

Constitutional protections in utilising artificial intelligence systems for investigating and inferring crimes: a comparative study

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Abstract: This paper explores the potential use of artificial intelligence (AI) systems in investigating and deducing crimes and examines their impact on constitutional and legislative guarantees. With the rise of AI entities committing crimes using advanced systems. However, it can be used like any other technical system in the investigation and reasoning process. The problem arises in how to apply constitutional guarantees to the accused when AI systems investigate and deduce the crime. The paper reveals that there are no constitutional or legislative texts in Jordan related to the use of AI systems during the investigation and inference phase of crimes. Although many countries use AI systems for data and information collection, such as the USA, Britain, Germany, and the United Arab Emirates, they have not yet used them legally in the inference, investigation, and investigation processes through AI itself.

Keywords: constitutional; guarantees; artificial intelligence; investigation; reasoning; crimes.

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1 Introduction

The world is experiencing rapid development in technology services and the utilisation of AI systems. Unfortunately, these systems are also being used in transnational organised crimes. Despite technology occupying a significant part of our daily lives, the utilisation of AI systems to detect and investigate these crimes is relatively low in many countries. This presents a problem in terms of accurately investigating a crime, which can reach up to 99% accuracy with the use of these systems, while judicial police agencies continue to investigate using traditional means (Usman et al., 2023).

AI systems are becoming increasingly necessary due to the rise of criminals who exploit advanced technical networks, the internet and cloud computing. They also use AI systems themselves to commit crimes and carry out cyber-attacks on government institutions, companies, and international organisations (Usman et al., 2023). This undermines the security and safety of global societies, especially with the increasing effects of globalisation.

The advancement of technology has made it possible to commit crimes in any country, even if the perpetrator is not physically present in that country. However, the challenge in this area is not just the use of AI in committing crimes, but also the difficulty in detecting them due to the limitations of human capabilities in investigating and proving such crimes. This calls for a revision of legal frameworks to accommodate the advancements in technology and the potential use of AI in committing and investigating crimes. Currently, legal texts are inadequate in anticipating the possibility of investigating and deducing crimes committed through AI systems.

Several countries, including the USA, the UK, and the UAE, have started developing their AI systems to integrate them into their investigative and crime investigation systems. The UAE has even established a specialised ministry for AI based on the accuracy, type, and quality of information that these systems reveal during criminal investigations. The use of AI in investigations is beneficial as it saves time and effort, enhances criminal justice, and speeds up the process of arresting the perpetrators. However, it is important to differentiate between the use of AI systems in investigative systems and the use of AI to carry out the investigation process without guidance from the police. This raises a profound problem in amending legal texts in this area (Lipchanskaya and Otstavnova, 2020).

The collection of evidence is a crucial stage in a criminal case as it serves as a preliminary and preparatory stage for the criminal dispute. This involves the gathering of

information and data related to the crime in question through legal means and methods. The purpose of this stage is to prepare the necessary elements to begin the criminal investigation and its implications. Investigation is a necessary step that must be taken in order to proceed with the criminal case.

The stage of gathering evidence is one of the most important stages of the criminal justice system and the role of the judicial officer is pivotal, important, and effective. Its importance lies in the fact that it aims to respect human, constitutional, and legal values, to ensure the guarantee of individual rights and freedoms, and to give legitimacy to the actions of the authority. The main goal is to locate and bring to justice those responsible for crimes. This is done while keeping in mind the protection of human rights and fundamental freedoms.

Both constitutions and statutory laws have been concerned with providing guarantees for the accused in view of the measures taken that expose human dignity and freedom. The rights and freedoms of individuals must be respected and protected. The Constitution and the law provide many guarantees to prevent attacks on these rights and freedoms. All citizens should have access to these rights on an equal basis. If revealing the truth about a committed crime is in the interest of society and justice, it should be done. It is also important for the accused person to have access to a fair defence in order to ensure justice for both the accused and the victim.

The use of AI in advanced investigative systems across many countries has been proven to help prevent dangerous crimes, especially in cybersecurity attacks and detecting fraudulent systems. These crimes can be complex, but AI algorithms can accurately and specifically identify criminals and provide evidence to judicial authorities. With AI entities, there is no need for human intervention in the investigation process, which leads to faster and more accurate results. However, the use of AI in implementing criminal penalties may require further development and legislative amendments to adapt to the rapid development of these systems (Lipchanskaya and Otstavnova, 2020).

Scientists worldwide are striving to equip AI systems with human-like behavioural traits and characteristics, such as perception, thinking, movement, transportation, decision-making, and other skills that resemble human abilities. These features have the potential to impact the use of AI systems in investigations and inference processes in the future.

This research aims to address several inquiries:

- 1 What is the underlying mechanism of incorporating AI systems in investigative procedures?
- 2 How do the Jordanian Code of Criminal Procedure and similar legislations restrict or enable the use of AI systems for crime investigation and inference?
- 3 In what ways does the utilisation of AI systems in investigating and inferring crimes impact the preservation of constitutional rights for accused individuals during this phase?

The significance of this study has grown amidst advancements in this field and discussions on legal regulations that govern the role performed by AI entities and systems, as well as their impact on constitutional guarantees during investigation and reasoning. This research aims to explore whether necessary legislative amendments should be implemented to keep pace with developments in this area.

This research employs a descriptive approach to explore the role of AI systems and entities in relation to constitutional guarantees. It also utilises an analytical approach to systematically analyse legal texts, adopt deductive reasoning for defining legal concepts, and employ a comparative approach by comparing laws related to criminal trials and procedures in Jordan and other Arab countries.

This study stands out from previous research by exploring a novel hypothesis that has been embraced by numerous developed countries, highlighting the deficiency in Arab legislation. The hypothesis revolves around the capability of AI to undertake the process of investigating and inferring criminals. This is particularly important given that traditional methods of investigation and reasoning often fail to uncover crimes committed using AI systems.

2 The constitutional and legal problems of using AI systems in investigation and reasoning

The investigation and inference phase begins from the moment the crime occurs. Its main objective is to determine how the crime happened, identify and apprehend the perpetrators, seize any devices used, and collect the fingerprints of the suspects before referring them to the Public Prosecution. Investigating a crime is crucial in order to uncover it, and the people legally assigned to carry out this task are responsible for identifying the perpetrator. The severity of the investigation procedures is proportional to the seriousness of the crime and its impact on society (Al-Falahi and Haboub, 2018).

To investigate Jordanian penal legislation and compare it to other penal legislations, official records and statements must be organised in a specific way and preserved according to the law's requirements. It is essential to follow the proper protocol for writing and preserving these records to ensure their accuracy and legality.

In order to investigate a crime, the judicial police often need to visit the crime scene multiple times, gather evidence, and write a detailed report. The report should be clear, concise and explain all the details seen by the investigator. This is especially important if there is unclear or missing information.

In light of the current advancements in the field of AI, a question arises as to whether traditional methods of investigation, evidence gathering, and reasoning are still necessary. Additionally, it is worth considering whether legal regulations keep up with the pace of development in this area. Should we re-evaluate the provisions of the Code of Criminal Procedure and ensure that constitutional guarantees are respected in this field?

The use of AI systems in investigation and reasoning raises many legal problems in the Jordanian Code of Criminal Procedure, as paragraph 1 of Article 8 stipulates specific procedures that must be adhered to by legally specified persons. The first paragraph of Article 8 of the Code of Criminal Procedure stipulates that "judicial police employees are charged with investigating crimes, collecting their evidence, arresting their perpetrators, and referring them to the courts assigned to punish them." The second paragraph of Article 8 stipulates that "the functions of the judicial police are performed by the Public Prosecutor and his assistants, and are also performed by magistrate judges in centres where there is no there is a Public Prosecutor, all within the rules specified in the law."

Article number nine of the Jordanian Criminal Procedure Law states that the judicial police should be assisted by the plaintiff. However, this article did not anticipate the

integration of AI systems into the police investigation and inquiry processes. Nowadays, advanced systems that include AI are being used in police investigations and inquiries, which was not contemplated by the law. According to the law, judicial police powers are granted to administrative governors, the director of public security, police directors, heads of security centres, police officers and personnel, employees in charge of criminal investigation and inquiry, mukhtars, captains of sea and air vessels, and all employees who have been granted judicial police powers. The second paragraph of the article explains that each of the aforementioned employees should carry out their judicial police functions within the scope of the powers granted to them by this law and other relevant regulations.

It is worth noting that the investigation mechanisms addressed the procedures in a traditional manner, requiring an examination of the legal issues in the Criminal Procedure Code and comparative laws.

The use of AI systems in the criminal justice system raises concerns about the guarantees provided to the accused by the Constitution. These guarantees are essential to ensure a fair and impartial trial, including the principle of equality between the accused, the presumption of innocence until proven guilty, the legitimacy of crimes and punishments, the publicity of the trial, and the right of the accused to defend themselves and provide reasons for judgements. These guarantees are crucial and are included in most constitutions as important protections for the accused during the reasoning and investigation stage.

2.1 Legal regulations in the Jordanian Code of Criminal Procedure

Currently, there are no legal texts that support the use of AI techniques, particularly in the areas of crime investigation and reasoning. Therefore, criminal investigations must adhere to the traditional procedures outlined in the Code of Criminal Procedure, as well as the work of the judicial police and the Public Prosecution. Failure to comply with these procedures may result in the invalidity of the investigation.

Not including the use of AI techniques in the legal process could undermine the effectiveness of the investigation mechanism used by the Public Prosecution and the judicial police to detect crimes and identify perpetrators. This, in turn, could potentially invalidate all procedures. However, it is important to note that the use of AI systems will not be used to collect evidence, but rather as a tool to investigate the suspect. It is crucial to ensure that the legal process is built on a foundation of truth, as anything built on falsehood will ultimately be false.

Article 10 of the Code of Criminal Procedure fails to account for advancements in this field. It states that certain officials including public and private village guards, company control employees, health officers, customs governors, forestry governors, and antiquities inspectors possess the right to monitor and report violations according to the laws and regulations that they are responsible for enforcing. These officials must then submit the records of these violations to the competent judicial authority. I believe that this legal article needs to be amended for two reasons:

- 1 Currently, there are no public or private village guards, and legislation has not kept up with developments in this field.
- 2 AI technologies have the potential to act as monitors for various entities such as companies, health officials, customs and forest regulators, and antiquities inspectors.

They can perform the same role as humans and rely on the data and information they have to conduct investigations and detect any crimes that may occur in these areas.

Article 11 of the law did not take into consideration the recent developments in the work of Public Prosecution. The first paragraph states that judges head the Public Prosecution and have the authority granted to them by law. They are also linked to the chain of authority and are administratively subordinated to the Minister of Justice. On the other hand, the second paragraph mentions that Public Prosecution employees must follow the written orders of their superiors or the Minister of Justice, including in their transactions and written demands. However, this provision does not account for the fact that many communications today are conducted through modern technical means like emails and smart applications.

It is worth noting that despite the increasing adoption of AI techniques in various industries in the Arab Gulf countries, they have not yet been integrated into investigation and inquiry operations. For instance, the Kingdom of Bahrain still relies on traditional means for conducting investigations, as its legislation has not yet incorporated the use of AI in this aspect.

Article 43 of the same law states that “judicial enforcement officers are responsible for investigating crimes, searching for perpetrators, and collecting evidence necessary to investigate and dispose of cases.” Article 44 stipulates the procedures for supervision and management of judicial enforcement officers. “Judicial enforcement officers shall be subordinate to the Public Prosecutor and subject to his supervision with regard to their work.”

Article 45 states: the judicial police officers within their jurisdictions shall be:

- a members of the public prosecution
- b officers, non-commissioned officers and members of the public security forces
- c border, port and airport guards
- d customs inspectors.

The governor has the authority to perform the duties that a judicial police officer carries out within his jurisdiction. It is also possible, subject to a decision by the Minister of Justice in agreement with the relevant minister, to grant some employees the status of a judicial police officer for crimes that occur within their jurisdiction and are related to their job functions.

Hence, the Bahraini Criminal Procedure Law does not mention the use of AI systems. Instead, traditional means are utilised in the text of Article 82, which stipulates that:

“During an investigation, a member of the Public Prosecution will be accompanied by one of the Public Prosecution’s clerks to prepare the necessary records. If needed, someone else can be assigned after taking an oath. Both the member of the Public Prosecution and the clerk must sign each page of these minutes. The member of the Public Prosecution can record any investigation procedures before the clerk appears. The minutes are then kept with the rest of the papers in the clerk’s department.”

The UAE has taken an innovative step by announcing its plan to integrate AI into trials, which is referred to as digital justice. However, this requires legislative amendments since the UAE Criminal Procedure Code, issued in 1992, did not anticipate the use of AI systems. The integration of AI could streamline the investigation and trial processes.

Upon reviewing the legal texts contained in the law, it is evident that they are similar to those in the Bahraini Code of Criminal Procedure and the Jordanian Code of Criminal Procedure.

Article 30 of the UAE Criminal Procedure Code, issued in 1992, stipulates that “judicial officers shall investigate crimes, search for their perpetrators, and collect the information and evidence necessary for investigation and accusation.” Article 31 also stipulates that “Judicial enforcement officers are under the supervision of the Public Prosecutor.” Article 33 also specifies a group of judicial enforcement officers within their jurisdictions, namely:

- 1 members of the Public Prosecution
- 2 police officers and description of its officers and members
- 3 officers, non-commissioned officers and members of the Border and Coast Guard
- 4 passport officers
- 5 sea and airport officers, policemen or armed forces
- 6 civil defence officers
- 7 municipal inspectors
- 8 inspectors of the Ministry of Labour and Social Affairs
- 9 inspectors of the Ministry of Health
- 10 employees authorised to act as judicial police officers in accordance with applicable laws, decrees and decisions.

After comparing the criminal procedure codes of Jordan, UAE, Bahrain, and China, it is evident that they need to be modified to include artificial intelligence (AI) systems in the investigation and inference processes. For instance, China provides litigation services through AI systems while Estonia uses an artificial judge for cases involving financial claims less than 7,000 euros. In the US, AI systems are used to analyse complex data in criminal cases. Therefore, it is necessary to introduce AI systems to criminal proceedings to enhance the efficiency and accuracy of the investigation and inference processes (Tarawneh, 2003).

2.2 Constitutional guarantees for the use of AI systems in investigation and reasoning

To ensure a fair trial, there are specific constitutional guarantees that must be followed. These guarantees must be identified and applied during the reasoning and investigation stage. The following guarantees are essential for a fair trial:

2.2.1 First: independence of the judiciary

The independence of the judiciary means:

“That judges should not, in the exercise of their work, be subject to the authority of any other party, whatever its nature, to direct it in a certain direction or to obstruct its course, or to object to its rulings, and that their work

should be purely to establish truth and justice, subject to the dictates of the law and conscience without any other consideration.” [Habib, (1982), p.42]

The principle of judicial independence is paramount for ensuring the effectiveness of constitutional guarantees for the accused during the reasoning and investigation stages, particularly in the context of AI systems. An independent judiciary is crucial in ensuring that the accused has access to fair guarantees, as a non-independent judiciary can impede an accused person’s freedom to form their beliefs and issue their rulings. Therefore, the principle of judicial independence is fundamental to the effectiveness of constitutional guarantees for the accused during the evidence and investigation stages (Al-Alwan, 2017).

The independence of the judiciary is crucial to ensure its impartiality and distance from any influences that may hinder its functioning. The more efforts are made to establish and implement this principle, the more effectively it can achieve its intended goal of establishing fairness and justice between individuals in all kinds of disputes and governments.

A fundamental truth has emerged that the existence of an impartial judiciary is crucial for the promotion and protection of human rights and freedoms. Without it, the notions of equality before the law and the right to a fair trial lose their meaning and significance (Al-Badri, 2002).

The judiciary’s ability to guarantee fair and just trials is attributed to its independence and impartiality. It is the natural choice for all parties involved in a case, including the accused. This fundamental principle is enshrined in Article 97 of the Jordanian Constitution, “judges are independent and have no authority over them in their rulings other than the law.” The Jordanian internal legislator also echoed this principle in Article 3 of the Judicial Independence Law.

The principle of judicial independence dictates that no authority or individual in the state has the right to provide instructions or directives to a judge related to a case being examined by AI systems. The judge must use their own judgement and conscience to make decisions and rulings, independent of any external influence. This principle encompasses several aspects, including the judge’s independence from the judicial authority, other judicial bodies, the involved parties, and public opinion.

According to Article 17 of the Jordanian Judicial Independence Law, a judge is not allowed to combine their job with any other profession, including commerce or board membership in any company, institution, or authority. Violation of this law will result in liability.

Additionally, Article 39 of the same law states that two judges who are related up to the fourth degree of kinship or affinity are not allowed to be in the same panel in any court. Moreover, the representative of the prosecution, litigants, or experts cannot be related to any of the judges examining the case. A judge cannot act as an arbitrator unless authorised by the Council of Ministers, based on the recommendation of the Judicial Council. This is only applicable if the government or any public institution is a party to the dispute or if the dispute is of an international nature. The Council has the right to estimate the fees of the arbitrating judge.

2.2.2 Second: the legitimacy of crimes and punishments

According to this principle, a person cannot be prosecuted or judged for an act unless that act was considered a crime by a law that existed before it was committed. Additionally, the prosecution must follow the procedural rules as specified by the Code of Criminal Procedure.

As for procedural legitimacy, it is defined as:

“The commitment of the public authority, while exercising its right to impose punishment, to the legal rules that determine the methods and techniques for investigating crimes, searching for their perpetrators, and prosecuting them, taking into account ensuring a balance between the interests of the individual and society.” (Sorour, 2016)

Procedural legitimacy requires that the law be the source of the rules of criminal procedure and that those rules be implemented under the supervision of the judicial authority.

The Jordanian Constitution's second chapter affirms personal rights and equality among Jordanians in both rights and duties. Article 1/6 guarantees that the state will ensure employment and education within its capabilities, maintain tranquillity, and provide equal opportunities for all Jordanians. Article 2/6 states that personal freedom is protected and cannot be infringed. Article 7 clarifies that nobody can be stopped or imprisoned except in accordance with the provisions of the law.

From this perspective, the researchers have concluded that the legislator's power to determine crimes and punishments is not absolute. The authority must be limited to prevent any abuse of power and not to violate the provisions of the Constitution, as the Constitution guarantees certain rights and freedoms. Constitutional legitimacy guarantees the establishment of universal principles concerning rights and freedoms, and we believe that this legitimacy can also be applied to the investigation and inference of crimes by AI.

2.2.3 Third: the presumption of innocence

The presumption of innocence is a crucial guarantee for the accused throughout the various stages of a criminal case. This principle holds true both as a legal principle and as a fundamental human right, which is enshrined in Article 4/101 of the Jordanian Constitution. It states that the accused should always be considered innocent unless proven guilty by a final ruling. This guarantee ensures that the accused is treated fairly and justly and that they have the right to defend themselves in a court of law. It is a vital aspect of the legitimate and legal systems, and it emphasises the importance of a free and fair trial for all accused individuals (Al-Alwan, 2017).

It is important to ensure that the accused is innocent until proven guilty, which is a constitutional right. One way to use AI to help determine this is by analysing text evidence. This guarantees that the accused would not be treated unfairly, even if there are justifications for accusing him. It's crucial that during the preliminary investigation, those involved consider the accused innocent and do not take any judicial control measures against him. This approach protects the accused against any form of abuse or mistreatment.

Based on the above, it is clear that the presumption of innocence requires legislators to proceed with caution when creating procedural rules. This principle does not permit the violation of the freedom and rights of individuals, except where necessary and

essential to uncover the truth. Therefore, the principle of innocence plays a vital role in procedural legitimacy, and can even be considered its core.

Based on the presented data, legislators establish rules and procedures that must be followed during criminal investigations, with a particular focus on the investigation and decision-making process carried out by AI systems. These rules and procedures serve as important safeguards for suspects, as confirmed by Sorour (2016): “every criminal procedure permitted by the law must be bound by these guarantees to avoid the risk of controlling his conduct, otherwise he would be in violation of the presumption of innocence.”

The principle of assuming innocence of the accused is widely recognised, even without being explicitly stated in the Jordanian Code of Criminal Procedure’s Article 147/1. As per the Constitution, it is deemed legal. The accused is presumed innocent until proven guilty by a final ruling, especially in cases where AI systems work to investigate and infer. This principle places the burden of proof on the accusing authority, and the accused has the right to take a negative position towards the case. Doubt is always in favour of the accused, and the judgement of conviction must be based on certainty and evidence (Bouliha, 2015). The authors believe that these guarantees and their consequences can be applied to AI systems as well. These systems work to investigate and make inferences by collecting data on the crime and help in proving the guilt of the accused.

The Jordanian Court of Cassation also ruled that

“A claim cannot be accepted without evidence. Therefore, if a convict claims to be unaware of the nature of their actions, the claim will not be rejected if there is no evidence to the contrary. In this particular case, the High Criminal Court did not find any defect in the convict’s mental faculties, and did not object to their claim.”

As a result, the court was not required to present the convict to psychiatrists (Taqsim 85/232) [Legal Principles of the Jordanian Court of Cassation in Criminal Cases – Bar Association (1982–1987), p.198].

2.2.4 *Fourth: equality in litigation*

All individuals have the right to litigate on an equal basis before the courts without any discrimination based on their origin, sex, colour, creed, or personal opinions. This is known as equality before the judiciary and it forms the foundation for the human right to resort to their natural judge. However, it is important to note that the principle of equality before the judiciary does not prevent the judge from using their discretion to impose appropriate punishment based on the circumstances of each case. Therefore, AI suspects must have the same rights as human suspects in crimes investigated by the judicial police.

The Code of Criminal Procedure and the Penal Code are two components of criminal law. They both share a common goal of fighting crime, which has led to the creation of general rules that apply to both. The well-established principle of legitimacy dictates that only the law can determine what constitutes a crime and the corresponding punishment. This principle is also upheld in the Code of Criminal Procedure, which is based on the concept of criminal legality. To differentiate between the two, procedural legality can be attributed to the Penal Code (Al-Alwan, 2017).

The second chapter of the Jordanian Constitution outlines the rights and responsibilities of Jordanian citizens before the law. These rights apply to all citizens, regardless of race, language, or religion, as stated in Article 6/1. This article guarantees access to work and education within the limits of the state's capabilities, as well as tranquillity and equal opportunities for all Jordanians. It is important to note that having different courts for different types of disputes or crimes does not contradict the principle of equality. However, it is crucial to ensure that there is no division or discrimination between individuals.

The authors believe that it is possible to apply the previous constitutional article to guarantee the rights of the accused in crimes investigated by AI systems. This is because the article is stated in a general form to protect the rights of the accused, regardless of the type of crime. In our opinion, it is necessary to amend the Constitution to explicitly include technology-related crimes, keeping pace with the evolving times. This will also necessitate amending penal laws and including these crimes in their texts.

2.2.5 Fifth: guaranteeing the right to defence

The right to defend oneself has become an established principle within the legal system, which judges can discern from the spirit of legislation, the principles of justice and fairness, and the collective moral conscience, even in the absence of explicit laws [Saeed, (1997), p.97].

Defence rights are one of the most fundamental constitutional guarantees for any accused person, especially during the investigation and decision-making stages of AI systems. All other guarantees take a backseat to this one. No other guarantee can make up for the neglect of defence rights, which the accused can either exercise themselves or through a representative (such as a lawyer). The right to defence is an undeniable right recognised for every accused person in all criminal trials and procedures, including evidence gathering and investigation, and in every crime they are accused of. This right is closely connected to the principles of justice and has a significant impact on achieving social security. The accused can fulfil this right either by themselves or through a representative, such as a lawyer (Tarawneh, 2003).

If AI systems are utilised to investigate and infer crimes, it can lead to a multitude of legal issues. The most significant concern is how these systems can comply with and respect the constitutional, legislative, and basic guarantees afforded to the accused.

In Jordan, the law distinguishes between the preliminary investigation stage and the trial stage for serious crimes. As per Article 208 of the Criminal Code, for crimes that are punishable by death or life sentences, the president of the court or his representative is required to attend the accused and ask whether they have chosen a lawyer to defend them. If the accused has not chosen a lawyer, and if they are unable to do so due to financial constraints, a lawyer will be appointed for them at the expense of the treasury (Article 208/2, Criminal Procedure).

The authors are of the opinion that it is crucial to uphold constitutional guarantees, especially the right to defence. To achieve this, they suggest that specialised employees should be responsible for requesting programmed systems and that the accused should appear before these systems to defend themselves against the charges assigned to them, after the crime investigation and evidence collection have been carried out by these systems. For this to be implemented, it needs to be legally stipulated since the legislator used the phrase (in crimes punishable by law).

3 Legal solutions for AI systems to carry out the investigation and reasoning process

It is important to note that as time progresses and prosperity increases, so does the risk of crime. Certain types of crimes, particularly those committed using modern technology systems such as AI, can be difficult to control due to the high level of accuracy and algorithmic ability of AI systems.

Hence, it is important to have tools capable of controlling and dealing with crime, especially when committed by AI systems. Information crime is characterised by several features and characteristics, the most prominent of which are:

- 1 The ease of committing a cybercrime and the ease of concealing its features.
- 2 These crimes require a great deal of intelligence, and therefore the average investigator may not be able to reach conclusive results.
- 3 The advancement of AI has brought about a new possibility of committing crimes remotely. It means that the victim could be in one location while the perpetrator is in another, or even in another country, highlighting the challenges posed by this technology (Al Mulla, 2018).

The complexities associated with committing crimes in present times, owing to the advancements witnessed in today's world, necessitate investigations carried out with the same level of capabilities as the technological tools used to commit the crime. This leads to the question of whether AI is allowed to conduct such investigations and arrive at conclusive results, considering the rapid progress of technology in today's world.

It is important to distinguish between two scenarios: firstly, the use of AI by the judicial police as a tool in the investigation and inquiry process, akin to any other electronic device. Secondly, the deployment of AI for conducting the investigation and inquiry process itself – a topic which we shall discuss in detail.

3.1 Using AI systems in the investigation and reasoning process

Digital tools and AI systems are considered as one of the means that can be used in investigation and reasoning processes. As mentioned previously, most crimes that occur through advanced technologies are difficult to prove, requiring a specific set of methods (Al-Anezi, 2003) to establish evidence. AI systems have become one of the most prominent methods, as many countries, such as the UAE, the UK, the USA, China, Estonia, and others, have used them to solve complex digital problems.

Advanced computer systems are capable of conducting investigations and identifying criminals without the need for human intervention. Utilising sophisticated algorithms and data analysis techniques, these systems can analyse vast amounts of data, such as surveillance footage, criminal records, and forensic evidence, to arrive at specific conclusions. This technology is increasingly being used by law enforcement agencies to solve complex cases and accurately identify perpetrators of crimes. By removing human bias and error from the investigative process, these systems are able to provide more reliable and accurate results, leading to a safer and more just society.

Although Jordan is still hesitant to adopt the use of these systems, the Code of Criminal Procedure includes provisions that allow for their utilisation in investigations

and reasoning. According to Article 30 of the Jordanian Code of Criminal Procedure, these systems can be used as a tool for investigation and analysis: “judicial officers shall investigate crimes, search for their perpetrators, and collect the information and evidence necessary for investigation and accusation.”

According to Article 31 of the law, judicial police officers are required to be affiliated with the Public Prosecutor and subject to his supervision in terms of their work responsibilities. However, the UAE has been using these systems for investigation and reasoning operations, despite the absence of any legal stipulation for this through the judicial police. The said systems are considered as technical means that can be used by the judicial police.

Article 13 of the Jordanian Cybercrime Law stipulates procedures related to controlling electronic and technical devices used in committing crimes. It stated:

“A – taking into account the terms and conditions stipulated in the legislation in force and taking into account the personal rights of the defendant, judicial police employees may, after obtaining permission from the competent Public Prosecutor or from the competent court, enter any place that evidence indicates that it will be used to commit any of the crimes stipulated in this law, and they may also inspect devices, tools, programmes, operating systems, the information network, and means that evidence indicates that they were used to commit any of these crimes, and in all cases the employee who conducted the inspection must prepare a report thereof and submit it to the competent Public Prosecutor. B – with taking into account Paragraph (A) of this article and taking into account the rights of others with good intentions, and with the exception of those licensed in accordance with the provisions of the communications law who have not participated in any crime stipulated in this law, judicial police officers may seize devices, tools, programmes, operating systems, the information network, and the means used to commit any of the following: the crimes stipulated or covered by this law and the funds obtained from them, and the seizure of information and data related to the commission of any of them. C – the competent court must order the confiscation of devices, tools, means and materials and to suspend or disable the operation of any information system or website used in the commission of any of the crimes stipulated or covered by this law. The law, confiscation of funds obtained from these crimes, and a ruling to remove the violation at the perpetrator’s expense.”

It is worth noting that the Cybercrime Law of Jordan does not address the possibility of AI conducting investigations and making inferences. Instead, it mandates that seizure, investigation, and inference be carried out by judicial police personnel, in accordance with the Jordanian Code of Criminal Procedure and comparable laws. Even in the special legal provisions of the Cybercrime Law, the Jordanian legislature did not anticipate that AI would be responsible for investigating and reasoning, even if the crime was committed using it.

Based on our analysis, we have concluded that AI systems can be used by the judicial police to aid investigation, reasoning, and the search for a criminal suspect. However, it is not permissible for the system to conduct the investigation and reasoning on its own, even if it has the capability to do so. This is because these systems must adhere to constitutional guarantees, such as the right to defence. Therefore, the system must operate under human supervision to ensure that these guarantees are met.

Despite the existence of laws related to information crimes and electronic crimes, none of them address the use of AI in investigation and reasoning. In fact, the term ‘AI’ is not even mentioned in these laws. We believe that the Code of Criminal Procedure

should be amended to include the possibility of using AI systems in investigation and reasoning, while also ensuring that natural persons supervise these systems to ensure the legitimacy of the procedures.

3.2 AI systems investigate crimes

The Jordanian Code of Criminal Procedure does not mention the use of AI systems for investigating and inferring crimes. The Code specifies the role of judicial police employees in Article 1/8: “judicial police employees are charged with investigating crimes, collecting their evidence, arresting their perpetrators, and referring them to the courts assigned to punish them.” The judicial police are subject to the supervision of the judicial authority. Paragraph 2/8 states: “the functions of the judicial police are carried out by the Public Prosecutor and his assistants, and also by magistrate judges in centres where there is no Public Prosecutor, all within the rules specified in the law.” Article 9 also states:

“1 – the Public Prosecutor shall assist in carrying out the functions of the judicial police: administrative governors, the director of public security, police directors, heads of security centres, police officers and personnel, employees in charge of criminal investigation and investigation, mukhtars, and captains of sea and air vessels. And all employees who have been granted judicial police powers in accordance with this law and the relevant laws and regulations.
2 – each of the aforementioned employees shall carry out judicial police functions within the scope of the powers given to them in this law and their respective laws.”

Article 31 also stipulates that “judicial police officers shall report to the Public Prosecutor and be subject to his supervision with regard to the work of their positions.” Article 33, in accordance with its latest amendment, stipulates that

“Judicial officers within their jurisdictions shall include: 1 – members of the Public Prosecution, 2 – police officers and the description of its officers and members, 3 – officers and description officers and members of the Border and Coast Guard, 4 – passport officers, 5 – sea and airport officers from the police or armed forces, 6 – civil defence officers, 7 – municipal inspectors, 8 – Ministry of Labour and Social Affairs inspectors, 9 – Ministry of Health inspectors, 10 – employees authorised to have the status of judicial police officers In accordance with laws, decrees and decisions.”

The same law stipulates in Article 34 that “it is permissible, by a decision of the Minister of Justice, in agreement with the competent minister or competent authority, to authorise some employees to have the status of judicial police officers with respect to crimes that occur within their jurisdiction and are related to their jobs.”

After reviewing several texts, it is clear that conducting investigations and reasoning processes through AI is not allowed in the Jordanian Code of Criminal Procedure and can lead to invalidity. However, AI can still be used as a tool in the process of investigation and reasoning, just like any other method. It is important to note that if AI is solely responsible for conducting the investigation, it can render the procedures invalid and can be challenged at any stage of litigation. Moreover, conducting investigations solely through AI, without any human intervention, may violate the constitutional guarantees and can also render all procedures invalid.

The authors are of the opinion that lawmakers should take notice of the significance of AI and its role in today's world. They suggest that the Jordanian legislator should consider including provisions in the Code of Criminal Procedure or the Code of Cybercrime to allow for the use of AI in investigating specific crimes that require a level of analysis beyond human capacity. However, such measures must be in line with constitutional principles, such as the right to defence and the presumption of innocence.

4 Conclusions

The study addresses many important topics regarding constitutional guarantees during the discovery and reasoning stages of using AI systems. This is especially relevant given the technological revolution the world is currently experiencing. The researchers thoroughly examine all the details related to AI concepts, its development, advantages, and characteristics. On one hand, these systems have their defects, and it is crucial to ensure the application of constitutional guarantees during this stage.

This study distinguishes between two uses of AI in crime investigations. The first is where AI systems are used to investigate and reason about crimes. The second is where the AI systems themselves carry out the entire process of investigation and reasoning, which is currently not allowed in Jordanian Code of Criminal Procedure and comparable laws. If AI systems are used for investigation, it could lead to the invalidity of the investigation under these laws.

5 Results

It is worth noting that Jordan currently lacks any constitutional or legislative framework regarding the use of AI systems in the investigation and inference phases of criminal cases. While some countries such as the USA, Britain, Germany, and the UAE use AI systems in data and information collection, they have not yet implemented them legally in the processes of inference, investigation, and reasoning through AI itself. Jordan is one of the few countries that have already implemented AI systems in this regard, while other countries have yet to consider using them in the investigation and reasoning process.

By examining the articles related to investigation and inquiry in the Jordanian Code of Criminal Procedure, it is evident that the judicial police can make use of AI systems. However, it is important to note that the investigation and reasoning process cannot be conducted solely by AI. If this happens, it would be considered invalid. The use of AI systems during the investigation and reasoning stage may lead to non-compliance with constitutional principles and guarantees of the accused, which should always be respected during this stage.

6 Recommendations

- We recommend amending Jordan's Constitution and legislation to address deficiencies related to using AI systems for investigations and reasoning.

- The study recommends amending the Criminal Procedure Code to incorporate advanced technical and AI systems in the investigation and reasoning process.
- The study suggests amending the Jordanian Code of Criminal Procedure to include a legal provision that allows for the use of AI in investigating and drawing inferences in cases that require it, subject to a specific set of controls. This includes situations where the crime can only be detected through the use of AI and ensuring that the use of such technology is in compliance with constitutional guarantees.
- The study recommends that countries should establish agreements that permit the use of these systems to combat cross-border organised crime.
- The Code of Criminal Procedure should be revised to allow investigation and reasoning by AI systems. However, it is essential that such systems are controlled by humans to guarantee that constitutional rights are respected and that the legal procedures are legitimate.

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Appendix

- Jordanian Code of Criminal Procedure.
- UAE Criminal Procedure Code.
- Jordanian Cybercrime Law.
- Bahraini Criminal Procedure Code.