AMERICAN Journal of Science on Integration and Human Development
Volume 02, Issue 05, 2024 ISSN (E): 2993-2750

Conceptualization of Victimization in the Era of Industrial Revolution 4.0: Cybercrime Victimization to AI Victimization

Ferlansius Pangalila
University of Indonesia

Adrianus E. Meliala
University of Indonesia

Abstract: The Industrial Revolution 4.0 which is marked using *AI* by individuals and society has brings ambivalence to everyday life, not only positive benefits but also the impact of victimization related to *AI* which continues to increase. However, the phenomenon of *AI* Victimization (VAI) has not been researched more deeply outside of *AI*- related *cybercrime.* This research aims to investigate the dynamics of interaction between users and *AI structures* in daily life practices, especially the implications of *VAI* in social, business, and political practices. Using a qualitative approach through interviews with victims and related experts, as well as analysis of various related articles. The analysis results reveal that *VAI* is a product of user relationship patterns and dynamic *AI structures* in daily life practices. The presence of endogenous and exogenous factors that influence include, among others, dependence on *AI technology*, vulnerability of data and personal characteristics, situational compulsions due to *AI-related policies*, and system obligations in various *AI models.* The implication of this research is the need for new, in-depth legal policies regarding the development, implementation, and use *of AI*, as well as cross-disciplinary collaboration to overcome the complexity and risks associated with the use of *AI. It is hoped* that ongoing research in the field of victimology related to *VAI* can provide an ethical basis for protecting and serving victims in the increasingly advanced digital era.
Keywords: AI Victimization, Cybercrime Victimization, Endogenous and Exogenous Factors, AI Horizons.

Introduction

Technological developments in this era occur very quickly and even our use is unimaginable compared to previous eras (Harari 2015, 2018). Starting from social interactions to other social changes (Benarje 1986; Seraj 2012; Tucker Jr 1998). Technological developments in the era of industrial revolution 4.0 have not only changed the way we live but have also changed ourselves (Schwab 2016). *AI* because of the implementation of the latest technology which is utilized massively in daily social interactions in the era of the industrial revolution 4.0 (Schwab 2016)by users, has shown an ambivalent impact (Elliott 2019), which not only has a positive impact but also has a negative impact due to the existence of victims.

The development of *AI* has provided many benefits to humanity, but it cannot be avoided that this is worrying and needs to be watched out for early because it has the potential to cause casualties. Even many experts and practitioners in this field are starting to talk about the seriousness and dangers *of AI,* as stated by Elon Musk (Founder of Tesla and SpaceX), that *AI* is much more dangerous than nuclear power (Thomas 2023). And this is not yet fully understood by society and our law enforcement.

In some criminological literature, *AI* is associated with themes related to *cybercrime* (Hayward and Maas 2021), where crimes are committed by utilizing the internet and related technologies in cyberspace (Bazoukis 2016; Jahankhani 2018). Therefore, cybercrime develops along with the development of computers and internet networks, as do crimes related to *AI technology* (Van Der Wagen and Pieters 2015). However, linking *AI* with *Cybercrime* seems like a hasty theoretical effort, because there are several important points that will be differentiating elements even though they are not separate.

VAI which is associated with *cybercrime ignores the complexity of victimization which is often not* directly related to (Elias 1986; Fattah 2002)*cybercrime* crimes, because victimization itself has an expanded meaning that is not only related to crime victims but also to victims of abuse of power and natural disasters. Therefore, a deeper understanding of *VAI is needed* outside of *cybercrime criminal practices.* This is important to complete our understanding of the impact of *AI* on individuals and society.

AI research has drawn attention to victimization in the context of *cybercrime* (Caldwell et al. 2020; Hallevy 2015; Huang 2017), and several scholars have discussed the pros and cons of *AI* (Atkinson 2016; Leppard 2023; Smeds et al. 2023; Thoutam 2015), there are still gaps and deficiencies in the conceptualization and in-depth understanding of *VAI* in the context of victimology. By highlighting these gaps and shortcomings, we hope this research makes a significant contribution in expanding the scope of knowledge about *VAI.* This research aims to construct *VAI* outside the context *of cybercrime,* by considering the factors that influence the occurrence of *VAI,* including algorithmic system obligations and situational compulsions due to various policies related to the implementation and use of *AI* in daily life practices. This holistic understanding can provide a strong foundation for the development of effective mitigation strategies and relevant policies.

Background

Goodman and Peters (Goodman 2015; Peters 2019)have shown that *AI* has strong potential to be utilized by criminals in committing various crimes, both traditional crimes and crimes related to computer technology or *cybercrime. AI*- related crimes or *AI* crimes are theoretically still relatively young and interdisciplinary in nature, (King et al. 2020)therefore the future of *AI crimes* still needs to be studied in the realm of social sciences, especially criminology and victimology (Blauth, Gstrein, and Zwitter 2022).

King et al ((King et al. 2020), identified a series of threats posed by *AI crime (AIC),* including drug trafficking, sexual crimes, theft, fraud, and forgery. This typology was further categorized by Hayward and Maas (Hayward and Maas 2021)with *Crimes with AI,* where *AI technology* is used by criminals as a tool in committing crimes; *Crimes on AI,* where crimes are committed to exploit or engineer *AI technology* due to the vulnerability of the system in question, and *Crimes by AI,* where *AI technology* becomes an intermediary in the commission of crimes.

When compared between *cybercrime* and crime related to *AI,* it can be seen at least in three main problems, ***first,*** potential threats that do not only target certain victims who have been targeted

first through computer systems or tools with internet networks such as those limited by *cybercrime,* but crimes with *AI,* targeting the entire community as potential victims. ***Second,*** the objects and tools of crime are not only computers and internet networks, while crimes are also crimes related *to AI* can work automatically without needing to be connected to an internet network, such as applications and *smart sensor technology tools* that can work independently (without humans and without an internet network). ***Third,*** *cybercrime* occurs in cyberspace while *AI*- related crimes occurs in the realm of *inter* -dimensional space and time, influences each other quickly and *vice versa* (back and forth and exponentially) and continues to develop as wide as *AI's horizons.*

In the development of victimization theory, especially in answering various social development problems, *cybercrime victimization* has been trying to answer these problems (Dodge 2020; Jang, Song, and Kim 2014; Van Ouytsel, Ponnet, and Walrave 2018; Yucedal 2010). However, when faced with the development of *AI technology*, *cybercrime* itself has limitations both in its own scientific discipline and in efforts to relate various problems of crime and victimization due to the *AI structure* which continues to develop and is widely used by society (Puente and Ríos Hernández 2022; Reep-van den Bergh and Junger 2018). There are many things related to the use of this *AI structure that can cause suffering and/or harm to society beyond the dimensions of space and time in the inter -dimensional* physical and virtual worlds and influence each other quickly and *vice versa* (back and forth and exponentially) as the horizon *A.I.*

From the various social phenomena above and which have even become everyday realities, the *AI structure* has been able to change the reality of life which is exponential in nature, where this reality can be in physical space and time (the physical world) and can also be in virtual space and time (*cyber)* or existing simultaneously in both space and time. The stretching of space and time between the physical world and cyberspace is possible only because of the interaction between agency and *AI structures.*

Difference	***Cybercrime* Victimization**	***VAI***
Focus	a series of criminal activities that use technology and computer networks to harm individuals, companies, or other entities.	focuses more on the negative impacts or losses experienced by *AI structures* or users because of interactions with *AI technology.*
Subject Victim	individuals, companies, or other entities that are targeted or affected by criminal activity in cyberspace	includes both the *AI structure* itself and individuals or groups of humans who experience negative impacts from interactions with *AI*
Space and time	occurs in cyber space and time, where cyber-attacks or cybercrimes occur through computer networks and digital infrastructure.	occurs in multiple dimensions of *AI space and time,* involving complex and dynamic interactions between *AI structures* and human actions.
Threat Type	related to cyber-attacks, data theft, *online fraud*, and other criminal activities carried out by criminals in cyberspace	can stem from unethical or unsafe policies and decisions or behavior from *AI structures*

Context	related to criminal activities in cyberspace that try to exploit vulnerabilities or weaknesses in computer systems and networks.	related to the implementation, use and ethical impact of *AI technology* in everyday life

Table 2. Differences in Cybercrime Victimization & *VAI*

In *cybercrime victimization,* victims always appear because of actions or actions as a process carried out by the perpetrator using computers and networks. Meanwhile in *VAI,* the *AI structure* with various *AI models* has a big role in influencing humans to become victims due to its implementation or use. Although the two have differences, *VAI and cybercrime* victimization can be related (having a surgical but not disjunctive element), especially if the cyberattack is aimed at manipulating or exploiting an *AI system.* Both reflect the complexity and challenges associated with technological advances. All types of crimes find a new spectrum in the *AI horizon,* all traditional crimes and *cybercrimes* that are brought into the *AI horizon* become **harder to detect, faster, wider,** and **more dangerous.**

Research methods

Data was collected by means of observation and exploration through interview. Researchers observed various information and news through *online media* based on categories of victimization related to *AI.* Then the researcher carried out exploration by searching for more in-depth information about the informant, meeting the informant to introduce himself, conveying his intentions and willingness to be interviewed and then conducting an interview, in this way the researcher interacted directly with the research subject (Denzin and Lincoln 2018).

Data is categorized based on research themes which are prepared first based on the results of observations of the phenomenon of *AI implementation and use* in daily life practices. In addition to interviews, additional data collection techniques involve the analysis of various scientific articles related to *AI,* social, legal, economic, and political. This secondary data is used to expand understanding of temporary *VAI,* as well as to enrich researchers' analysis of the broader implications of this phenomenon.

The analysis was carried out by considering that each experience represents a *VAI phenomenon* which is different and provides a clear and distinctive picture of the informant's experiences, has different arenas even though they are interrelated, namely the arenas of social practice, business practice and political or power practice. An in-depth understanding and reflection process was carried out in repeatedly analyzing each recording and interview notes, observation data and documents which is related. Then make notes as a form of interpretation in clarifying the phenomenon into context and conceptualizing *the VAI.*

Research result

VAI is a complex phenomenon involving continuous interactions between individuals and *AI structures* in daily life practices. *VAI* as stages of action (process) and causal relationships. The impact of *VAI* with victims mainly occurs through a dynamic process between the *AI structure* and human actions in the trajectory of space and time as a social practice that continues to repeat itself (recursion). This repetition of daily activities is the recursive nature (recurrence of social life) (Giddens 2005; Tucker Jr 1998). The same routine or repetition in daily life practices forms an order or regularity which is called a pattern. The connection between users and *AI* structures through various intermediate means (*AI models)* has produced new social systems such as social interaction via social media, *online loans, online games, marketplaces,* and various other social

systems that have the potential to occur *VAI.* Because of this new system, the victimization that occurs forms observable patterns.

This phenomenon is manifested in various social, business, and political practices, with several forms of victimization emerging, including dependence and addiction to *AI technology*, vulnerability and misuse of personal identity and character, system obligations and situational compulsion due to various policies related to the implementation and use of AI applications. These findings also highlight that *VAI* occurs because it is influenced by endogenous factors (originating from the victim) and exogenous factors (originating from outside the victim). *VAI* has an anomalous nature, in that victims are often unaware of the negative impact of their interactions with the *AI Structure* through various means between *AI models.* And it is exponential, where time and space occur quickly and in *inter-dimensional space* vice *versa* (back and forth).

Discussion

Many *AI* and social experts have seen and expressed various impacts of ambivalence regarding the implementation and use *of AI* in everyday life, including negative impacts. Some criminologists have seen the potential *of AI* as a criminogenic phenomenon because *AI technology* can be utilized in crimes and can even cause victims (Blauth et al. 2022; Dupont et al. 2018; Hayward and Maas 2021; King et al. 2020), but to date no one has specifically examines the link between (user) agency and *AI structures* that recur in everyday social practices as *VAIs.*

The occurrence of *VAI* in users (victims) is due to its connection with the *AI structure* in three main interrelated symptoms, namely, ***first,*** victimization is always seen at the level of action stages as a process, where this process relies on the interaction or relationship between the *AI structure* and human actions. which takes place in everyday life as a social practice, *VAI* can also be seen as a causal relationship, between cause and effect. ***Second,*** the main actors are *capitalists* consisting of global investors and owners of *AI corporations*, including corporations/companies as entities, creators and/or developers of *AI technology.* Where this technology is developed and then commercialized by presenting the possibilities of deliberation and at the same time the tendency for capitalization (economic domination), it tends to promise a creative economy and at the same time tends to create a new structure of capitalism as a business practice. This second symptom also relies on the practice of government power with the possibility of deregulation and liberalization (political domination), as well as the behavior of victims in their interactions with *AI structures* as a part in *VAI,* however victims in society cannot be considered as perpetrators who are responsible for the detrimental actions they commit. experience. ***Third,*** *the victimization process occurs in the* exponential, simultaneous and *inter-site* arena or dimension *of AI space and time,* between the physical/real world (natural) and the virtual world *(cyber),* therefore this arena is called the *AI horizon.* Arena this is an element of the *VAI constitution.*

***VAI* as Action Stages (Process)**

VAI is a process of creating victims related to *AI,* so in the meaning of the *AI structure* which is a schema, it includes processes within and related to automation, digitalization, instrumentalization and personalization. This means that the potential *for VAI* occurs at various stages of actions or processes that exist in the relationship between the *AI structure.* Where all these processes are different processes but are related to one another.

By understanding the concept of "Process" in *VAI,* we can see how the ongoing interactions between *AI structures* and human actions shape the impact and potential risk of victimization.

"Process" in *VAI* refers to a series of stages or steps that occur over time in the interaction between *AI Structure* and human Actions. It includes several interrelated and influencing elements, forming a complex interrelationship between *AI structure* and human action as in the image of the relationship pattern of *AI structure* and action below.

No.	Process	Description	Victimization
1	Design, Formation and Development *of AI*	The initial stages involve building and training an *AI model.* This model learns from training data to make predictions or decisions	The choice of training data or algorithm affects the potential for bias and then has an influence on the victim
2	*AI* Model Training	*AI* models learn from training data to understand patterns and trends. This training process forms the basis of the model's decisions	The quality of the training data and the training process can influence the extent to which the model can make accurate and fair decisions, or vice versa
3	Implementation and Use of *AI Models*	The trained model is implemented and used to make decisions or provide services	can create victims if the decision is inaccurate, unfair, or detrimental.
4	Human Interaction with *AI Models*	Humans interact with *AI models* using applications or services that use *AI*	These interactions can create situations where model decisions influence a user or group of users, either positively or negatively.
5	*Feedback and AI* Model Updates	The model may receive feedback from previous interactions and can be updated to improve performance or adapt to environmental changes.	If updates are not made thoughtfully or responsive to feedback, the updated model can still create negative or detrimental impacts
6	*AI* Model Performance Monitoring and Evaluation	A continuous monitoring and evaluation process is required to ensure that the *AI model* continues to perform as expected and does not result in losses	If monitoring is inadequate, *AI models* can produce detrimental or discriminatory decisions without being detected, creating undetected victims
7	Social Impact and Community Response	Decisions made by *AI models* have an impact at a societal level, and society's response can influence how the model is used or governed.	Society's acceptance or rejection of *AI models* can create victims in groups affected by the model's decisions.
8	Supervision and Policy Regulation	Oversight processes and policy settings are needed to ensure that the use of *AI technology* is in accordance with ethical values and social norms.	Inadequate policies or insufficient oversight can create situations where model decisions do not align with community needs or values, creating victimization.

Table 2. Processes related to *AI Structure* and Victimization

***VAI* is Based on Daily Life Practices**

The practice of daily life is a space and time dimension where human actions are constituted as social interactions that are continuously repeated and patterned. There are at least three main domains in *VAI* which are based on daily life practices, namely **social practices, business practices (economics)** and **political practices (government).**

Victimization is a social practice because victimization is part of the dynamics of social life, just as crime and victims are part of social life, as well as victimization which is always present and adorns social life itself along with technological developments (de Rafael and Fernández-Prados 2019). The impact of this ambivalence brings hope for the development of a more advanced society, but it also has the impact of victimization which needs to be a common concern (Delipetrev, Tsinaraki, and Kostic 2018).

1) Dependency on various *AI models*

Most *VAI victims* are a result of the relationship between the victim and the *AI structure* via *smartphone devices* as a tool for interaction such as *social media applications, online* shopping, and use of *online transportation.* Only occasionally and not often use a tablet or *PC/* laptop to watch *streaming videos* and play online *games. Smartphone* use has become a user's daily routine which has the potential for *VAI* such as dependence/addiction and vulnerability. Victims of excessive reliance on *AI technology* without adequate understanding of how it works or its potential threats can increase the risk of victimization, vulnerability to manipulation or abuse, falling victim to fraud or attacks by others who exploit this dependence.

Several informants stated that dependence is more than a demand for effectiveness and efficiency of work, if there are costs or time spent on it, it is still considered reasonable and not a victimization because of these demands. Because the aims and objectives are efficiency and effectiveness, the time and money spent on this for victims is a consequence of their association with the *AI structure* which is considered a reasonable sacrifice. This is different from users who spend time using various applications on *their smartphones,* choosing to sacrifice productive time and a lot of money for internet data credit.

According to supporting informants/experts, the various applications were created with an *AI structure* that allows users to experience dependency, because in these various applications there are algorithms that can technically work with a personalization structure, where with the *AI algorithm,* the content is in the form of short videos or news and Advertisements will be displayed according to the personal character of each user, causing users to feel interested in watching this content.

The hedonic lifestyle that originates from the individual also has an influence. The main informant was interested in and purchased various *AI* technology products and models because of the informant's lifestyle. Branded *smartphones have become popular AI* devices to support this lifestyle because *smartphones* are not only devices used for communication and are easy to carry everywhere, but can be used for various other purposes according to applications that can be downloaded and used easily in everyday life.

Interviews with several informants, *online games* cause addiction for some victims because the existing *AI structure is made very interesting and challenging, the algorithm in this online game* can manipulate psychologically so that players become addicted. The result is not only a loss of productive time and money experienced by the victim but also an impact on physical and psychological health such as obesity, eye pain and stress (Fitrajaya, Utomo, and Handayani 2022).

2) Situational compulsion by the Government and/or corporations

Situational compulsion is a form of *VAI* experienced by victims when the victim must act related to the *AI structure* because of the right situation, where political authorities, in this case the government, issue policies and/or regulations regarding the use of *AI technology* in daily life practices. The most common examples are the use of *biometrics* in population registration and/or policies regarding the use of various *AI models* in government services. This kind of policy is *a form of* victimization.

The situational compulsion to become *a VAI* is not only due to its direct connection to *AI technology* but also to the impacts experienced by several victims, such as loss of material (money) used to purchase devices and for internet access data; fear of negative impacts or bad risks if you do not follow or obey government and/or corporate policies, in addition to fear of the Covid-19 pandemic at a time when no vaccine has been found and it is uncertain when it will end. Material losses and/or psychological fear experienced by victims related to this situational compulsion can be categorized as factors causing the occurrence of *VAI.*

3) System obligations by the corporation and/or system

In the current use of *smartphones, VAI* in the form of system obligations (systematic victimization) is often encountered in daily social practice. How users are faced with various situations that require users to take various actions as an agency when dealing with the *AI structure* associated with the *smartphone.* Since initial use, it requires users to enter various requested data, including personal data in the form of *e-mail data,* activating certain provider numbers by entering their KTP number and Family Card Number. This is a system obligation imposed by corporations to obtain user personal data which cannot be provided by the users who will use it.

In downloading and implementing various applications and services, users are given free choice (liberalization) but are required to allow these various applications to access contacts and even personal data contained in the *smartphone media* such as location, telephone contacts, image, and video media and so on. Users can run various applications and services. This pattern of agency relationships and *AI* structure provides the potential for vulnerabilities to data security and user human rights which makes it possible for *VAI to occur* (Schneier 2015).

The various feedback provided by these applications and services is limited to various signification structures in the form of symbols which communicatively often do not match the meaning experienced by the user. Feedback that is expected to improve applications and related services not only drains users' time, data, and credit (money), but is also vulnerable to loss and misuse of privacy data which often occurs due to limited memory and *hard disk space* available on the *smartphone hardware.*

4) Vulnerabilities by other systems and/or Users

This victimization is related to systematic victimization, where the victim experiences victimization due to system obligations deliberately created by the corporation in the form of having to enter personal data, permission to read user data on the device where the application is installed, or the use of certain symbols in the system. service applications and sites.

This kind of requirement creates discomfort for users, feeling burdened due to the involvement or access that corporations or *AI systems require* of users. Additionally, the personal identities and characteristics required by the system in various *AI models* are vulnerable to unethical use by other users. This victimization is a phenomenon that occurs in the relationship between *AI structures* and users in daily life practices, from the time the user purchases and uses an *AI-*

based device such as *a smartphone for the first time* and downloads various applications until the user makes improvements *(upgrading* and *updating)* to the device and its applications.

5) Criminal behavior by other Users

Apart from situational compulsion, excessive routine activity on various *AI models* by users has resulted in the impact of dependence and even addiction and vulnerabilities that come from the victim's routine activities through various *AI models.* This vulnerability results in victims being targets of criminal behavior by perpetrators or users of various *AI models.* related to the victim.

The interesting thing about the implementation and use of *AI models* such as social media in social interaction is that it allows *VAI patterns to occur* between perpetrators and victims in equal positions in criminal behavior. A person can be a perpetrator and/or a victim at the same time in their social interactions. This is possible if the presence of these two parties in one space or dimension, both in the physical world and the digital world, get to know each other and choose a way to attack each other through various *AI models* as a form of equality and/or justice that both parties want to achieve.

Criminal behavior becomes a different problem if it has become a criminal practice, where the perpetrator deliberately commits a criminal act by utilizing *AI technology* and/or attacking various AI-based technologies, such as in cases of illegal *online loans, online* gambling and/or pornography. as well as several cases of other criminal practices, both ethically and legally, are not justified and prohibited by various legal regulations and/or the culture of society in general. However, several criminal practices in this era are related to *AI,* whether the perpetrators act through various *AI technologies,* or act with the help of *AI technology,* or even attack various private and public facilities based on *AI technology.*

Endogenous Factors and Exogenous Factors

The relationship between human actions and the structure of *AI* can also be interpreted as factors that influence the occurrence of *VAI,* these factors are endogenous factors and exogenous factors as well as the possibility of criminal behavior related to the use of *AI.* Endogenous factors are factors that originate from the individual victim, while exogenous factors are factors that originate from outside the victim. These two factors are interconnected and dynamic which influence the existence of victims related to the use of *AI* in everyday life.

Endogenous factors concern user behavior, self-awareness, literacy level, and personal security practices in making decisions to use applications and services as well as the level of user confidence in interacting with several existing *AI models.* These endogenous factors reflect the role of individuals in creating situations in which *VAI* can occur.

Victims' behavior in interacting with *AI technology* is often careless, for example in sharing personal information on various social media *platforms.* Victims often do not notice that sharing personal information on social media opens up opportunities for victimization, where the data and information is no longer private but has become public consumption, thus opening up opportunities for the data and information to be taken and used for other purposes without their knowledge or permission. the victim as the owner of the data and personal information.

An interesting thing that was found regarding the behavior of users who ultimately became victims was a lack of understanding of the legal and ethical consequences of utilizing various *AI models.* Several informants stated that they often uploaded *things* on social media only intended to joke, such as several videos that the victims considered funny. but it turns out this is unethical.

Another exogenous factor is unlimited internet access both in terms of infrastructure and speed; innovation of various *AI models* implemented and used easy to operate (technical conditions); Various *AI models* with increasingly affordable market prices (economic conditions); Society in general has used various *AI models* in the practice of their social life, either in social interactions or for their personal interests (socio-cultural conditions).

The practice of economic power (economic domination of goods/things) and the practice of government power (political domination of people/society) are important highlights in this research. Researchers conceptualize *VAI* as related to domination structures (power structures) in business practices and political practices by examining the causal relationship *of VAI* in these two practice arenas. *VAI* victims in these two arenas are caused by the presence of perpetrators who have this power.

allocative actions of parties who have economic dominance (investors, mediators and *cybertariat).* Reflected in efforts to control goods or things with various *AI structures* that tend to deliberalize and capitalize in the pursuit of profit. This economic domination is a power structure that influences individuals to behave according to their wishes, where the *AI structure* applied in the *AI model* because of corporate products or services in various aspects of social life allows agencies or users to behave or act based on existing resources and at the same time also limits agency in behaving or acting in social life. This *AI* structure is reproduced from various innovations, policies, and regulations in business practices and/or political practices.

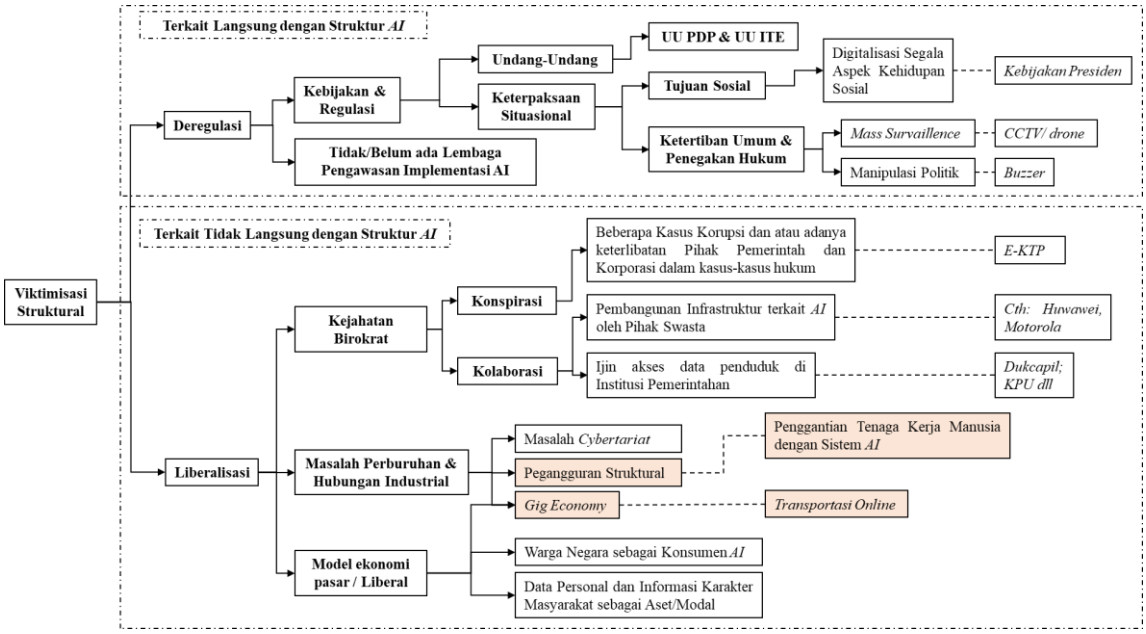
In political practice, domination of people or society which is reflected in the practice of political power by the authorities or government has the character of authoritative control or supervision. This domination is reflected in efforts to control people or communities through various policies and/or regulations that affect the lives of individuals or communities in a country's territory. This authoritative nature is control/supervision of social practices and business practices, but in relation to the *AI structure*, this authoritative control tends to be liberalization and deregulation. This is a paradoxical form compared to business practices that tend to deliberalization and capitalization.

Structural Victimization and Systematic/Symbolic Victimization

The researcher's philosophical reflection on the phenomenon of implementing and utilizing *AI* in daily life practices which gives rise to ambivalence or raises pros and cons from experts and even *AI users* is why do users continue to associate themselves with various *AI models* even though they know that *AI* has the potential for victimization? Does *VAI* occur because of structural constraints? Some of the assumptions that can be drawn to date are that although endogenous factors can be the main driver of victimization related to the use of *AI technology*, there are structural obstacles that give rise to situational compulsions so that users' free and rational choices in using various *AI technologies* become limited and even forced.

Situational coercion related to the government's role in the occurrence of *VAI* as mentioned above, there are problems of structural victimization that need to be considered. Structural victimization is a cause that has the potential to cause victims, namely the existence of various policies and regulations with the aim of collaboration, conspiracy and/or deregulation in the practice of government or political power. *VAI* in the practice of power (politics) is an action carried out by the government in controlling people as its citizens.

Structural victimization related to *AI* is a practice of political and governmental power related to the implementation and use *of AI* both by companies developing and implementing various *AI models* as well as by individuals and the wider community in interacting with these various *AI*



models.

Figure 1. Conceptions of *AI Structural Victimization* in Political Practice

On the other hand, developments in *AI technology* have also been developed and utilized by the state through its institutions (Buhmann & Fieseler, 2023; Coglianese & Lehr, 2017), especially law enforcers in carrying out various law enforcement efforts (Kaufmann et al. 2019). Strict supervision and control ranging from administration to persuasive and even preventive actions by law enforcement in dealing with crime have used *AI technology* (Dilek, Cakır, and Aydın 2015; Lagioia and Sartor 2020), such as controlling population administration with facial and fingerprint recognition technology *(recognition technology)* to spying on population activities through cyberspace activities, internet networks and cameras/CCTV in public spaces and even private spaces such as *CCTV Smart* which regulates traffic to track down suspects/perpetrators of crimes.

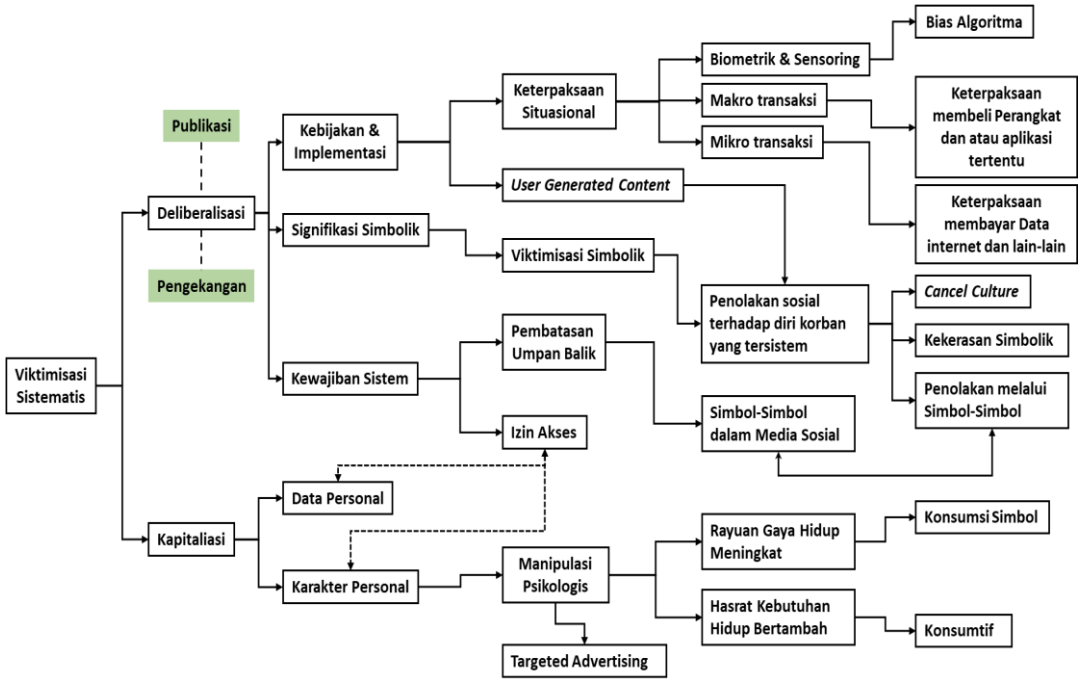


Figure 2. Conceptualization of Systematic Victimization *of AI* in Business Practices

Systematic victimization is victimization that arises due to system obligations created by corporations through algorithms in various *AI models,* such as the obligation to enter the user's personal data before the device, whether an application or service is used, allowing the system to read data on the user's device, providing symbols or certain signs in the application, such as the "*" (star) or "#" hashtag (hashtag) and so on (symbolic victimization).

Systematic victimization is also victimization caused by algorithms in various *AI models* which have the potential to cause victims due to the *AI structure* in collecting personal identity and character and using it for various corporate interests (Personal Data Vulnerability and Security); Corporate decisions based on discriminatory *AI systems (algorithmic discrimination);* The existence of corporate policies in replacing human labor with various *AI systems* (Structural Unemployment); and/or Algorithms that have a manipulative impact (information manipulation, biological manipulation and psychological manipulation).

This systematic victimization creates discomfort for some informants and potentially inequality that can be experienced by users as a result of policies or obligations implemented by corporations through algorithms in the *AI system.* Some informants felt overwhelmed and uncomfortable with the level of involvement or access required by corporations or *AI systems.* In addition, vulnerability to privacy and user data security issues is a problem related to this systematic victimization.

The parties involved in business practices are **Capitalists** consisting of investors or financiers; **Mediator** who is an intermediary party because of his ownership of the corporation and/or because he is the creator/developer of the *AI system;* and **Cybertariat** who are usually workers at *AI corporations* either as managers or employees. These three components are interrelated in business practice, but in *VAI,* the Mediator and the Capitalist have the greatest potential to become the perpetrators of victimization first and then the Investors.

Anomalous and Exponential Properties of VAI

VAI has anomalous properties. This condition is unusual, different from the expected pattern or outside the general pattern, because the situation that accompanies this victimization has characteristics or signs that often cannot be considered a malicious event (it is prohibited by legal norms).), or is not normal so it is called an anomaly. However, this does not mean that phenomena like this cannot be researched. Researchers saw several anomalous phenomena related to the implementation and use of various *AI models.*

The pros and cons in the implementation and use *of AI* in everyday life provide various responses, this provides a definite indication that *AI* has an anomalous risk of ambivalence. In the implementation and use of various *AI products* there are various anomalies: *first,* **Action anomalies,** namely some actions are situational compulsions and/or systematic obligations, where the victim, despite experiencing suffering or loss, still chooses to relate to the *AI structure* through various *AI models; second,* **anomalous results,** namely the result of the *AI structure relationship* with ambivalent agency actions which not only have a positive impact on individuals but also produce various systems that have the potential for victimization; *third,* **victim anomaly,** namely the result of anomalous actions and results, victims generally deny being victims and/or with little awareness consider it a normal thing to happen because they feel they have contributed to the occurrence of *VAI.*

the VAI anomaly is also exponential, **the speed of time is relatively short, occurs in between spaces** with **various types of victimization occur simultaneously,** experienced by the same victim. *VAI* is not only experienced by victims when the victim is connected to an *AI structure* or while using various *AI models,* both applications and AI-based services, the several cases described above show that *VAI* occurs exponentially.

That a victim can experience repeated victimization which is simultaneous and not only in the virtual world but also in the real world in a back-and-forth manner and often occurs at the same time in both dimensions in a relatively short time. *VAI* occurs repeatedly and *inter-dimensionally,* occurring rapidly and *vice versa* (back and forth and exponentially) through the dimensions of the *AI horizon.* That victims often experience not only one form and event of victimization, but are victims repeatedly and sometimes in sequence or simultaneously with various other forms of victimization across time and space dimensions.

AI Horizon as *VAI Time and Space Dimension*

The link between *AI structure* and agency through daily life practices not only has an impact on innovation and implementation of various *AI models* but also brings together various elements that previously only existed in the virtual arena or only existed in the physical arena. There is a change in the way people experience physical and virtual environments (Flavián, Ibáñez-Sánchez, and Orús 2019). This change occurs because it is made possible by various combinations of technology with the physical body in which there are biological and psychological dimensions that can be manipulated in such a way through various *AI models* which are increasingly popular and can be found easily in various aspects of life. Increasingly, humans will not only coexist with various *AI models* but live within this *AI horizon.*

With the *AI structure* which is rules and resources, which are in the technology of automation, digitalization, instrumentalization and personalization, it has changed the practical arena of daily life of society and individuals. Space and time have been greatly changed by *AI.* As it is: “physic reality *(reality)”* where there are no virtual elements at all and only cover the real world; "Extended reality *(augmented reality)* " where there are elements of the real world with elements

of the virtual world; “expanded virtual world *(augmented virtuality)*, where the virtual world is combined with real world objects; and "virtual world *(virtual reality)*, where only the virtual world without any real world elements or objects (Ambroży and Serafin 2016; Moczuk and Ploszajczak 2020).

Social practices, business practices and political practices do not only occur in the physical world or the virtual world but can occur back and forth *(vice versa)* and even mixed *(exponential).* Various aspects of social life shape these realities in aspects of health (Freeman et al. 2017), education (Merchant et al. 2014), entertainment (Lin, Wu, and Tao 2018)and various other aspects of life (Bonetti, Warnaby, and Quinn 2018).

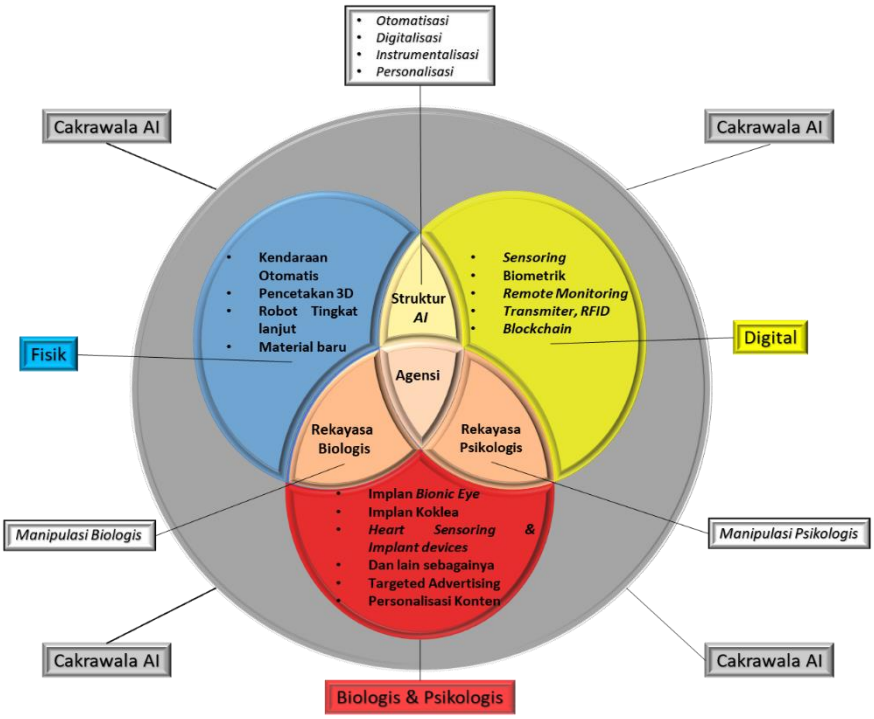
Various *AI models* are not only attached to individual bodies such as smart watches, *smartphones* and so on, but can also be implanted into individual bodies through *implant technology* and work like new biological bodies that are connected to existing neural networks and biological bodies such as *the Bionic Eye Implant.* (Merabet 2011; Ryan Jackson 2023), cochlear implants (J Soentpiet, L I Palandeng, and P Pelealu 2022), *heart censoring and implant devices* (Bachtiger et al. 2020; Olsen et al. 2022)and various other *AI -based implant technologies* that are now possible in this era to be implanted into the body.

The concept of space not only refers to distance and place but also to how space is produced and used by society. Space includes everything from the physical environment in which individuals reside to the technological infrastructure used by people in everyday life. Space will provide the context and background for the actions of social interactions. The space referred to in this research is categorized into 3 spaces, namely physical space, digital space (cyber space) and biological and psychological space.

AI horizon refers to the limits or range of *AI's ability* to understand, interpret, and respond to its surrounding environment. The horizon *of AI* covers various aspects such as natural language processing capabilities, image understanding, decision making, and machine learning. In general, the broader *an AI's horizons,* the better *its ability* at solving complex tasks and the more useful it is in various fields. However, it is important to remember that currently, although progress in *AI technology* has been very rapid, *AI's horizons* are still limited and it still requires further development to achieve the same capabilities as humans in understanding and responding to the surrounding environment.

AI horizon refers to the limits of an *AI system's* or *AI structure's capabilities* in performing a particular task. This limit is related to the level of intelligence or understanding that the system has of the world around it. For example, although *AI* can perform certain tasks such as image recognition or voice recognition very well, they do not yet could perform creative thinking or solve previously undiscovered problems as well as humans. Therefore, this is the limit of the existing horizon *of AI today.* However, this does not mean that these limits are fixed, but will continue to stretch wider due to the various innovations that are possible and continue to be developed through *AI-based digital power.*

AI horizons are also related to limitations in the types of tasks that an *AI structure can perform.* Some *AI structures* are designed to solve very specific tasks, such as product recommendation systems on *e-commerce sites,* while others can perform more complex tasks such as autonomous vehicles. Apart from that, in the future the development of *AGI (artificial general intelligence) technology,* which is a development of *AI* that involves the ability to serve various purposes, and carry out various tasks in different contexts and environments, can handle problems and situations that are very different from what was anticipated. by its creator.



***AI* Horizon Trajectory in the Era of Industrial Revolution 4.0**

Limitations and Future Research

VAI is something new in victimology so researchers face several challenges and limitations, especially in primary and secondary data sources such as scientific studies related to *VAI* which are still very lacking. Limitations in the number of informants/sources who can be used as initial data sources in this research as well as limitations in previous research literature that can be used as data sources are challenges for researchers in determining data collection and data analysis strategies as well as finding elements of novelty *in* this research.

This research is still limited to the contextualization and conceptualization of *VAI* with several empirical cases reached by researchers with various existing limitations, *so* further research can look more broadly and deeper, especially linking *AI* with various other scientific disciplines even though the victimology approach is an analytical paradigm, p. Apart from enriching the body of victimology, aspects of the interests of victims will be given great attention. Further research can also specifically examine victims in various empirical case variants related to the relationship between victims and *AI structures*, which in the future will be more numerous in terms of numbers, more threatening in terms of the potential danger of victimization and will be more detrimental to humanity.

At the policy level, various legal aspects such as legal principles and ethical studies need to be researched further, because *AI technology* is exactly like the law itself which in the context of *the AI structure* can be guidelines, rules and even the algorithm itself which has great potential in creating social reality. and social engineering. This further research is very necessary to help the authorities in making legal policies related to *AI* in the future. The legal debate regarding criminal liability by *AI* is still ongoing in the academic world to this day, of course this opens opportunities for victimologists to offer various ethical standards in the legal conception *of AI*, especially in victim services and mitigation which already needs to be done, because even though policies and regulations are not yet adequate Currently, in law enforcement and the courts themselves, *AI technology* is already widely used.

Conclusions and Recommendations

VAI goes beyond cybercrime victimization because the dimensions of victimization are not only individual and communal but also have a mass impact. Apart from that, *VAI* is characterized by exponential victimization, which has an exponential speed both in terms of the number of *AI models* that are in various aspects of social life and in terms of impacts or risks that are increasing in terms of potential danger, on a wider and more massive scale.

VAI can be seen from the perspective of processes or stages of action and causal relationships. The impact of *VAI* with victims mainly occurs through a dynamic process between the *AI structure* and human actions in the trajectory of space and time as a social practice that continues to repeat (recurse) and continues to develop. In *VAI* there are three important elements, namely stages of action or process, victims and perpetrators, space and time as the horizon *of AI.* This relationship pattern has an impact on *VAI* because human actions and *AI structures* are a duality and dynamic relationship, where both influence each other in producing and reproducing various social systems that have an ambivalent impact through the means between various *AI models.* This victimization is influenced by endogenous and exogenous factors.

Space and time experience relativity and the *AI structure* allows everything in the world of reality to be changed by means of digitalization and instrumentalization, so everything is within the *AI horizon.* As space and time move back and forth and quickly *(vice versa), VAI* occurs. Because various *AI spaces and times* are constitutive elements (providing elements), *VAI* occurs due to the existence of *AI spaces and times,* such as space and time as new social systems in the form of *financial technology, marketplaces, online transportation), entertainment media (social media)* and others that have an impact on ambivalence, including victimization.

The risk of victimization in the future is more dangerous, so to overcome this problem, several things are recommended, as follows:

First, for the government as a structure of political domination, where power over people plays a very important role in controlling *VAI.* With the role of the government, there is a need for legal regulations related to innovation and the implementation *of AI* in daily life practices, legal policies related to *AI* are very important to protect society from potential negative impacts, especially issues of discrimination, privacy violations, job loss and inequality of access. It is also necessary to balance innovation and protection of society and individuals from *VAI risks.*

Second, for corporations as a structure of economic dominance, control over goods/things in the context of effectiveness and efficiency of production and services by prioritizing profitability and capitalization must prioritize transparency in managing user data, especially their customers. In addition, the development and use of *AI applications* must be carried out with strong ethical principles, including fairness, honesty, and respect for user/customer privacy. Companies must proactively consider the ethical impact of the technology they develop and strive to avoid misuse of personal data and other negative impacts including *VAI.*

.

References

1. Ambroży, Natalia, and Jakub Serafin. 2016. 'The Actual Use of the Virtual: A Meta-Analysis of Research on Virtual Reality'. *Kultura Bezpieczeństwa Nauka-Praktyka-Refleksje Nr* 22:46–60.
2. Atkinson, Robert D, Ph. D. 2016. '"It's Going to Kill Us!" And Other Myths about the Future of Artificial Intelligence'. *NCSSS Journal.*
3. Bachtiger, Patrik, Carla M. Plymen, Punam A. Pabari, James P. Howard, Zachary I. Whinnett, Felicia Opoku, Stephen Janering, Aldo A. Faisal, Darrel P. Francis, and Nicholas

S. Peters. 2020. 'Artificial Intelligence, Data Sensors and Interconnectivity: Future Opportunities for Heart Failure'. *Cardiac Failure Review* 6. doi: 10.15420/cfr.2019.14.
4. Bazoukis, Konstantinos. 2016. 'Cybercrime: The "Dark" Side of the Internet'. *Researchgate.*
5. Benje, Sanjoy. 1986. 'Reproduction of Social Structures; an Artificial Intelligence Model'. *Journal of Conflict Resolution* 30(2):221–52.
6. Blauth, Tais Fernanda, Oskar Josef Gstrein, and Andrej Zwitter. 2022. 'Artificial Intelligence Crime: An Overview of Malicious Use and Abuse of AI'. *IEEE Access* 10:77110–22. doi: 10.1109/ACCESS.2022.3191790.
7. Bonetti, Francesca, Gary Warnaby, and Lee Quinn. 2018. 'Augmented Reality and Virtual Reality in Physical and Online Retailing: A Review, Synthesis and Research Agenda'. Pp. 119–32 in *Augmented Reality and Virtual Reality.* Springer, Cham.
8. Caldwell, M., JTA Andrews, T. Tanay, and L.D. Griffin. 2020. 'AI-Enabled Future Crime'. *Crime Science* 9(1). doi: 10.1186/s40163-020-00123-8.
9. Delipetrev, Blagoj, Chrisa Tsinaraki, and Uros Kostic. 2018. *AI Watch: Historical Evolution of Artificial Intelligence.* doi: 10.2760/801580.
10. Denzin, Norman K., and Yvonna S. Lincoln. 2018. *The SAGE Handbook of Qualitative Research.* 5th ed. California: SAGE Publications, Inc.
11. Dilek, Selma, Hüseyin Cakır, and Mustafa Aydın. 2015. 'Applications of Artificial Intelligence Techniques to Combating Cyber Crimes: A Review'. *International Journal of Artificial Intelligence & Applications* 6(1):21–39. doi: 10.5121/ijaia.2015.6102.
12. Dodge, Mary. 2020. 'A Black Box Warning: The Marginalization of White-Collar Crime Victimization'. *Journal of White Collar and Corporate Crime* 1(1):24–33. doi: 10.1177/2631309x19888501.
13. Elias, Robert. 1986. *The Politics of Victimization Victims, Victimology, and Human Rights.* New York: Oxford University Press.
14. Elliott, Anthony. 2019. *The Culture of AI; Everyday Life and the Digital Revolution.* New York: Routledge.
15. Fattah, Ezzat A. 2002. 'Victimology: Past, Present and Future'. *Criminologie* 33(1):17–46. doi: 10.7202/004720ar.
16. Fitrajaya, Rheananda Rhere, Islam Pandu Utomo, and Lina Handayani. 2022. 'Health Impacts of Online Game Addiction on Adolescents'. *Journal of Cakrawala Promkes* 4(2):102–13. doi: 10.12928/promkes.v4i2.5651.
17. Flavián, Carlos, Sergio Ibáñez-Sánchez, and Carlos Orús. 2019. 'The Impact of Virtual, Augmented and Mixed Reality Technologies on the Customer Experience'. *Journal of Business Research* 100:547–60. doi: 10.1016/j.jbusres.2018.10.050.
18. Freeman, D., S. Reeve, A. Robinson, A. Ehlers, D. Clark, B. Spanlang, and M. Slater. 2017. 'Virtual Reality in the Assessment, Understanding, and Treatment of Mental Health Disorders'. *Psychological Medicine* 47(14):2393–2400.
19. Giddens, Anthony. 2005. 'The Constitution of Society: Outline of the Theory of Structuration: Elements of the Theory of Structuration'. Pp. 119–40 in *Practicing History; New directions in historical writing after the linguistic turn,* edited by GM Spiegel. New York: Routledge.
20. Goodman, Marc. 2015. *Future Crimes : Everything Is Connected, Everyone Is Vulnerable and What We Can Do about It.*
21. Hallevy, Gabriel. 2015. *Liability for Crimes Involving Artificial Intelligence Systems.* New York: Springer.

22. Harari, Yuval N. 2015. *Homo Deus: A Brief History of Tomorrow.* Bitan Dvir: Signal Books.
23. Harari, Yuval Noah. 2018. *21 Lessons for the 21st Century.* London: Jonathan Cape.
24. Hayward, Keith J., and Matthijs M. Maas. 2021. 'Artificial Intelligence and Crime: A Primer for Criminologists'. *Crime, Media, Culture* 17(2):209–33. doi: 10.1177/1741659020917434.
25. Huang, Sochenda. 2017. 'Cyber Criminals' Exploitation of Artificial Intelligence'. *IRAHSS (International Risk Assessment and Horizon Scanning Symposium).*
26. J Soentpiet, Cathie M., Ora E. LI Palandeng, and Olivia C. P Pelealu. 2022. 'Effectiveness of Cochlear Implants in Children'. *Biomedical Journal: JBM* 14(1):67–75. doi: 10.35790/jbm.v14i1.37598.
27. Jahankhani, Hamid. 2018. *Cyber Criminology.* Springer.
28. Jang, Hyunseok, Juyoung Song, and Ramhee Kim. 2014. 'Does Offline Bully-Victimization Influence Cyberbullying Behavior among Youths? Application of General Strain Theory'. *Computers in Human Behavior* 31(1):85–93. doi: 10.1016/j.chb.2013.10.007.
29. King, Thomas C., Nikita Aggarwal, Mariarosaria Taddeo, and Luciano Floridi. 2020. 'Artificial Intelligence Crime: An Interdisciplinary Analysis of Foreseeable Threats and Solutions'. *Science and Engineering Ethics* 26(1):89–120. doi: 10.1007/s11948-018-00081-0.
30. Lagioia, Francesca, and Giovanni Sartor. 2020. 'AI Systems Under Criminal Law: A Legal Analysis and a Regulatory Perspective'. *Philosophy and Technology* 33(3):433–65. doi: 10.1007/s13347-019-00362-x.
31. Leppard, Natalie. 2023. 'Is Artificial Intelligence Good for Society_ Top 3 Pros and Cons'. *Encyclopaedia Britannica,* Inc.
32. Lin, Jih Hsuan Tammy, Dai Yun Wu, and Chen Chao Tao. 2018. 'So Scary, yet so Fun: The Role of Self-Efficacy in Enjoyment of a Virtual Reality Horror Game'. *New Media and Society* 20(9):3223–42. doi: 10.1177/1461444817744850.
33. Merabet, Lotfi B. 2011. 'Building the Bionic Eye: An Emerging Reality and Opportunity'. Pp. 3–15 in *Progress in Brain Research.* Vol. 192. Elsevier B.V
34. Merchant, Zahira, Ernest T. Goetz, Lauren Cifuentes, Wendy Keeney-Kennicutt, and Trina J. Davis. 2014. 'Effectiveness of Virtual Reality-Based Instruction on Students' Learning Outcomes in K-12 and Higher Education: A Meta-Analysis'. *Computers and Education* 70:29–40. doi: 10.1016/j.compedu.2013.07.033.
35. Moczuk, Eugeniusz, and Bogusław Ploszajczak. 2020. 'Artificial Intelligence-Benefits and Threats for Society'. *Humanities and Social Sciences* 133–39.
36. Olsen, Thomas, Ole Dan Jørgensen, Jens Cosedis Nielsen, Anna Margrethe Thøgersen, Berit Thornvig Philbert, Maria Hee Jung Park Frausing, Niels Christian Foldager Sandgaard, and Jens Brock Johansen. 2022. 'Risk Factors for Cardiac Implantable Electronic Device Infections: A Nationwide Danish Study'. *European Heart Journal* 43(47):4946–56. doi: 10.1093/eurheartj/ehac576.
37. Van Ouytsel, Joris, Koen Ponnet, and Michel Walrave. 2018. 'Cyber Dating Abuse Victimization Among Secondary School Students From a Lifestyle-Routine Activities Theory Perspective'. *Journal of Interpersonal Violence* 33(17):2767–76. doi: 10.1177/0886260516629390.
38. Peters, Kevin M. 2019. '21st Century Crime: How Malicious Artificial Intelligence Will Impact Homeland Security'. Naval Postgraduate School, California.

39. Puente, Solbey Morillo, and Iván Neftalí Ríos Hernández. 2022. 'Cyber Victimization within the Routine Activity Theory Framework in the Digital Age'. *Revista de Psicologia (Peru)* 40(1):265–91. doi: 10.18800/psico.202201.009.
40. de Rafael, Gonzalo Herranz, and Juan Sebastián Fernández-Prados. 2019. 'Victimization, Social Structure and Psychosocial Variables: The Case of Spain in 1999 and 2016'. *Social Sciences* 8(3). doi: 10.3390/socsci8030102.
41. Reep-van den Bergh, Carin MM, and Marianne Junger. 2018. 'Victims of Cybercrime in Europe: A Review of Victim Surveys'. *Crime Science* 7(1). doi: 10.1186/s40163-018-0079-3.
42. Ryan Jackson. 2023. 'The Bionic Eye That Could Restore Vision (and Put Humans in the Matrix)'. *Https://Www.Cnet.Com.* Retrieved (https://www.cnet.com/science/biology/features/the-bionic-eye-that-could-restore-vision-and-put-humans-in-the-matrix/).
43. Schneier, Bruce. 2015. *Data and Goliath: The Hidden Battles to Collect Your Data and Control Your World.* New York: W. W. Norton & Company.
44. Schwab, Klaus. 2016. *The Fourth Industrial Revolution.* Switzerland: World Economic Forum.
45. Seraj, Mina. 2012. 'We Create, We Connect, We Respect, Therefore We Are: Intellectual, Social, and Cultural Value in Online Communities'. *Journal of Interactive Marketing* 26(4):209–22. doi: 10.1016/j.intmar.2012.03.002.
46. Smeds, Matthew R., Bernardo Mendes, Leigh Ann O'Banion, and Sherene Shalhub. 2023. 'Exploring the Pros and Cons of Using Artificial Intelligence in Manuscript Preparation for Scientific Journals'. *Journal of Vascular Surgery Cases, Innovations and Techniques* 9(2).
47. Thomas, Mike. 2023. '8 Risks and Dangers of Artificial Intelligence (AI)'. *Https://Builtin.Com.* Retrieved 27 July 2023 (https://builtin.com/artificial-intelligence/risks-of-artificial-intelligence).
48. Thoutam, Vivek. 2015. 'Pros and Cons of Artificial Intelligence'. *JETIR* 2.
49. Tucker Jr, Kenneth H. 1998. *Anthony Giddens and Modern Social Theory.* London: SAGE Publications Ltd.
50. Van Der Wagen, Wytske, and Wolter Pieters. 2015. 'From Cybercrime to Cyborg Crime: Botnets as Hybrid Criminal Actor-Networks'. *British Journal of Criminology* 55(3):578–95. doi: 10.1093/bjc/azv009.
51. Yucedal, Behzat. 2010. 'Victimization in Cyberspace: An Application of Routine Activity and Lifestyle Exposure Theories'. Dissertation, Kent State University.