

AI, Fraud and the Human Mind: An In-depth Analysis

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Abstract:

The purpose of this study is to showcase the possible relationship that may come to exist between fraud mitigation and artificial intelligence, highlighting the key components that are linked to the occurrence of fraudulent activities through the analysis of proven psychological theories, as well as the potential benefits that artificial intelligence might provide to institutions, according to some of the major companies within the fields of both tech and finance.

Moreover, this study will delve into the potential consequences that might plague corporate and governmental institutions and by extension societies as a whole, following the implementation of this new technology, outlining the potential impact on the concepts of both equality and equity, and by extension to human rights in general.

In hopes that the reader gains a comprehensive understanding of this rapidly changing technology that is reshaping our world, as well as the repercussions that it will bring to their professional lives.

Keywords:

Artificial Intelligence (AI), Blockchain Technology, Financial Reporting, Fraud Detection, Accounting Automation

Introduction: "The What & Why"

Since time immemorial, the act of fraud has always accompanied humanity throughout the course of its history, cunningly and meticulously adapting and evolving its ways to suit the needs of the individual and/or the era that it finds itself in.

Now, the act of fraud is in itself closely linked to the human psyche, often being the result of an innate yet hidden desire or intent to bend the laws and restrictions laid out by society to reward oneself with an additional yet unfair advantage that will result in one furthering his own prosperity and/or facilitate the advancement of a certain cause that he might believe in, all of course at the expense of his fellow human beings, be they cooperating in some sort of corporate entity and/or a nation's governmental institutions as a whole. Therefore, it is only adequate to recognize fraud as a serious crime, not simply against the entity who was subjected to this act, but also against our fellow compatriots as well.

Coincidentally, our current era introduced humanity to the marvels of artificial intelligence and the plethora of operations that it can carry out, ranging from simple data learning to high stakes military operations, this factor coupled with the widespread of modern hardware (such as laptops, smartphones and I-pads...) and high-tech software like social media (TikTok, YouTube and META...), who have acted as a primary source of data collectors, have helped train AI to build billions of personalized databases, to offer distinctive algorithms based on each user's interests, habits and thought patterns... Effectively achieving a state of pre-programed control of the human mind, due to the ability of said technology to predict the mind's probable future course of action with the help of past data and individualized algorithms.

It is then the combination of those three factors that will be the focus of this research, indeed, we will attempt to delve deeper into the link that ties the human psyche along with this radical new technology destined for control and domination, in an attempt to understand its potential uses in fighting against fraud without compromising the integrity of the freedom that is innate to a human being. To that end, this research will cover three points of studies:

The origins behind fraud within governmental and corporate organizations as well as the motives that might drive it to occur.

The practical applications of artificial intelligence in fighting against fraud using data analytics and individualized algorithms.

The biases that will arise from the eventual control that AI will bring into the world.

Literature Review: "The story so far "

A. The Fraud Triangle: An in-depth analysis of a criminal's mind

As with all things in this world, one can safely assume that every decision, every action, every consequence that takes shape within our lives will always be directly linked one way or another, to the complex amalgamation of thoughts, desires and rationale that make up our human mind. As such, understanding how exactly this mind functions and what pushes it to take part in those acts of fraud will be the key factor for us to develop an effective way to fight against this cancer of society. This need for a deeper understanding of the human psyche eventually led to the creation of the Fraud Triangle Hypothesis.

Developed by criminologist Donald R. Cressey in the year 1953, the fraud triangle sought to shed light on the reasons that might push a person to commit fraud. In his hypothesis, Mr.

Cressey outlined three distinct pillars that will come to make up the fraud triangle: Rationalization, Incentive and Opportunity.

His research outlines the causal relationship that exists between incentive and rationalization, where one will fabricate within his psyche a sort of righteous justification that will enable him to commit the most heinous of acts, since in his mind it has now become a right that is justified by a deep sense of necessity to secure a better outcome for himself. Furthermore, the opportunity factor that is presented in this theory represents the key player in the hypothesis, as it is the only variable that can be restricted and, in most cases, eliminated by external forces, in order for us to quench the act of fraud.

Later on in the year 2004, the fraud triangle theory was expanded upon by Wolfe and Hermanson who introduced the concept of “Capability” to the hypothesis, which highlights the necessary traits, skills and abilities that hold the key in facilitating the act of fraud, effectively creating what is now known as the Fraud Diamond Theory.

With this knowledge in hand, we will now transition into the next part of this thesis, where we will delve deeper into the ways that artificial intelligence can help us mitigate the occurrence of fraud within governmental and corporate institutions.

B. The capabilities of AI in fraud mitigation

In recent years, humanity witnessed the meteoric rise of artificial intelligence whose existence fundamentally reshaped the principles that once governed every industry within the global market, leading for better or worse to a forced evolution of every human being’s understanding and approach to reality. Accompanied by this rise in technical innovation, a radical ideological revolution sprang forth within the minds of certain groups, who saw within artificial intelligence the potential for global control and reform under the guise of justice, peace and prosperity. Indeed, through the use of multiple machine learning models, coupled with the implementation of biometrics (both behavioral and physiological), user profiling and financial tracking, it will become possible to prevent and perhaps eliminate the possibility of fraudulent activities within our society.

Though it is through the variable of “Capability” that one might question the veracity of this statement, as the implementation of this radical technology might only act as a deterrent for small time fraudsters, while turning a blind eye to more powerful and influential figures.

Methodology: "The how we did it "

For the purpose of this research, data concerning three distinct subjects was collected across various sources of information and reformulated by the writer to help the reader comprehend and get a better grasp of the plausible ties that may come to exist between artificial intelligence and fraud prevention in the near future.

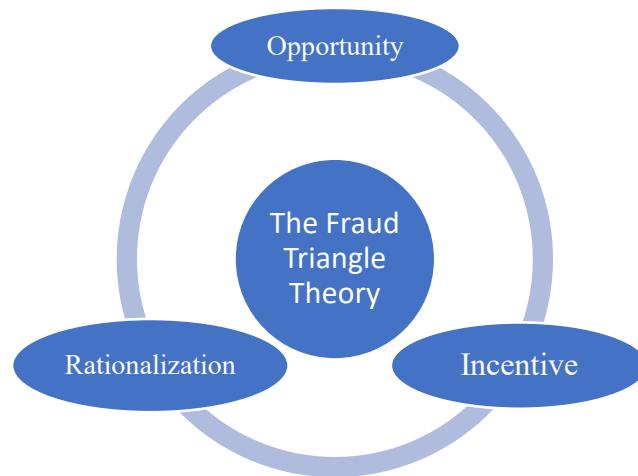
First and foremost, the fraud triangle theory that is used to highlight the link between the human mind and the act of fraud within this thesis is directly taken from the research of criminologist Donald R. Cressey, which was outlined in his book: *Other People’s Money: A Study in the Social Psychology of Embezzlement*, where he showcased the three necessary variables that lead a person to betray the trust that he is given, by committing acts of fraud, which they would justify using an internal thought process who will embellish their course of action, utilizing as its core motive an intense pressure that they might be experiencing within their lives, coupled with the availability of opportunities that would allow them to effectively complete their motives.

Moreover, through the use of the fraud diamond theory which was authored by David T. Wolfe and Dana R. Hermanson, and published in December 2004 in the CPA journal, the reader is introduced to the concept of Capability, which will reshape the existing fraud triangle theory by suggesting that a specific person of both intellect, skill and social standing will be needed for a large scale act of fraud to be carried out, which will later on help us get a better grasp on the potential biases that artificial intelligence will come to have.

Finally, through the research that was spearheaded by some of the leading companies within the financial and AI sectors (such as IBM, KPMG and Nvidia...), we were able to get a better understanding on the capabilities that artificial intelligence will come to display in its endeavors to help institutions mitigate acts of fraud.

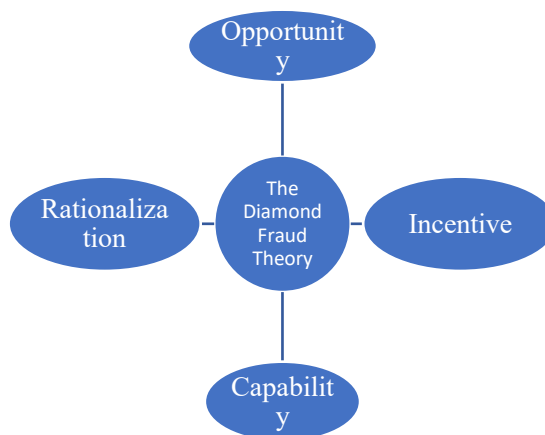
Results: "The facts "

Figure 1: The Fraud Triangle



Source: *Other People's Money: A Study in the Social Psychology of Embezzlement*, Donald R. Cressey

Figure 2: The Fraud Diamond



Source: The CPA Journal, David T. Wolfe and Dana R. Hermanson

“By analyzing large datasets, AI models can learn to recognize the difference between suspicious activities and legitimate transactions, and they can help identify possible fraud risks to prevent financial crime—even catching trends that a human agent might miss.

AI-powered machine learning models trained on historical data may use pattern recognition to automatically catch and block possible fraudulent transactions from being executed. They also may require human agents to complete extra authentication steps to verify a suspicious transaction. AI technology can also use predictive analysis to estimate what types of future transactions a person might make, and it can recognize if a new type of transaction or transactional behavior is unusual.”

Source: IBM

Discussion and conclusion: "The so what ? "

In light of this research, a new picture pertaining to the relationship between artificial intelligence and fraud mitigation begins to take shape within our minds.

Indeed, in reference to the statements that were made by some of the major companies who operate within the fields of both technology and finance, it is safe to assume that the dawn of a new era of digitalized control might soon be upon us, driven by the technological innovations in the field of artificial intelligence.

This era will be marked by a significant decrease in fraudulent activities as it will then be possible to track, uncover and possibly predict the occurrence of such events by utilizing AI powered learning models, who will be able to recognize and prevent any suspicious activities, due to it having been trained on previous historical data of similar fraudulent acts, as well as being granted access to the institution’s financial systems, with which it will be able to learn the regular transactions that occur on a daily basis, thereby developing an overall standard of acceptable courses of actions, effectively shutting off the opportunity variable that is necessary for any fraudulent activity to occur.

However, through the integration of the diamond theory model to our hypothesis, we began to observe the possible implications of the capability variable that is introduced to the original fraud triangle theory, in correlation to the system that will be implemented utilizing artificial intelligence, going as far as to suspect that the capability variable in itself might become the very reason that this smart system may never be able to bring about the end of institutional corruption, as it will inevitably become poisoned by the very people that once promoted it.

The logic behind this statement is grounded in the consideration of the inner components of the capability variable, who often include key constituents such as unique skills, knowledge and traits, but most importantly an adequate position of power within said institution or society as a whole.

As such, one might conclude that despite the apparent effectiveness that this system demonstrates, through it undoubtedly holding the power to promptly detect and permanently eliminate any type of institutional fraud from our society, the inevitable fostering of unequal treatment that will result from this system, will eventually come to cement the great chasm that has already separated the different spectrums of societal hierarchies.

In essence, one could say that this system might only further the gap that exists between the strong and the weak, as it may indeed hold the power to prevent a common class crook from executing

his fraudulent masterplan, it might however find itself struggling to pass on that same type of judgment on to someone more resourceful, not due to a lack of capability demonstrated by the system but more so a lack of equity that is often demonstrated by society.

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