purchase certain goods, services or carry out transaction with the identity as of the individual whose card is in use. (Prof. Rajeev Kumar Saxena)

BACKGROUND

Financial fraud poses a persistent threat to organizations across industries, with perpetrators continually evolving their tactics to exploit vulnerabilities and circumvent detection. Money embezzlement, asset misappropriation, and larceny represent common forms of financial fraud, each presenting unique challenges to investigators. As the landscape of financial crime becomes increasingly complex, there is a growing imperative to adopt a futuristic approach to forensic fraud investigation that integrates advanced methodologies and technologies. Money embezzlement involves the unlawful misappropriation of funds entrusted to an individual or entity for personal gain. This can occur through various means, including fictitious expenses, payroll manipulation, or fraudulent disbursements. Detecting and prosecuting embezzlement schemes require a thorough understanding of financial transactions and the ability to trace the flow of funds across disparate accounts and entities. Asset misappropriation encompasses a broad range of schemes aimed at illicitly diverting an organization's resources or assets. Common examples include inventory theft, procurement fraud, and vendor kickbacks. Uncovering instances of asset misappropriation demands not only financial acumen but also a keen awareness of internal controls and vulnerabilities within an organization's operational processes. Larceny, or theft, involves the unlawful taking of property with the intent to deprive the rightful owner of its possession. While larceny may seem straightforward compared to more sophisticated forms of financial fraud, its prevalence and potential impact on businesses should

not be underestimated. Effective larceny investigations require prompt action and collaboration with law enforcement agencies to recover stolen assets and hold perpetrators accountable.

In addressing these forms of financial fraud, contemporary investigators are confronted with a myriad of challenges, particularly in the realms of market intelligence, data analytics, and resource management. Market intelligence is essential for understanding the dynamics of fraud schemes within specific sectors or geographical regions, enabling investigators to anticipate emerging threats and adapt their investigative strategies accordingly. Data analytics plays a pivotal role in forensic fraud investigation, empowering analysts to sift through vast datasets to uncover patterns, anomalies, and trends indicative of fraudulent activity. However, the proliferation of data sources and the complexity of modern financial transactions present formidable obstacles to effective data analysis, necessitating the development of advanced analytical tools and techniques. Resource management poses another significant challenge, as investigators must contend with limited budgets, competing priorities, and a shortage of skilled personnel. Maximizing the efficiency and effectiveness of investigative resources requires strategic allocation and a holistic understanding of the costs and benefits associated with various investigative approaches. Adopting a vigilance outlook is essential for organizations seeking to combat financial fraud proactively. By cultivating a culture of vigilance and integrity, organizations can deter would-be fraudsters and foster a climate of accountability and transparency. Moreover, by investing in robust fraud prevention measures and early detection mechanisms, organizations can minimize the financial and reputational damage caused by fraudulent activities. In light of these challenges, there is a pressing need for a futuristic approach to forensic fraud investigation that leverages cutting-edge technologies, analytical techniques, and investigative methodologies. By embracing innovation and staying ahead of the curve, investigators can enhance their ability to detect, prevent, and prosecute financial fraud, safeguarding the interests of businesses, investors, and consumers alike.

This background provides a comprehensive overview of the issues at hand and sets the stage for delving into the specific objectives, methodologies, and findings of the study.

OBJECTIVES OF THE STUDY

Objectives of the study basically comprises of the following:

- Historical perspective of forensic fraud investigations and forensic accounting in India and globally to gain insights on how fraud investigations were started to conduct with respect to the present phase.
- Futuristic approach in the field of fraud detection and forensic fraud investigation with respect to forensic accounting, as to study how the investigations are conducted and what changes need to be implemented with the advent of Artificial Intelligence in the world and how AI is leveraging the role of investigation in fraud detection in every sector.
- To gravitate on the challenges of the present investigation techniques and procedure through data collection with the methodology adopted, to conduct interviews in agencies and financial institutions to further accumulate more information for the embellishment of the study.

- To garner information about different types of fraud and scam activities in the world globally with particular direction towards India.
- To understand the techniques, trends and infrastructure of how forensic fraud investigations are conducted for the detection of fraudulent activities and larger scams in India
- To also garner information about the position of fraud investigators and their role in such investigations with special emphasis to forensic accounting.

RESEARCH METHODOLOGY

This study is based on primary data and mixed methods approach to gather information and in-depth data in the field of forensic fraud investigation. With the historical perspective of fraud investigations and major scams or frauds that took place in the nation, specific agencies and directorates in terms of law enforcement which aids investigations to prevent fraud in the larger scale. Discussion of techniques and trends in the forensic fraud investigation realm with respect to fraud examination is also implemented in the study. Schemes and fraudulent activities would be discussed in the paper with respect to different types and their sub-types for the embellishment of the paper.

For the research purpose of the study and data collection procedure, quantitative data collected by conducting surveys through the help of google forms to gain insights from industry experts, field experts with their experience and also from people who do not belong to this field. This quantitative data helped in gaining insights about focusing on how fraud investigations should be conducted for their effectiveness in terms of forensic fraud investigations in detection and prevention of scams and frauds.

Qualitative data is collected through method of interviews with experts, analysts, risk managers, branch managers of banks and professionals in this very field to gain insights for the study and implement in the study.

SIGNIFICANCE OF FORENSIC ACCOUNTING

Globally, forensic accounting has stood up as a primary pillar in fighting ill realm of the society. In India it started to increase with its need in white collar crimes and their investigations, as before other agencies in particular didn't believe to conduct such investigations with sharp efficiency and expertise to investigate certain frauds or scams. For the better understanding of scams in India, a table is presented below with few selected scams with their years in chronology, along with the amount and parties involved throughout the whole case. (Moid, 2016)

In Indian Context, Forensic Accounting has come to be a name for the sake of white-collar crimes increment in the financial sector, where the law enforcement agencies do not possess sufficient technology or expertise to tackle such crimes, which is why forensic accounting is common in banking institutions, audit controls and police. (Singh, 2012).

Table.1 Table presents major scams in India with financial, political and private/corporate niches.

Scams	Year	Total Amount	Involved Parties	Case Summary
Bofors	1989	1.4 billion US dollars	Government, Bofors, Swedish	Between Swedish arms manufacturer Bofors and Govt of India for the sale of

			and Indian Parties involved	410 howitzer tanks with illegal supply contract and fake amount.
Harshad Mehta Scam	1992	250 crores (equivalent to 19 billion USD now)	Harshad Mehta and his associates, Government, Brokers	Harshad Mehta artificially inflated prices of stocks to create a buy frenzy, huge market rise in BSE.
Stamp Paper Scam	2005	Rs. 600 billion	Abdul Telgi, Associates, Government employees, Police, Politicians	Sold counterfeited stamp papers to banks, broker firms, insurance agencies, imprisoned the prime suspect to 30 years of jail.
Satyam Scam	2009	Rs. 14000 crores	Ramalinga Raju & family, Management, Board of Directors and Auditors	Amount inflated of financial balance and cash, fake names of employees or ghost employees, fake number raise in profit from 61 to 649 crores
2G Spectrum Scam	2010	Rs. 1760 billion	A Raja, Kainamozhi, Nira Radia, Telecom Corporations	Licenses of spectrum on first cum first serve basis and unfair license given, illegal due date advancement.
CWG Games, New Delhi	2010	Rs. 35000 crores	Organizing Committee, Government officials, S. Kalamadi, 2 Private firms	Corruption by the OC, Misuse of funds in venue infrastructure & construction, ghost companies formed to showcase payments which didn't exist.
Adarsh Housing Society Scam	2010	Not revealed yet	Army officials, IAS officials, Legislators, Politicians	Environment norms violations, Infrastructural compromise, was meant to built for Kargil war heroes and widows with 6 storeys but allotted to former environment minister, army officers, bureaucrats and legislators. Compromise in the market rate from 6-8

				crores to 60-85 lakhs for allotment.
Coal Block Allocation	2012	Rs 1.86 lakh crores	Government of India, Public and Private sector firms and companies	Govt. of India building and allocating blocks in a compromised way to get through heavy profit to the allotted parties, no bidding process reported
VVIP Chopper Scam (Business Deal)	2013	Rs. 362 Crores	Augusta Westland, Ex Indian Air Force Chief SP Tyagi and family, Govt officials, Politicians, Other Parties involved in between	Alleged bribery by Ex IAF chief of whopping Rs. 36 billion in Chopper deal. Two Indian companies also heavily responsible for the whole case.

Source: Biswas et.al (2013), *Forensic Accounting in India, 5th International Conference on Financial Criminology*.⁵

In the above presented table, (Biswas, 2013) and some other accumulation of scam reports presented above, where forensic accounting played a pivotal role in the investigation process. If forensic accounting with respect to forensic auditing would have been implemented with mandatory purpose in full-fledged involvement of every agency in the system, these scams and frauds would have been prevented in prior, additionally would have helped in the financial and economic health of the country. To detect such scams in early stages is very important so as to not go through till the last, these are just few examples, whereas there are so many to jot down for such cases with different hefty amount and scope. Also seen how some auditors, govt officials are part of some scams for which basically its very difficult to counter or track such cases, thus there needs more emphasis on creating an apex body with a chain of sub-bodies to detect and prevent such frauds with the help of modern techniques and trends.

Table 2: Companies affected by the listed frauds according to a global report in its annual edition with their percentage

	2012	2011
Theft of physical assets	24%	25%
Information theft	21%	23%
Management Conflict	14%	21%
Supplier and Vendor fund	12%	20%
Internal Fraud	12%	19%

⁵ Biswas et.al (2013), *Forensic Accounting in India, 5th International Conference on Financial Criminology*

Corruption and Bribery	11%	19%
Compliance Breach	11%	11%
Intellectual Property Theft	8%	10%
Market Collusion	3%	9%
Money Laundering	1%	4%

Source: *Global Fraud Report, Key Facts and Figures, Annual Edition; 2012 & 2013*⁶

FRAUD INVESTIGATION AGENCIES AND DIRECTORATES IN INDIA

- **Central Bureau of Investigation (CBI):** Initially, CBI was established in 1941 by the Indian Government named then as, Special Police Establishment. The present name of Central Bureau of Investigation was acquired after a resolution was passed by the then Ministry of Home Affairs by the Indian Government on 1st of April, 1963. CBI at its pre mature stages used to only handle cases of offences against government officials and government servants in the central government primarily related to bribery, corruption or internal mismanagement, audits and inquiry. After 1965, CBI was bestowed with great powers upon hardcore cases of murder, terrorism related activities, kidnapping/abduction, national security purposes as well, financial and economic offenses of immense importance with specific selection and criteria of such cases. CBI's parent body, Special Police Establishment (SPE) had two wings in prior, which are namely:
 - **General Offences Wing (GOW):** This wing's primary duty was to deal with corruption and bribery offences by government sector employees.
 - **Economic Offences Wing (EOW):** This wing's primary duty was to deal with economical laws concerned in the government machinery of financial or economic violation by any-body or individual. It was under CID in 1970 but currently, EOW is responsible for cases in fraud, theft of government finances in other departments like Excise, Transport, Industries, Tax, FCI, Agriculture and Irrigation etc.

In 1987, CBI got its two separate divisions in order to control and prevent crime with a different outlook to put more emphasis and manpower, The Special Crimes Division and Anti-Corruption Division. (Prof. Rajeev Kumar Saxena)

- **Central Vigilance Commission (CVC):** CVC is an apex vigilance agency for any kind of allegation related to corruption or misuse of power by people who hold certain position in office. It was set up in 1964 by the Indian Government with K. Swaminathan, as its head to help central agencies in their goals, execution, reformation if needed in any field of vigilance work, being the apex body without any authority over it to monitor.
- **Enforcement Directorate (ED):** Enforcement Directorate is set up for enforcing two very important fiscal laws in Indian judiciary: Foreign Exchange Management Act, 1999 and Prevention of Money Laundering Act, 2002. Its headquarters stands in New

⁶ Global Fraud Report, Key Facts and Figures, Annual Edition; 2012 & 2013

Delhi with five major regional divisions in Delhi, Mumbai, Chennai, Kolkata and Chandigarh.

- **Income Tax Department (IT):** The Income Tax Department is a central government agency under Ministry of Finance (Dept. of Revenue) with its exercise in the income tax duties and collection of the same for the government.
- **Reserve Bank of India:** RBI is the premier financial body of India centrally which powers the policy of Indian rupee. Its primary function is to manage the policy of money, foreign exchange, currency issue to population, monetary stability in the nation with emphasis on security as well.
- **Serious Fraud Investigation Office (SFIO):** This organisation comes under the Ministry of Corporate Affairs with respect to auditing, law, IT, investigation purposes, white collar crimes, frauds and scams etc. Its headquarters lie in New Delhi with major offices in Mumbai, Hyderabad, Chennai and Kolkata.
- **Securities and Exchange Board of India (SEBI):** Established in 1988, but statutory powers were received by 1992 under the 1992 SEBI Act, with its primary function to investors security, market development and matters, along with close eye on any illegal activity in the business stock market.
- **INTERPOL:** International Police have its own divisions in almost every field to combat crime, similarly in forensic fraud investigations to exercise its control on illegal activities in financial sector or economy of a nation, with 192 member states, it's the largest policing institution in the world.

FRAUD EXAMINATION TECHNIQUES WITH RESPECT TO FORENSIC ACCOUNTING

1. **Benford's Law:** This mathematical method can be used to ascertain if the parameter under investigation is the result of fraud or inadvertent mistakes. To determine the importance of variability among two populations—Benford's terms figures for the initial and the measured percentage that corresponds to the initial character for a specific degree of confidence—a parametric examination known as a Z test is used. Scaling constant has no bearing upon Benford's Law, which comes in handy if operations lack additional evidence attesting to their legitimacy.
2. **Relative Size Factor:** It identifies any anomalous oscillations that might be caused by fraud or honest mistakes. RSF is quantified as the biggest amount in the provided collection divided by the second biggest value. In reality, every entity—such as a supplier, client, worker, etc.—has a specific restriction (for example, a monetary one. If not stated, these boundaries can be determined or examined using the data that is now accessible. More study is required if there is even one isolated incidence of anything that is much outside of the typical spectrum. It facilitates more accurate anomaly or outlier identification. Data that don't fit inside the designated area may include theft or inaccuracies. The data found should be relatable to the other values and factors for the success to prevail in any case.

3. **Computer-Assisted Audit Techniques/Tools (CAATs):** These software applications help inspectors handle massive amounts of info in a timely manner while carrying out their inspection processes (such as comparing activities and accounts, identifying anomalous changes, recalculating, etc.). Customers database, such as MS Office apps, while relying on them. These applications assist auditors in carrying out a variety of auditing tasks, including: (i) revising financial system equations; (ii) collection initiatives to gather information for audit evaluation; (iii) evaluating machine usage and broad command; (iv) identifying discrepancies or notable shifts; and (v) evaluating purchases and maintain more information.
4. **Comparative Analytics or Ratio Analysis:** Forensic accountants frequently employ statistical analysis of proportions to spot potential signs of fraud. Different experts employ a variety of ratios, such as benefit, monetary, and data evaluation ratios. These proportions aid in connection prediction, and any anomalous ratio warrants investigation in order to identify potentially fraudulent activity. The inventory condition gauge, the profit directory, revenues in arrears ratio, and other metrics are frequently utilized. Such are the ratio of the highest value to the lowest value, the proportion of the highest number to the subsequent highest amount, or the proportion of the figure from the current year to the number from the year before it. These proportions aid in the prediction of connections; any anomalous ratio necessitates investigation in order to identify possible scam or deceit,
5. **Data Mining:** Data mining methods facilitate the extraction of substantial amounts of information for additional research. These methods fall into four categories: (a) discovery, which uses developments and transitions to find structures in information; (b) forecasting, which forecasts results based on structures found; (c) deviance analysis, which identifies objects which diverge from the typical standard; and (d) connection evaluation, which uses a variety of visual methods to find any odd trends. (Moid, 2016)

Few Contemporary techniques are mentioned below:

One of the premier tech and professional services giant and Big 4 company KPMG came up with few techniques for better investigation procedures with the help of advanced technology and commitment to tackle financial crimes and frauds in the corporate realm.

1. **e-Discovery Tool:** KPMG employed this tool for smooth preservation and representation of different types of evidences gathered electronically in matters concerned legally.
2. **Fraud Risk Management:** This method offers an anticipatory perspective on fraudulent activities in companies. It makes it possible to identify possible fraud early on and steer clear of it. Several tactics are provided by KPMG for the same: workshops and training programs on fraud consciousness; (ii) fraudulent risk evaluation and susceptibility tool; (iii) forensics health inspection; (iv) organizational perspective poll; (v) statistical modelling; (vi) risk evaluations against imitation; (vii) competitive risk mitigation; and so on.
3. **Validation (Understand Your Staff):** Personnel must undergo a thorough "Due Diligence" examination in order to combat occupational scams. Verify a worker's background and qualifications, including residence, training, previous job history,

ongoing legal matters, both physical and mental health examinations, convictions or such records, and so forth, is part of it.

4. **Identifying the Atypical:** Financial transactions made on vacations should be looked for whilst undertaking unlawful activity and misconduct inquiries. These kinds of activities could make a good suspect for widespread scams like extortion and money laundering. To further this, KPMG assists its customers in generating the revised accounting records as well as in mending the discrepancies to prevent similar events.
5. **Centre for Investigative Technology:** The forensics tech lab carries out internal or outside investigations to gather relevant data in an organized way and flag any questionable entries. It makes it possible to gather, retrieve, and retain information in an electronic format to support fraud investigations and lawsuits. It also aids in identifying any proof of tampering.
6. **Corporate Research:** This type of intelligence includes "Due Diligence" checks that are made on third parties (individuals or groups) before engaging in any type of commercial business, including overseas collaborations, mergers and acquisitions, investments, and so on. Exercises in "Due Diligence" - "Know Your Client" (verification of identity) or KYC maintain an eye on a variety of factors, including executive leadership, ongoing litigation, market reputation, ownership arrangement, and the financial standing of third parties.

INTRICACIES OF FRAUDULENT ACTIVITIES AND SCHEMES

Asset Misappropriation: Asset Misappropriation basically refers to diversion of finances or funds and other assets with illegal intent of restricted authority or no authority of a financial institution's assets through money embezzlement, theft or stealing a company's data or misinterpreting their data and records.

Types of this fraud include:

- Inventory fraud, which basically is stealing of inventory items and misinterpreting the records book of the goods.
- Cash fraud or theft, where the cashier or the employee skims funds before it goes to the books, off the book's theft for instance.
- Duplicating or stealing through illegal means of a company's information which is patented to buy resources through the same, which is illegal to do so.
- Misinterpreting or manipulating data of payment activities to relocate payments to an individual's own sources for their personal gains.

Common Schemes employed in Asset Misappropriation

Embezzlement

This scheme is carried out by insiders of a company or an organization to extract funds or goods from the system, this job is done by employees of an organization where they misuse their position and job role as they have the internal knowledge about the company.

With the help of other employees to join and easily carry such fraudulent activity inside the organization. Manipulation of records and reports, forging signatures of executives to carry forward a transaction, or even tampering credit card information for their personal uses.

To prevent such frauds there should be regular and routine audits, with internal controls for prevention of such cases.

Recent case of Money embezzlement, In Washington D.C, USA, a court charged the founder and former CEO of a fuel company of embezzlement of a whopping amount of 5.9 million USD from his own company he founded. He was allegedly transferring funds from the company to his own account by creating false records and altered statements from banks which were sent to the board members and accountant of the company. (Personable, 2024)

Shell Companies and Creation of Fake Vendors

Shell companies and fake vendors are implicated through the system, which creates a collusion between the workers and other involved parties thereby creating a more difficult form of fraud. Employees in their positions of work create fake vendors and use shell companies for fake generation of invoices with non-existent services and products. Firstly, these employees carry out these transactions, and allocate the company's funds to the fake vendors and shell companies and later transfer the same to their personal bank accounts, which is how they conduct this fraudulent activity.

Recent Case: Former National Treasurer of the country Venezuela and her spouse got 136 million USD bribery from a billionaire who used to own a news network namely, Globovision. This whole fraud was conducted with hidden cash in boxes and in offshore shell companies. By the help of court evidence, it was found that the bribed money was utilized to buy bonds from the National Treasury of Venezuela in some great exchange rates, which resulted in gross profit of hundreds of millions in USD.

The task of discovery more difficult, this kind of plan may employ several levels, such as constructing fictitious physical spaces, forging accompanying papers, and utilising real business titles with minor variations. (Personable, 2024)

How it can be prevented?

This kind of fraud may be avoided by putting in place stringent supplier checks as well as thorough payment and bill monitoring systems.

Cheating on Checks and Payments

Inspections constituted one of the financial modes most affected by deception activity, with 63% of respondents to the Transactions Security and Prevention Report saying as much. In order to transfer money to unidentified individuals, this type of manipulation entails changing, fabricating, or falsifying cheques and digital payments.

Methods for manipulating checks and payments could involve modifying the recipient's title, modifying the value on the control, or detecting & interfering with digital payment signals.

The offenders are frequently people in charge of handling payments, who take advantage of their authority to get around regulations.

Beginning by examine an actual cheque theft operation carried out by Scott Capps, previously employed at the financial services firm Vanguard, who committed fraud against the State as well as the corporation.

Capps had possession of inactive accounts with cash which ought to have ideal went to the State but were discarded. He deftly acquired his colleagues' credentials and utilised these to get

entry to the structure, writing checks on these inactive ones to another one taking almost \$2.1 million instead of turning it over to the government.

This type of fraudulent conduct emphasises the necessity of successful financial management and the identification of questionable activities inside businesses.

To determine how may it be avoided?

Such hazards can be reduced by using safe transaction procedures, assigning responsibilities to different people, and routinely reconciling finances. Scan Writer's check scanner is one of the tools that helps the organisation detect abnormal activities early on by autonomously reading, capturing, and organising information collected from any checks to bespoke Excel spreadsheets.

Skimming and Theft of Cash

Although they occur at separate points in the payment procedure, each of these events entail theft of cash.

If a staff member removes money before it's entered into financial records—for example, by swiping some of the money that was sold after settling the remaining amount—this is known as skim. Theft of money after it has been properly documented, such as removing funds from the till after transactions are documented, is known as money larceny.

Prevention Procedure: Balancing and routine audits are essential for identification since both approaches demand the alleged offender to alter documents in order to hide their actions.

Deception and Stolen of Stock or Inventory Fraud

Another type of fraudulent strategy involves physically stealing merchandise and falsifying documents to conceal the loss or raise the goods' worth. It could entail interfering with actual counts, changing shipment documentation, or fabricating arrival reports. Despite just the loss of tangible items, there may be further effects on trust in investors, taxes, and accounting records.

In one instance, previous management and staff members of Chicago-based Result, an organization that is not publicly traded, allegedly participated in a major five-year scam aimed at deceiving multiple customers by providing ads that they did not in fact hold. This is known as an inventory scam case.

Prevention Procedure: There should be proper measures regarding their control and surveillance process with not announced counts of stocks or inventory can entail in sorting out uncovered assets and prevent such schemes of Inventory.

Telephone Bills and Compensation Plans

In order to obtain excessive repayments, workers in these scams file false expense records or inflate actual expenditures.

Some strategies involve exaggerating transportation and food bills, invoicing charges for cancelled trips, and turning in invoices for private expenditures as business costs. This scam takes advantage of lax spending approval procedures and a deficiency in oversight. Over 2.2 billion dollars in judgements against the laws governing false claims were made in the financial year 2022. A vascular doctor in Bay City in Michigan was recently found guilty of participating in a multimillion-dollar fraud operation by filing invoices for thrombectomies and the implantation of vascular implants that he didn't execute. He was handed down to Eighty month in jail and a hefty \$19.5 million fine.

Prevention Procedure: There should be clarity in policies related to expenditure, with documentation and expense management application with controls which are embedded into the system can prevent such things.

Identifying and Investigation of Misappropriation of Assets Fraud

Misappropriation of assets fraud detection and investigation necessitate an integrated approach that incorporates knowledge, technology, and cooperation. Below is a closer look at the many facets at play:

Methods for Investigative Accounting and Data Analytics

Statistical modelling, forensic accounting, and data analytics may all be used with current technology to find trends and anomalies that can point to fraud. Possible warning signs can be identified with the use of computerised tracking, detection of patterns, mathematical modelling, and visualisation technologies. Forensics financial accounting, at the other hand, offers thorough investigation, collecting proof, legal assistance, and cooperation with law enforcement agencies. When combined, they provide a thorough and effective fraud-fighting system that guarantees precision, rapidity, and flexibility in the face of new risks.

Sophisticated OCR (Optical Character Recognition) is used by programmes like Scan Writer to automatically gather data at a very fast rate. It can comprehend more than forty thousand types and gather information from financial records, bills, and invoices, among additional sources. The cash trail inquiry may be expedited by using the information to provide visualisations. (Personable, 2024)

Tracing the Financial Trail

The core of fraud inquiries is tracking the movement of illegal money and locating concealed assets.

Tracking Down Secret Holdings and Illegal Money

- Modern tracking methods are used by prosecutors to track the flow of counterfeit cash across many accounts, overseas businesses, or sham corporations.
- To identify unusual behaviour, this involves: Examining bank records, wire transactions, and various other monetary data.
- Recognising expenditures, properties, or other important possessions acquired by money obtained illegally.
- Monitoring cryptocurrency exchanges, if relevant, as these might be used to conceal holdings.
- Using data-sifting tools like as Scan Writer, which helps detectives make connections between intricate monetary transactions. Using filters such as organisations, funds transferred, dates, and more, Scan Writer dynamically fills the "Flow of Money" visualisation, enabling researchers to track the money path among multiple accounts.

Proceedings into Asset Misappropriation: Transnational Dimensions

Transnational routes may be used by criminals to conceal stolen property in an environment where globalisation is accelerating. This makes inquiries more difficult and necessitates:

- Observance of various legal frameworks and cooperation with foreign organisations.
- Collaborating closely to help solve the crime and sharing data with criminal justice organisations in different nations.

Collaboration with Different Criminal Justice Organisations

The intricacy of theft of assets crime sometimes calls for cooperation among various criminal justice organisations, governmental organisations, as well as businesses. This cooperative effort must include information communication, synchronised legal proceedings, and combined activities.

Developing a Powerful Defence Argument

There is a greater aspect to effectively pursuing the theft of assets crime than simply locating the offenders. This is how it is accomplished:

Acquiring Enough Proof

Gathering meaningful proof that passes muster with the law requires careful record-keeping, questioning witnesses, forensic examination, and others. All of the pieces of proof have to be reliable, pertinent, and allowed to be used in trial.

Electronic Evidence's Place in Contemporary Fraud Cases

Machine logs, messages, online transactions, and other types of technological proof are all very important in the age of technology. Electronic proof needs to be collected, preserved, and analysed properly, which calls for certain equipment & knowledge.

Collaborating alongside Attorneys and Handling Matters of Law

Working closely with attorneys, comprehending the requirements of the law, and conquering barriers like territorial problems and gaps in the law are all necessary to develop a subject to prosecution case. A strong and convincing legal case is guaranteed by the strategic collaboration of detectives, scientific specialists, and lawyers. (Personable, 2024)

Case Studies

Favour of Technology in a Money Embezzlement Case

A fresh instance of theft by a rural municipal the auditor, in which government funds were misappropriated, demonstrated the vital role those advances plays in investigating fraud. There were more than 4,500 activities plus 993 volumes of financial records for the detectives to go through. Instead of the 74-hour period that processing by hand could have required, they processed these documents in only four hours via Scan Writer's capture of information and analytic application.

The programme made it easier to convert a variety of files into a structured Excel database, and when it was integrated using Power BI, it offered fluid financial flow visualisations. Scan Writer's infrastructure allowed divisions to work together in instantaneous fashion, facilitating productive interaction. Economic projections could be visualised, and data input effort was reduced by ninety percent with full precision. These developments all helped to offer solid proof, which ultimately led to a victorious conviction.

Investigating the laundering of money and Finding Solutions Quickly

Agency inspectors became overwhelmed by the quantity and intricacy of information gathered in a \$150 million medical fraud scam involving a chemist and false claims to national medical programmes.

The lengthy process of conventional manual techniques was creating an accumulation of investigations and impeding attempts to curb the misappropriation of public funds. The plan called for a specific and complex answer because it involved giving them needless complex drugs.

The sophisticated data input mechanisation and automatic revenue visualisation features of Scan Writer helped detectives crack the puzzle fast. These techniques helped in record time management and efficiency with accurate results and output thereafter providing conclusion to such cases where it takes many months to years to overcome.

Actions Into Asset Misappropriation: Their Future
Government investigators investigating fraud must be aware of these new trends and problems in theft of assets cases and be flexible in their approaches.

A linked industry is driving the globalisation of fraudulent plans, which makes prosecutions more complicated and necessitates collaboration across different jurisdictions. Concurrently, there are additional concerns due to the increase in cyber-crime, the use of digital currencies, ongoing modifications to regulations, and more sophisticated risks posed by insiders.

In light of these new difficulties, utilising tech remains crucial to conducting contemporary probes into fraud.

Statistics and robotics: By reducing the quantity of labour required for entering data and evaluation, technologies such as Scan Writer can shorten the time needed to analyse large volumes of input.

AI and the use of machine learning: Using Algorithms using artificial intelligence and deep learning may help in spotting trends, abnormalities, and fraud-predictive indications, offering insight that conventional research alone could overlook.

Computer Forensic: As crime grows increasingly digital, detectives must use specialised technologies to examine electronic proof, follow cybertronics, electronic trails and find data that is buried on electronic gadgets.

Quantitative Data

A census population study of 30 respondents, which was analysed to get insights for the study, which was to target professionals, experts, field investigators, risk analysts, consultants and random people from different fields to know their perspective in this study. The quantitative analysis consisted of questionnaires through google forms being distributed to professionals, other random individuals for concrete interpretation of market research and industry research to be implemented in the study. Collected through the means of google forms circulated by online means, and analysed using graphical representation to know their outcomes and conduct discussion. This quantitative data collected would help in the analysis of the study about their

perceptions and how they think about forensic fraud investigations with their detection and prevention procedures.

Qualitative Data

Qualitative data is gathered through the help of interviews from forensic fraud investigators, risk assessment analysts and consultants, professionals in the field and bank managers working in different organizations. These key professionals shared their views and opinions regarding the challenges, trends, working principle and investigation process with key things discussed in the whole process. These data helped the study in garnering prime focal points to be present in the heart of an investigation in order to tackle fraud and scams.

An interview questionnaire format is provided beforehand to the professionals who are interviewed with their consent at first taken upfront, with recording of the interviews also taken for future endeavours. The experts and professionals are duly acknowledged throughout the whole process for their much helpful insights and cooperation in this study.

Methodology of Interview

Participants Criteria: Experts and Professionals in the field of forensic fraud investigation working in different sectors of the economy to understand and gain knowledge about the below mentioned questions with their sheer experience share and discussion into the matter.

Forensic Fraud Investigative Officers, Fraud and Vigilance Unit, Corporate Internal Auditors, Risk Analysts, Consultants, Managers of Financial Institutions.

Sample size: 3 participants in total

Interview Structure:

- Introduction of the interview with the very objective and primary question to that specific expert with informed consent process.
- Their rights and confidentiality of their responses should be maintained.
- Recording of interview would be taken from the start till the end, which will be kept confidential by the researcher.

Interview Medium:

- To mention the medium of Interview;
- Physical Interview or Personal Interview
- Virtual Interview through Virtual Meet or Telephonic Interview
- Responses through Social media messaging apps like Instagram, WhatsApp, Facebook etc.

Background and Experience:

- Examine the histories and background of each and every expert, including their entry into the field and ascent to prominence.
- Talk about their experiences and working with different groups and teams.

Obstacles and Demands:

- Ask them about any difficulties or demands they have to uphold moral principles while collaborating with companies or during an investigation process.
- Talk about how they resolve conflicts that arise between their objectives and personal ideals.

Prospects for the Future:

- Ask the experts about their aspirations and expectations for the future of forensic fraud investigation.
- Talk about any upcoming changes or inventions that could strengthen industrial responsibility.

Moral Aspects to Take into Account:

- The confidentiality and anonymity of the participants will be respected during the whole study procedure.
- Before conducting interviews, consent is to be acquired from each participant.
- All potentially delicate subjects will be handled delicately and with consideration for the opinions of the participants.
- Researcher may obtain valuable qualitative insights on experts' perspectives of ethical responsibility and duty by organising interviews in this way. This helps to further the conversation on the role of professional and experts regarding their morals.

Below provided is the Interview questionnaire of the study:

Statement for the questionnaire:

This formal interview is conducted with the help of the below given questionnaire to the field experts in the field of forensic accounting and forensic fraud investigations where their consent would be taken upfront before the interview with their credentials to be kept confidential by the researcher in all aspects.

The industry experts input and insights would be duly acknowledged and thanked for their contribution in this research study.

Interview Questionnaire with the statement and consent List of Questions

1. *Introduction of the expert in the field and his experience in forensic fraud investigations.*
2. *What is the primary thing you keep in mind before or during an investigation to aid in the process?*
3. *How do you cope with the challenges and obstacles which come in the way of the investigation procedure?*
4. *According to you, as an expert in the field.*
5. *What are the current problems and challenges faced with respect to forensic fraud investigation and forensic accounting?*
6. *What drives you ahead to continue forward if a certain path or direction proves to be a dead end?*
7. *How do you manage of conflict of interest or misunderstanding between colleagues during an ongoing investigation?*
8. *What are the key things lacking in the realm of forensic fraud investigation, with an upgrade or advancement to tackle such issue?*
9. *How is market intelligence and resource management key to investigation procedures?*
10. *Shed some light into the accountability of internal audits and risk management processes in an organization*
11. *What are the most common types of cases you encounter in this field?*

12. What do you think about the evolution of fraudsters and criminals in committing such crimes, and how an expert should proactively or reactively act according to the type of crime? 13. As an expert in the field, what do you think about the future perspectives of forensic fraud investigation?

RESULTS

The results obtained from both the qualitative and quantitative data are presented below, with the survey results obtained from random samples collected from random people ranging it to experts, professionals and other varied people of different interests.

There are some key take-ways in the analysis of the quantitative data which is to be emphasised in this study where people not belonging to this fraternity gave equal importance and their results are equally astounding to see greater effort in fraud investigation, in order to mitigate crime, which showcase the character of individuals to live in a crime free society where illegal activities of scams and fraud take way an individual's life savings and earnings as a whole which is why general people even faced difficult hurdles in life.

Interview Results

Qualitative data results with the help of interviews which were conducted are as follows,

1. Juhi Agarwal, Consultant in Risk Advisory, Ernst & Young (EY), Formerly in Kotak Mahindra Bank, Mumbai, Maharashtra, India:

Conducted a telephonic interview with detailed discussion on the topics that were being asked. Agarwal's experience in the risk advisory, fraud detection and vigilance unit and internal audits is very vast with 4.5 years in total.

After her introduction, She was asked about what does she keep in her mind before an investigation or audit, she said about how there's a basic expectation regarding the Standard Operating Procedure (SOP) with the clients where the researcher followed-up with the so called attitude and demeanour of clients or people being investigated, from her experience she mentioned that mostly that is eighty percent of the people tend to not appreciate or forth coming regarding audits conducted by a third party organisation, with the reason being they are not aware about the same, she gave the example of the procurement department, where they don't have any idea that a third party organisation would conduct audits or so and they feel threatened for getting laid off from the job or similar to that, along with that she faced issues where there is already an internal audit team in the company, and if she's approaching through a third party company, they do not appreciate it much, but ironically few organisations appreciate and help, where they coordinate and cooperate for the betterment of the company. Another question was asked about the primary challenges in current scenario, she answered about it with data acquiring, resource management, leadership communication, thus in order to tackle these, communication is the key in tackling these challenges. Asked about the evolution of crimes and frauds and how technology plays a key role, she mentioned about how there should be routine practical training of certain processes for the employees where its lacking, and definitely technology is key

in solving crimes and in future of technological perspective how it'd be largely beneficial for the industry to get ahead with time.

(Juhi Agarwal, Telephonic Interview, Delhi, May 5, 2024).

2. Identity Disclosed, Investigative Officer & Senior Manager, Fraud Containment & Vigilance Unit, HDFC Bank, India:

Conducted a personal interview in a neutral place with a very productive discussion which is described below. The researcher started with the introduction of his experience of 10+ years in the realm of forensic fraud investigation and vigilance, where he formerly worked in Kotak Mahindra Bank and in Big 4 company KPMG for most of his tenure. First question asked was about the primary thing which he keeps in his mind during an investigation, he answered about reading and sensing the scenario he is in for the whole process and along with multiple hypotheses in his mind, followed up with a proper action plan. He spoke more about how thorough understanding and technical parameter adds aid into the investigation. When asked about how he manages a case where it turns out to be a dead end, he spoke that updating the superiors helps a lot, he gave an example where an individual supposedly haven't committed the crime, but there is a whistleblower against that person, in that case its already known that it's a dead end, so that's you keep track of time overall. About conflict of interest and difference of opinion, he said its always there, because of diverse opinion among the team, but being accountable and sharing ideas upfront and be confident about your leads help in a better healthy environment, rather than fighting or wasting time in between the members. He said about the evolving nature of technology and how there's a huge impact, its changing through a broad spectrum but primarily focus is on the data and its analysis, he mentioned about identification of possibilities before an incident or from a perspective of a fraud investigator, by testing your ideas and possibilities. There's communication and encouragement which also plays a key role from the senior executives to pursue a certain hypothesis regarding the detection or identification of any fraud or incident.

(Disclosed, Personal Interview, May 7, 2024).

3. Identity Disclosed, Kotak Mahindra Bank, India:

Total experience of 25 years, 5 years in Fraud & Vigilance Department.

The researcher asked about the current challenges being faced by investigators, the interviewee replied about tools and how input & output plays a key role, with primary thing being the data analysis and management where manual work versus technological tools come into play, her point was about how things are efficient in the financial sector if done manually with proper attention whereas a tool may mismanage certain things in case of an investigation, she appeals there needs refinement or some implementation to aid this factor. Later asked about how she take care of possible dead ends in certain investigations, she mentioned that there's never a dead end if you would do your work properly which will help in some way or other in the whole scenario,

keeping track of time and thinking out of the box helps a lot with thorough satisfaction. Asked about future perspective of this whole realm, she mentioned about how it had been always there but there was not a certain name of to it but because of famous cases and things coming out publicly has shaped up this whole scenario into a different one and it will keep on growing and evolving with the passage of time.

(Disclosed, Telephonic Interview, May 6, 2024).

Survey Results

Below presented are the gathered data through survey Q&A, google forms responses with 30 responses in total. Randomly selected with no age group boundary as such for the study. Through the help of thematic pie chart graph obtained from google forms and sheets, survey results and their percentage opting for the option is shown below

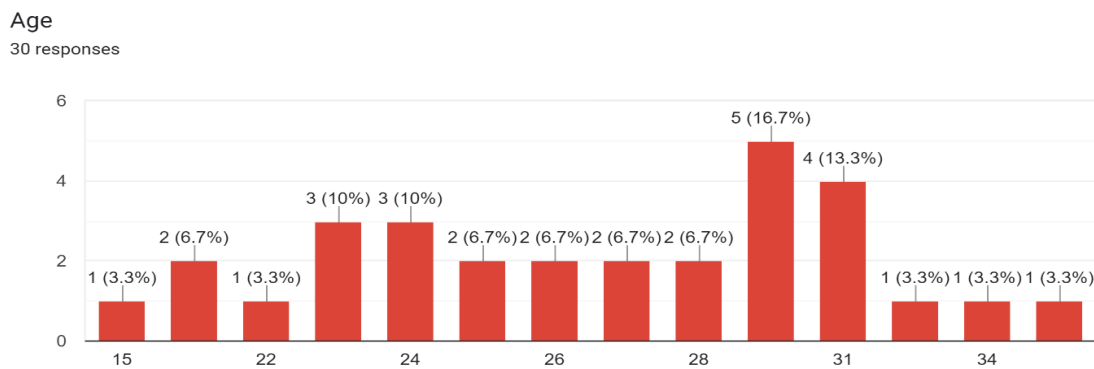


Fig.5 Graph shows the age of the respondents from the survey, where X-axis shows the age of the respondents and Y axis shows the quantity of people in that particular age group or age.

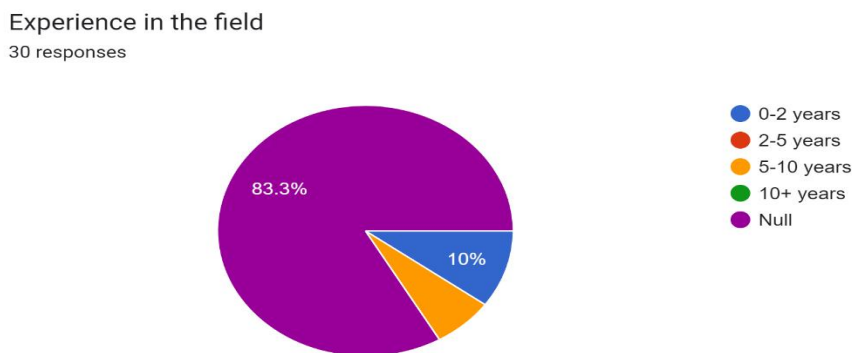


Fig.3 Pie chart 1 shows the experience of the respondents in the field.

Forensic investigations are crucial for detecting and preventing financial fraud in banking institutions and agencies

30 responses

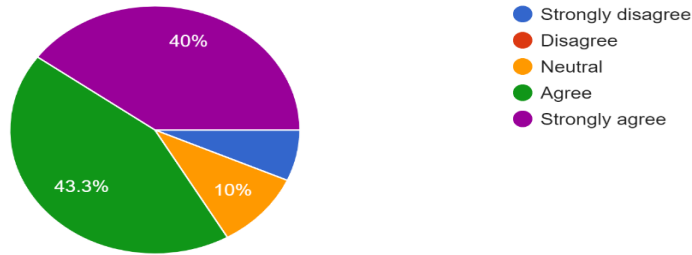


Fig.4 Pie chart 2 shows how investigations are crucial in detection and prevention of financial fraud

Forensic audits and internal audits help in identifying and detecting control weaknesses that could lead to financial fraud and deceit.

30 responses

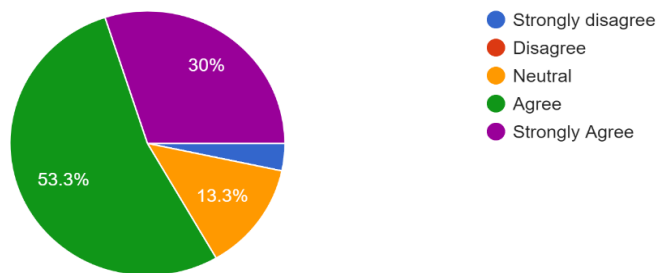


Fig.5 Pie chart 3 identifies about how routine audits are important in controlling deceit.

The results and outcomes of forensic investigations can help in developing proactive measures to prevent future financial fraud cases

30 responses

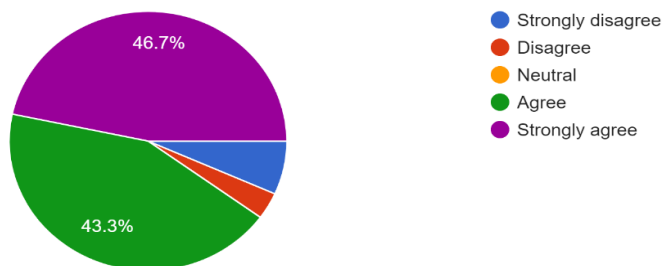


Fig 6 Pie chart 4 shows about proactive measures which aids in future financial fraud cases to prevent them.

Forensic investigations provide valuable insights that can be used to improve internal controls and risk management practices in an organization.

30 responses

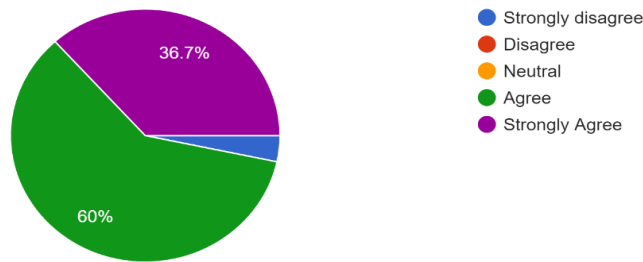


Fig.7 Pie chart 5 gives notification about investigations which help in internal controls and risk management of an organization.

I acknowledge and believe that forensic accounting techniques are effective in discovering fraudulent activities and track the same.

30 responses

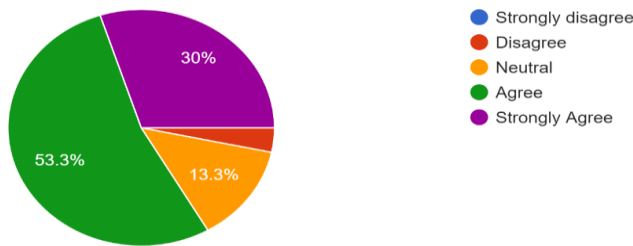


Fig.8 Pie chart 6 shows how forensic accounting techniques are effective in detecting fraudulent activities.

Adequate training on fraud detection and prevention can help investigators identify potential fraudulent activities and scams.

30 responses

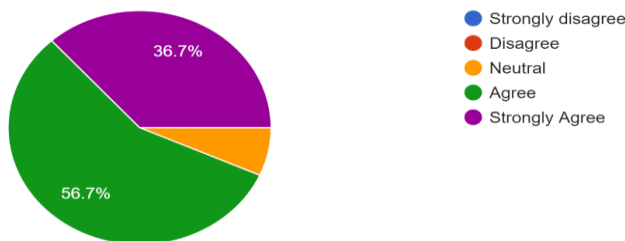


Fig. 9 Pie chart 7 gives an idea how adequate training procedures help investigators in identifying fraudulent activities and scams.

Implementing routine forensic investigations can significantly reduce financial fraud in financial institutions
30 responses

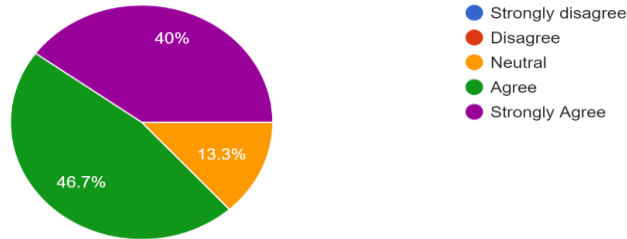


Fig.10 Pie chart 8 shows how implementing forensic investigations in all sections help in reducing financial fraud in institutions.

Utilizing advanced technologies such as data analytics and data mining can enhance fraud detection capabilities.
30 responses

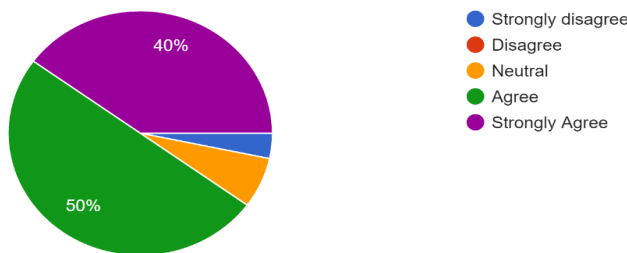


Fig.11 Pie chart 9 gives an explanation about the use of technologies like data analytics and data mining to help in detection of fraud.

Regular audits and reviews of financial transactions and datasets can help detect and prevent fraud with the database in check.
30 responses

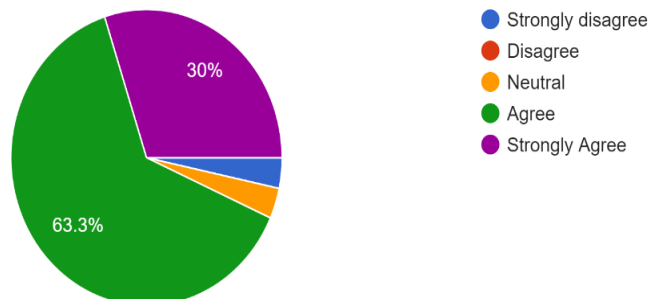


Fig.12 Pie chart 10 gives an explanation about the regular audits and reviews by auditors can help in keeping a track of transactions in a corporate workplace by maintaining integrity.

Collaboration with law enforcement agencies and concerned authorities is essential for prosecuting financial fraud and scams.

30 responses

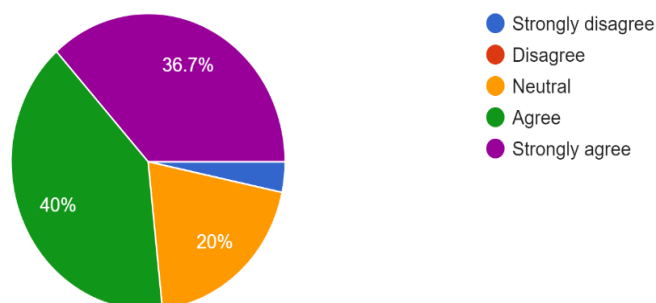


Fig.13 Pie chart 10 shows how collaborative approach by law enforcement agencies and audit authorities help in prosecuting frauds in places.

With advancement in technology and trends, like AI into this field would it be beneficial to the field of forensic accounting and fraud investigation?

30 responses

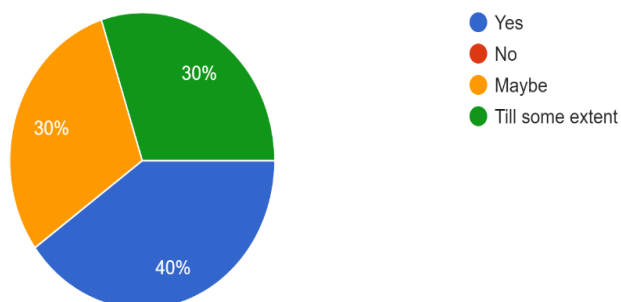


Fig.14 Pie chart 11 gives an explanation about the advancement of technologies and trends like AI which will be beneficial or not according to the survey.

Do market research and intelligence play a crucial role in forensic fraud investigation and their future approach?

30 responses

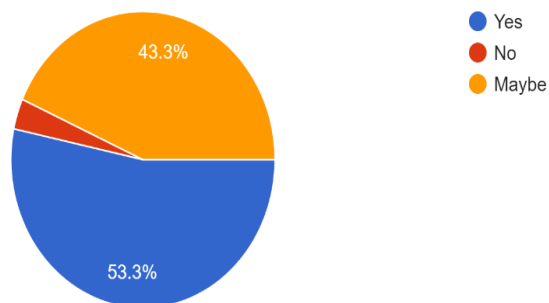


Fig.15 Pie chart 12 shows how market intelligence and research is crucial in fraud investigation, also keeping a tab onto future approach.

Major challenges in forensic fraud investigation and audits? Please comment below

10 responses

Not aware of much but if the traces are not found and it's hard to backtrack.

The full proof system can be bypassed. So only training a person or training an AI model to detect fraud is not sufficient. Proper use of both things together can help to mitigate the problem.

As far as today's world scams are concern I must say fraud investigation and audit should use more technological approach.

New technique of fraud scams but utilising our data shared by network companies or application softwares etc. Sharing of our information is the key step to frauds.

To work hard for truth

I have to research a bit further to answer this question as I am not from a forensic background.

vastness of transaction data, continuous advance techniques of fraudsters

Complexity of fraud schemes

Fig.16 shows few responses from the respondents in the google survey where they put up their opinions and views regarding the forensic fraud investigations in the comment section.

Timestamp	Age	Experience in the field	Forensic investigations a	Forensic audits and inter	The results and outcome	Forensic investigations p	I acknowledge and belie	Adequate training on fra	Implementing routine for	Utilizing advanced techn
5/2/2024 22:56:31	22	Null	Agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
5/2/2024 23:19:44	26	Null	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
5/2/2024 23:46:18	34	Null	Strongly agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
5/2/2024 23:53:10	30	Null	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
5/2/2024 23:53:45	30	5-10 years	Agree	Agree	Strongly agree	Strongly Agree	Agree	Strongly Agree	Agree	Agree
5/2/2024 23:59:48	25	Null	Agree	Agree	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
5/3/2024 0:02:03	32	0-2 years	Strongly agree	Neutral	Strongly agree	Agree	Agree	Agree	Neutral	Agree
5/3/2024 0:12:37	23	Null	Strongly disagree	Strongly disagree	Strongly disagree	Strongly disagree	Disagree	Agree	Agree	Strongly disagree
5/3/2024 0:43:51	24	Null	Agree	Agree	Strongly agree	Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree
5/3/2024 0:52:42	23	0-2 years	Strongly agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree	Agree	Agree	Agree
5/3/2024 5:38:01	27	Null	Agree	Agree	Agree	Agree	Agree	Agree	Neutral	Agree
5/3/2024 6:09:10	19	Null	Neutral	Agree	Agree	Agree	Agree	Agree	Neutral	Agree
5/3/2024 7:12:47	23	Null	Strongly agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
5/3/2024 8:37:48	31	Null	Neutral	Agree	Agree	Agree	Neutral	Agree	Agree	Agree
5/3/2024 8:52:43	19	Null	Strongly disagree	Neutral	Strongly disagree	Agree	Agree	Agree	Agree	Neutral
5/3/2024 9:24:15	30	Null	Neutral	Agree	Agree	Agree	Agree	Agree	Agree	Strongly Agree
5/3/2024 9:59:57	15	Null	Agree	Neutral	Strongly agree	Agree	Agree	Agree	Agree	Agree
5/3/2024 10:17:49	30	Null	Strongly agree	Strongly Agree	Strongly agree	Strongly Agree	Neutral	Strongly Agree	Strongly Agree	Strongly Agree
5/3/2024 10:28:31	31	Null	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
5/3/2024 11:25:08	25	Null	Strongly agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
5/3/2024 12:20:59	31	Null	Strongly agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
5/3/2024 12:35:39	28	Null	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
5/3/2024 13:45:38	31	Null	Strongly agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
5/5/2024 0:02:20	30	Null	Agree	Neutral	Strongly agree	Agree	Agree	Agree	Agree	Agree

Fig.16 Sheet of the survey responses recorded is presented above with the time and date stamp along with their responses. Their e-mail and identities are disclosed for the integrity of the research.

DISCUSSION

Exploring the futuristic approach of forensic fraud investigation in areas such as money embezzlement, asset misappropriation, and larceny is not just timely but crucial in an ever-evolving landscape of financial crimes. This research delves into the challenges faced in market intelligence, data analytics, and resource management from a vigilance outlook, aiming to provide insights and potential solutions for enhancing the effectiveness of forensic investigations.

One of the primary challenges lies in the sheer volume and complexity of financial transactions occurring globally, making it increasingly difficult for traditional investigative methods to keep pace. In this context, leveraging advanced data analytics techniques such as machine learning and artificial intelligence becomes indispensable. These technologies can sift through vast amounts of data to identify patterns, anomalies, and potential fraud indicators that might otherwise go unnoticed. However, integrating such technologies into existing investigative frameworks poses its own set of challenges, including data privacy concerns, resource constraints, and the need for specialized expertise.

Through the above analysed data, it can be brought out for discussion as how individuals and experts in the field tend to think positively about conducting routine investigations and audits in the financial sector for an efficient functioning of the economical machinery. Highlighted points from the interviews taken through qualitative data also recorded the same where the professionals and experts tend to believe data is one of the primary concern and use of technology is vastly helping but keeping in fact that manual intelligence or human intelligence can play a much bigger role in identifying such frauds, the experts with their varied opinions

regarding technology and manual labour insisted on putting to work whichever way possible with proper management of resources. The study has already implemented those sectors through the data collected. Through the quantitative data recorded, it can be seen how fraud and forensic investigations will help in the coming generations to implicate better healthy environment economically in a country with a track of transactions and finance.

Furthermore, the dynamic nature of financial markets and criminal tactics necessitates a proactive and adaptive approach to market intelligence. Traditional methods of gathering intelligence, while still valuable, may not suffice in an environment where threats are constantly evolving. Therefore, there is a growing need to explore innovative sources of intelligence, such as open-source data, social media analysis, and dark web monitoring, to stay ahead of emerging risks.

Effective resource management is another critical aspect of forensic fraud investigation, particularly in terms of allocating personnel, technology, and financial resources optimally. Limited resources coupled with competing priorities often pose significant challenges for investigative agencies and corporate security departments alike. Developing robust resource allocation models that prioritize high-risk areas while maximizing operational efficiency is essential for combating financial crime effectively.

Moreover, collaboration and information-sharing among stakeholders, including law enforcement agencies, regulatory bodies, financial institutions, and private sector organizations, are paramount. By fostering a culture of collaboration and sharing best practices, stakeholders can collectively enhance their capabilities in detecting, investigating, and prosecuting financial crimes.

In conclusion, the futuristic approach to forensic fraud investigation requires a multidimensional strategy that encompasses advanced data analytics, proactive market intelligence, efficient resource management, and collaborative partnerships. By addressing the challenges in these areas, we can bolster our defences against financial crimes and mitigate their impact on individuals, organizations, and society at large.

CONCLUSION AND SUGGESTIONS

In conclusion, a preventive and all-encompassing strategy that incorporates cutting-edge technology and techniques is necessary for the future strategy for forensics investigation in situations of asset misappropriation, theft, embezzlement and corruption. Alert supervision and imaginative approaches are necessary to meet the problems presented by handling resources, data analytics, and market insight. The basis for comprehending changing financial environments and identifying criminal activity is market knowledge. Yet another, order to properly spot abnormalities, continuous surveillance processes and powered by AI techniques are required due to the quick speed at which the economy is changing and the complexity of scams. Analysing enormous volumes of monetary information to find trends suggestive of fraud requires statistical analysis. Although sophisticated analytics applications have a lot of promise, protecting the integrity of data, confidentiality, and privacy is still crucial and calls for strong precautions to be taken.

Even though new analytics technologies have a lot of promise, protecting accuracy of data, confidentiality, and privacy is still crucial and calls for strict compliance with legal requirements. Effective resources administration is crucial for carrying out in-depth research

yet maximising effectiveness and lowering expenses. incredibly limited funds and a scarcity of qualified workers, joint efforts with outside specialists and ongoing education programmes can improve the capacity for investigation.

A future strategy for forensics investigation of fraud and the resolution of these issues needs partners to place a high priority on human resources, technology, and teamwork. Organisations may strengthen their guard towards fraudulent activity by utilising market surveillance systems, putting state-of-the-art analytical technologies into practice, and embracing flexible handling of resources practices. To put it simply, reducing the risks of theft, asset vandalism, and larceny requires a proactive approach involving market knowledge, analytics of data, and management of resources. Partners may successfully traverse the complexity of contemporary criminal investigations and protect their financial security by welcoming development and keeping an open mind.

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