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Artificial Intelligence in Legal System: An Overview

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ABSTRACT

Erstwhile, artificial intelligence (AI) system has gained unmistakable prominence in our lives across various platforms and has transformed it considerably. The changes suggest such aspects that are mostly not clear today. In a world, where countries are governed by law and regulations, it becomes important to understand the role of AI in the legal system and how would it influences and modifies it. While exercising self-control in varying degrees, the question of civil and criminal liability for damage or loss resulting from any of its activities, becomes critical. The research identifies major approaches in legislation and legal practice which can be influenced by AI and explores a number of current options: Legal Responsibility of AI, its influence in legal practice and adjudication, its impact on criminal laws, administrative laws and other private legal subject matters. The research highlights the need to have a legal framework can be addressed by primarily deciding upon the nature of entity an AI system is, and accordingly the liability may or may not be shifted from its creators to the AI system in different fields of law. The research is based qualitative approach to study. The materials included are based on organizational reports, journal articles and media sources. The study stood on the comprehensive legal analysis, integrated legal interpretation and modeling.

Keywords: *Artificial Intelligence, Law, Legal System*

I. INTRODUCTION

What is artificial intelligence (hereinafter 'AI')? Unfortunately, this is quite a complicated question, and there are many ways to answer. According to Merriam-Webster Dictionary, it can be defined as a branch of computer science dealing with the simulation of intelligent behavior in computers.[2] The term artificial intelligence assumes that this human ability to understand, to comprehend, to sort the important from the unimportant can be replicated by constructing computer programs that are as good or sometimes even better than humans at

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[2] Artificial Intelligence, MERRIAM-WEBSTER (June 24, 2021, 7:44 PM), https://www.merriam-webster.com/dictionary/artificial%20intelligence.

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understanding. Some programs can only perform very basic tasks like adding numbers, and these programs might not really deserve to be called intelligent at all. But other programs can perform very complicated tasks, such as playing chess or simulating complex medical treatments. The examples of certain complex artificially intelligent programs are that can be used for the purposes of facial recognition when searching for criminals in public places; artificially intelligent programs that can be used to process and analyze large amounts of written or spoken language. Such programs are helpful for understanding how modeling natural language works; and artificially intelligent programs that can be used to optimize the pricing of products or services. AI is truly an interdisciplinary enterprise that incorporates ideas, techniques, and researchers from multiple fields, including statistics, linguistics, robotics, electrical engineering, mathematics, neuroscience, economics, logic, and philosophy, to name just a few.[3]

Law in many ways is conducive to application of AI. Machine learning and law operate according to strikingly similar principles: they both look to historical examples in order to infer rules to apply to new situations.[4] We are surrounded by many AI applications on our computers, phones, or in public places today, and our legal systems are in many ways well-equipped to deal with these innovations, just as they have dealt with others like the Internet or the telephone in the past. Sofia was the first robot to receive citizenship of a country, Saudi Arabia, which sparked some controversial debate and discussion about the implications of recognizing a robot as a citizen: Can a robot have rights and duties like a human? Can artificial intelligence be integrated into human consciousness as a source of these rights and obligations?

Already in 2016, a draft report of the EU Parliament inquired on the possibility of giving robots "electronic personality", namely, "creating a specific legal status for robots, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons with specific rights and obligations" and to apply this electronic personality "to cases where robots make smart autonomous decisions or otherwise interact with third parties independently".[5] The report is far from equating robots with humans in recognising rights and duties, as its proponents attest. The recognition of legal rights and obligations towards non-humans is therefore not a neutral process; it can be beneficial, but it can also allow abuse that endangers other parties. Recognising rights to non-natural entities could, therefore, lead to

[3] Dr. Rajiv Desai, Artificial Intelligence (AI), DR RAJIV DESAI: AN EDUCATIONAL BLOG (June 24, 2021, 7:46 PM), http://drrajivdesaimd.com/2017/03/23/artificial-intelligence-ai/.

[4] Rob Toews, AI Will Transform The Field Of Law, FORBES (June 24, 2021, 7:50 PM), https://www.forbes.com/sites/robtoews/2019/12/19/ai-will-transform-the-field-of-law/.

[5] Mady Delvaux, DRAFT REPORT with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)), European Parliament 2014-2019, 12.

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outcomes that go beyond the original practical intentions underlying this recognition.

Many of the more recent applications in AI and law have come from legal-technology startup companies using machine learning to make the law more efficient or effective in various ways.[6] This paper addresses the issues by providing a general overview of AI and its legal uses. The discussion should be nuanced, but also understandable for people without a technical background. The document focuses on the application of AI in different fields and legal matters: criminal law, administrative law, labor law, industrial property and competition law, it also analyzes the responsibility of artificial intelligence and how it is used by lawyers and lawyers in legal practice, individuals and companies, who are subject to the law and government officers who administer the law. A main motivation for writing this article is to offer a realistic and demystified view of AI that relies on the real world capabilities of the technology. From then on, given the increasing pace of AI inventions, these questions may seem quite confusing at first, but it has become for us an urgent need to find specific legal solutions to certain complex issues.

II. AI AND ITS LEGAL RESPONSIBILITY

With intelligent machines having greater autonomy requiring negligible human involvement, legal questions arise as to the liability for AI-related accidents. Taking responsibility is often a necessary condition in order to receive compensation, and it is critical to society's assignment of blame for wrongdoing: a preventive function in preventing people from causing harm for which they are held liable, and the law contains several tools to hold people accountable for the harm they cause. In particular, the attribution of legal responsibility is largely justified by the ideas of free will and human control.

The introduction of intelligent, autonomously operating machines poses challenges for the present-day legal tool box. With most criminal offenses (e.g. reckless driving), and torts (e.g. negligence), the wrongdoer's state of mind becomes a determinant factor for the courts in imputing legal responsibility. Yet when AI is involved, how does one determine its 'state of mind'? In cases where the state of mind become relevant, judges have long employed the test of the 'reasonable man' in determining whether the defendant concerned had acted in an objectively reasonable way. Yet, doctrinally, it may not be possible to impose on AI the test of the reasonable man. Even if a criminal or negligent state of mind can be established, how can an artificial construct devoid of physical form or feeling are made legally responsible?[7] One

[6] Zrazhevskyi Mykhailo & Tykhenko Dariia, Artificial Intelligence and Law, BUSINESS LAW (June 24, 2021, 8:01 PM), https://www.businesslaw.org.ua/artificial-intelligence-and-law-3/.
[7] Dr. Althaf Marsoof, Artificial Intelligence And Legal Responsibility, LIVE WITH AI (June 24, 2021, 8: 05 PM),

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can hold the intelligent machine developer accountable for any damage causes by it. When normal machines like a hair dryer do harm, we tend to go to the company that made the machine and hold them accountable. But intelligent machines are different from conventional devices.

Hardware and other unintelligent machines in a way that makes it difficult to transfer responsibility to the developer. This is especially true for systems that use different types of machine learning techniques, such as, CCTV cameras that use advanced facial recognition technology. It means that the system learns and adapts to its environment, which is dynamic and changes over time. It is very difficult for the developer to predict or control how the system will evolve and how it will be modified; it depends on the environment in which it is interacting. This, of course, raises the question whether it makes sense to leave development by an autonomous machine or perhaps hold the user liable for damage caused by an autonomous machine when all reasonable care has been taken, but something goes wrong nonetheless run is the feeling, which of course creates a great incentive to check that the product is actually safe. It can be argued that it would be unfair to impose strict liability for damage caused by devices that, by definition, can never be in full human- control. Moreover, what if the system developer is no longer alive, but the system he created is still preset and is constantly learning and changing. It would be really difficult to fix accountability. The imputation of statutory liability for damages will certainly play some role in regulating AI, but will likely not be enough to offset and prevent damage caused by machine.

The tech industry has begun must create and implement their own Responsible AI guidelines. Companies like Google, Microsoft and IBM all have their own guidelines.[8] Voluntary approaches by industries need to be supplemented by legal regulations, arguing that the development of intelligent autonomous machines forces us to look for alternative legal ways to fulfill the functions that have so far been fulfilled by the traditional subsequent attribution of vicarious agents. Various compensation and prevention tools, not just retrospective liability, form a part of legal domain. For this, developers may be required by law to take out insurance to compensate people harmed by AI when no other person is legally responsible for the damage. Law has to come up with a way to hold the autonomous mechanisms liable in the near future for their doings.

III. AI IN ADJUDICATION

Artificial intelligence will enable us to model both the individual provisions and the larger

http://livewithai.org/artificial-intelligence-and-legal-responsibility/.

[8] Conor O'Sullivan, What is Responsible AI?, TOWARDS DATA SCIENCE (June 24, 2021, 8:10 PM), https://towardsdatascience.com/what-is-responsible-ai-548743369729.

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structures that the legal provisions form, which will help in unlocking new possibilities. Modern lawyers spend more time reading computer screens than visiting law libraries, however, digitization of texts only takes us so far. We model law for a variety of purposes. Computational models of law, which function as knowledge representation, contain the rule content of specific legislations and precedents in a form that is recognizable by a computer. These systems often employ machine-learning algorithms that use past crime data and attempt to extrapolate to make a prediction about the defendant before the judge. Although a judge is not bound by these automated risk assessments, they have a considerable amount of influence on a judge's decisions.

Most legal rules have a conditional form that is well suited for a computer. When certain conditions set in a legal rule are met, a certain legal conclusion follows the conditions usually set as inputs to the computer. Artificial intelligence may be used to provide meaningful yet easily understandable answers to questions about law directly to the public and computer models of law, such as can give the human operator access to law in its functional or algorithmic form.

As the use of AI technologies advances, judicial systems are being engaged in legal questions concerning the implications of AI for human rights, surveillance and liability, among others. In addition, judicial systems are also using AI systems for judicial decision-making processes that have raised concerns for fairness, accountability and transparency in decision making by automated or AI-enabled systems.[9]AI and ML for justice delivery will need to be adapted with several precautions in mind. The Supreme Court Portal for Assistance in Court's Efficiency (SUPACE), inaugurated recently by former Chief Justice of India SA Bobde, is said to be the first of its kind globally. Building upon the requirement that AI should assist the judiciary, it will help aid access to material, but would remain non-intrusive when it comes to decision making. This is the correct approach, where AI and ML assist but do not replace human decision making.[10] Releasing a report on "Responsible AI of Indian Judicial Sys prepared by Vidhi Centre for Legal Policy, the CJI said that he was strongly opposed to the automated decision making process in the judicial system and it should never be allowed. Terming use of Artificial Intelligence in Judiciary as a pivotal and transformative step, he said that AI should be used only to the extent to assist judges, lawyers and litigants in making judiciary efficient

[9] AI and the Rule of Law: Capacity Building for Judicial Systems, UNESCO (June 24, 2021, 8:13 PM), https://en.unesco.org/artificial-intelligence/mooc-judges.

[10] Amitabh Kant & Desh Gaurav Sekhri, The judiciary's use of AI will be transformative, FINANCIAL EXPRESS (June 24, 2021, 8:17 PM), https://www.financialexpress.com/opinion/the-judiciarys-use-of-ai-will-be-transformative/2272714/.

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and accessible but how, when and what to decide would be left to the judges.[11]

If properly implemented, AI enabled law could be more coherent, more fair and more transparent. But for this to occur, the design and construction of AI must be closely and carefully supervised.

IV. AI IN LEGAL PRACTICE

Legal professionals have retrospectively analyzed cases to identify and understand the elements or factors that play an important role in making judgments. The interpretation and implementation of the law, depends to a large extent on the legal texts, is a tedious and time-consuming work due to special features such as longer document size, diverse internal structure, extensive manual indexing, a complex pattern of document relationships and a strong dependency on citations. It can be successfully argued that Artificial Intelligence will do a better job, and Artificial Intelligence, with access to the vast pool of big data generated by the courts, has far more experience with legal decisions than a human defense attorney, but fine trained artificial intelligence can model the complex interplay of various factors that can indicate an inaccurate prediction more deeply.

The text of court arguments, complaints and responses from the parties, as well as the text of relevant laws, are among the readily available data used to make predictions. This corresponds to their common characteristics, including the characteristics of the text. Based on their results, the AI can show that they have common characteristics. The case of interest can be located on this map and its prediction result can be derived by reading the result of the group of cases that is closest to the one found. As the complexity of the AI increases, its predictability will increase. Artificial intelligence is obviously agnostic which data she needs. AI performance can be further improved by using unconventional categories of data, data that is often left out of the text of claims and arguments.

As per 'McKinsey,' 22% of a lawyer's job can be automated.[12] In a landmark study by researchers at the Stanford Law School, Duke Law, and the University of Southern California, it was observed that an AI-based system 'LawGeex' outperformed a team of 20 renowned US lawyers having decades of legal experience in the task to spot issues in five Non-Disclosure Agreements (NDAs). The 'LawGeex' attained an average accuracy of 94%, whereas the

[11] Amit Anand Choudhary, Use of Artificial Intelligence will transform judiciary but technology will not be allowed to decide cases: CJI, TIMES OF INDIA (June 24, 2021, 8:20 PM), https://timesofindia.indiatimes.com/india/use-of-artificial-intelligence-will-transform-judiciary-but-technology-will-not-be-allowed-to-decide-casescji/articleshow/82183403.cms.

[12] Apoorva Mishra, Artificial Intelligence in judiciary: Does it really make sense? ETGOVERNMENT (June 24, 2021, 8:23 PM).

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lawyers managed to achieve only 85%. The most interesting fact is that the 'LawGeex' took only 26 seconds for finishing the task, while the lawyers took 92 minutes on average for the same job. Prof. Gillian Hadfield (Professor, Law and Economics at the University of Southern California) commented: "AI can help solve both the problems of contract management and people development by making contract management faster and more reliable, and freeing up resources so legal departments can focus on building the quality of their human legal teams." According to the same research, AI has the potential to disrupt the $600 billion global legal services market.[13] JPMorgan has used its proprietary program Contract Intelligence, nicknamed "COIN," to decrease its annual contract review time by 360,000 h.[14] Newer companies like Kira Systems, eBrevia and many others offer time and thus cost-saving benefits based on their use of AI for due diligence and contract analysis.[15] AI Ross, developed by IBM, has been adopted many law firms worldwide, particularly in the USA and is primarily used to vet legal contracts, conduct legal research, and briefly summarize case laws etc. Likewise, Linklaters LLP, a multinational law firm, is also developing an AI programme, Nakhoda, with the objective of providing effective contract management and structured legal data.[16]

The judiciary is expected to rule on the basis of the direct and unambiguous application of substantive law and a fair assessment of the facts involved. Legal systems carefully classify the real characteristics of a case. These factors should adequately influence the decision or not be considered or ignored by the court, has long been questioned by the most realistic lawyers in the world. Realists generally accept that similar cases are not always decided alike and that many formally irrelevant factors do indeed matter play in decisions. This makes it inevitable for AI to face the dilemma. AI designers can define the functions that AI has or access to. Formal designers of an AI prediction engine can blindfold and give access to prohibited categories of data. Instead, these designers will only mark and feed in those data that correspond to the immanent elements of the legal case, the relevant legal issues, and recognize these factual questions of the case as necessary and sufficient to bring about the legal decision.

Building a prediction engine that would do this would be quite an undertaking. It is one thing

[13] Apoorva Mishra, Artificial Intelligence in judiciary: Does it really make sense? ETGOVERNMENT (June 24, 2021, 8:23 PM).
[14] Hugh Son, JPMorgan Software Does in Seconds What Took Lawyers 360,000 Hours, BLOOMBERG (June 24, 2021, 8:27 PM), https://www.bloomberg.com/news/articles/2017-02-28/jpmorgan-marshals-an-army-of-developers-to-automate-high-finance.
[15] Ronald Yu and Gabriele Spina Alì, What's Inside the Black Box? AI Challenges for Lawyers and Researchers, Legal Information Management, 2019, 2.
[16] Ananth Kini, Artificial Intelligence and the Legal Profession: An 'intelligent' way ahead?, BAR AND BENCH (June 24, 2021, 8:35 PM), https://www.barandbench.com/columns/artificial-intelligence-and-legal-profession-an-intelligent-way-ahead.

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to provide a machine with the legal text as a raw data set, and quite another to translate the law from human language into an operational algorithm. Sometimes this translation task is a little easier. When attorneys use the title or code number of a provision, a computer can more easily identify the legal issues involved. It is much easier to identify and collect other data on a case, data that a formalist would consider irrelevant or distracting. In addition to the content of the allegations and legal arguments presented by the attorneys, as well as the cases and previous decisions in the file, the case documentation also contains data that can prove the identity of the attorneys and the judge who directs the case, court or tribunal to which the case was assigned and the date the case was submitted. The identity of the contending parties is an important and powerful data point. These data are rejected by a legal formalist, but AI can use these ignored case record features to compensate for their limited access to controversial facts or controversial legal arguments. But an AI can't stop there as it may find even more data that might be useful in making predictions.

The computer typically does not have the last word on the relevance of documents. Human attorneys, at the end of the day, make the decision as to whether individual documents are or are not relevant to the case at hand and the law. The reason is that the computer software is simply not capable of making those decisions, which involve understanding the law and the facts and dealing with strategy, policy, and other abstractions that AI technology today is not good at dealing with. An important point to emphasize is that these AI systems can quickly reach their limits. These technologies often just give a first rough pass at many lawyerly tasks, providing, for example, a template document for an attorney. In other cases, the software may merely highlight legal issues for a human attorney to be aware of.[17]

In sum, lawyers today do a mix of tasks that run from the highly abstract to the routine and mechanical. Today's AI is much more likely to be able to automate a legal task only if there is some underlying structure or pattern that it can harness. By contrast, lawyerly tasks that involve abstract thinking, problem-solving, advocacy, client counseling, human emotional intelligence, policy analysis, and big picture strategy are unlikely to be subject to automation given the limits of today's AI technology.[18]

[17] Bernard Marr, How AI and Machine Learning Are Transforming Law Firms and the Legal Sector, FORBES (June 24, 2021, 8:40 PM), https://www.forbes.com/sites/bernardmarr/2018/05/23/how-ai-and-machine-learning-are-transforming-law-firms-and-the-legal-sector/?sh=5e2d144632c3.
[18] Harry Surden, Artificial Intelligence and Law: An Overview, Georgia State University Law Review, Volume No. 35, Issue, No. 4, 28.

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V. AI AND CRIMINAL LAW

For a crime to be indicted to a specific person (individual or legal), certain elements must exist, such as: a legal provision (depicting the offence), the commission of one or several material acts (actus reus), the mental state (mens rea) of the person charged with that offence, the unjustifiable ground for the person's criminal behavior, and the attribution (one's moral involvement in committing a crime).[19]Therefore, criminal law is primarily concerned with humans and their behavioral aspects, so that the application of criminal law rules to artificial intelligence systems cannot be straightforward.

A judicial and criminal justice system deals with questions like what is a crime, when can you be responsible for it, what is a penalty, and what types of penalties are allowed? It also deals with the concepts of fair trial and role of different officers during investigation. This investigative part of the criminal justice system is very important because it actually sets the boundaries of the judicial process and is vital to both the criminal process and the judgment. What evidence could the police and prosecutor produce? In the vast majority of national penal systems, one of the most important elements of a crime is the mens rea, the mental element that induces a person to commit a crime or violate a law. A guilty mind consists of three different forms: the intent, guilt (negligence and criminal negligence) and overt intent. When AI gets in the way of traditional concepts of actus reus, mens rea and causation, a crisis can arise.

However, the use of AI during the investigative part of the criminal process is of great benefit, especially in the areas of forensics, multimedia analysis, ballistics, crime scene reconstruction, and virtual reality. AI technologies provide the capacity to overcome such human errors and to function as experts. Traditional software algorithms that assist humans are limited to predetermined features such as eye shape, eye color, and distance between eyes for facial recognition or demographics information for pattern analysis. AI video and image algorithms not only learn complex tasks but also develop and determine their own independent complex facial recognition features/ parameters to accomplish these tasks, beyond what humans may consider. These algorithms have the potential to match faces, identify weapons and other objects, and detect complex events such as accidents and crimes (in progress or after the fact).[20] The goal is to detect objects and activities that will help identify crimes in progress for live observation and intervention as well as to support investigations after the fact.[21] Scene

[19] Maxim Dobrinoiu, The Influence Of Artificial Intelligence On Criminal Liability, LESIJ, 2019, Issue No. 1, 49.
[20] Christopher Rigano, Using Artificial Intelligence To Address Criminal Justice Needs, NIJ Journal, January 2019, Issue No. 280, 3.
[21] *Id*.

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understanding over multiple scenes can indicate potentially important events that law enforcement should view to confirm and follow.

VI. AI AND ADMINISTRATIVE LAW

The use of automated decision-making is increasing in the public sector, where it can be considered suitable for various decision-making processes in public administration. Artificial intelligence brings both opportunities and risks. This is true in relation to the work of public authorities as well. Citizens want public services to be fast, efficient and easily accessible, which is also reflected in legal instruments for good administration, both in national legislation and, to some extent, at international level. When automated decision-making is used in the service of public administration, the objective is to produce a decision that involves the exercise of public law in a manner that defines, for an individual or for a private legal entity, a particular right, duty or benefit on the basis of material legislation.[22] The automation of work processes can help achieve the objectives of these legal instruments; administrative procedures can be faster, more efficient and simpler; risks related to corruption and abuse of power could also be eliminated if machines are programmed in such a way that they only consider goals. It can handle a multitude of data points and independently discover patterns. AI gives us the ability to automate increasingly complex tasks, which in turn can help meet both the social and legal requirements of good administration.

In practice, however, there are several challenges in implementing artificial intelligence technology in administrative law; many of them come from the very fabric of machine learning technology. A disadvantage can also be the advantage that it can independently discover correlations in large data sets. It becomes difficult to predict the outcome and to further justify it. Certainly, the right created by the GDPR to know the logic of the automated decision-making for the purposes of data protection is important (although the reach of the term "logic" is not yet known: is it a general description of the automated decision-making system or complete publication of the algorithm and the code?). Here, the reference to "logic" brings to the fore the right of an individual to receive an explanation of the reasons behind the actual decision made by means of automated decision-making (the so-called local explanation, mentioned also in the preambular para. 71 of the GDPR, but regulated in the procedural law of the Member States). This would seem clearly to lean towards the opening up of the algorithm, but it is not clear how far the term "logic" reaches.[23]

[22] Markku Suksi, Administrative due process when using automated decision-making in public administration: some notes from a Finnish perspective, Springer, 2021, 88.
[23] *Id*. at 89.

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Another major issue appears to be that the use of automated decision-making renders redundant a considerable proportion of the procedural rules that national law has created for decision-making by a human being. The decision to use automated decision-making, often made by a public authority without any backing from an Act of Parliament, thus in effect sets aside legislation such as provisions concerning good government designed under the assumption that the decision-maker is a human being. In essence, this means that the internal decision by a public authority to start to use automated decision-making is almost of a legislative nature. Yet at the same time, there are few rules in current law that requires anything of automated decision-making systems in terms of good governance.[24]

A third type of problem with AI relates to personal integrity: how much information about citizens should the government collect and analyze? And how far should the government go to use this data to influence, push, or even manipulate citizens? In fact, they raise various concerns about administrative procedures, which have also prompted decision-makers to issue policy documents so that any use of AI must be assessed in detail against the law applicable to the administrative area in question. Article 22 of the GDPR also set up specific requirements for when automatic decision-making is allowed. In addition, other parts of administrative law must also be analyzed.

Public authorities that want to use AI face several difficulties in administrative law such as difficulties to control and explain exactly how AI mechanisms work. However, it can be argued that the same is true for human decision-making. Even if an AI application is not perfect, it can be as good as or better than human-decision making, which is notorious for prejudice and all kinds of mistakes. As long as the result is better than human case handling, some shortcomings can be ignored. AI has the potential to improve the work of public authorities in many ways, but only if it can be implemented in ways that live up to the principle of good administration in an acceptable way.

VII. AI AND INTELLECTUAL PROPERTY RIGHTS

Artificial intelligence is an enabling technology that will affect all areas of society, directly or indirectly, which means that many, if not all, areas of law will have to take into account new realities. The existence of new creative entities will impact how the law provides incentive and regulates human creativity, which falls under the domain of intellectual property. According to WIPO, Intellectual Property is – to the unique, value adding creations of the Human intellect that results from human ingenuity, creativity and inventiveness. And what IP Laws do is to

[24] *Id*. at 89.

confer property like rights on these inventions or creativity.[25] Regulating the existence, ownership, and transfer of rights to these intangible creations; Intellectual property rights ensure that creators have an incentive to do their job and share the results with society; guarantees that they are accredited and receive public recognition and gives creators an exclusive commercial right. There are different types of intellectual property rights that protect different creations, or what is technically legally referred to as subject. Four main intellectual property rights are copyrights that protect the expression of creators in their literary and artistic works, designs that protect the appearance of a product, trademarks that protect signs, that differentiate goods and services, and patents that protect inventions.

When an AI is involved in the creative process, who should be recognized as the creator of a particular work of art or invention? The law sets requirements for each of the intellectual property rights. This was designed with humans in mind. Today the same requirements apply regardless of who or what the Creator is, and this could put humans at a disadvantage. What happens when AI copies or uses a protected work or invention that would infringe the intellectual property rights of others and who should be held liable? As long as AI units are not legal entities, only individuals or companies can be held liable. Right holders may find it difficult to identify a person or company who could be legally responsible for the actions of AI.

A machine cannot develop the data itself, so it cannot be completely different from the state of the art. In such cases, we can focus on the end-result obtained from the process and not on the process itself. If the end product fulfills the criteria "sufficient to grant inventor status to a human being or a natural person", then the machine (or the artificial intelligence system) could also be given the same status. Currently we have AI created music and art work. Example of such is e-David who is a robot and has done commendable work in the art field. It creates the portraits which never primarily existed by analysing and observing the features like we human do. University of London Press Vs. University Tutorial Press said "the word original does not in this connection mean that the work must be expression of original or inventive thought. But that the work must not be copied from another work but should originate from the author." Now in India there are no guidelines for AI related inventions but computer related work has been discussed and appreciated by making laws for the same timely. UK has expanded the scope of copyright protected work to expressly include the computer-generated work. The

[25] Vasudha Tewari, Recommendations on: Artificial Intelligence and Intellectual Property: Collateral Parallelism Research Area: Artificial Intelligence and Intellectual Property Law, Indian Society of Artificial Intelligence and Law, May 2020, 24.

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author of such computer generated work according to section 178 of UK Copyrights, Designs and Patent Act, is deemed to be the person by whom necessary arrangements for the creation of the work are undertaken.[26]

Legal person need not be a citizen of the country; it does not need biological identity. A legal person need not possess the ethical or moral qualities; it could be imaginary or real in the eyes of law. Accepting the fact that an AI device's functioning is not dependent on the commands may vary on the basis of the actions in the environment. They have the ability to adapt and respond to stimuli; a scene that goes beyond a legal entity. Could a legal entity be liable of a criminal act? Could the legal personhood act as a solution to the smart voice assistants who are rational in their thinking? Legal recognition of AI devices is essential in order to build the trust in storing the data among the users. Separate legislations are applicable for different AI built devices. Legal personhood being granted to all AI devices would cause chaos as not all AI devices are autonomous in nature and there are many which possess the human like qualities which include the decision skills.[27]

Decision making power of the AI has progressed over the last few years. It is no longer a pre-programmed system; the decisions are made based on the situations ahead. Some of the devices are completely aware of the existence of a grey area. There are many devices which are being deployed for serving justice; in such a case being a legal person could not be the apt status for these devices.[28] AI Technology can further be used by the authorities to grant intellectual property rights and by intellectual property right owners to detect infringements and enforce their rights. For example, AI applications like automated translation tools or image and pattern recognition software are being increasingly deployed in the administration off applications at intellectual property office around the globe. Even, companies are using these mechanisms to identify infringement of content online. This raises fundamental questions on how technology will change legal proceedings in conclusion. Over the next few years, as the technology develops, intellectual property law has to adapt to the many questions raised by artificial intelligence. New legal tools will also have to emerge.

VIII. AI AND LABOUR REGULATIONS

Labor law regulates relationship between employer and employee and trade unions. In general, labor law aims to protect the weakest party to the employment contract, the employee. It exists both in the form of algorithmic processes in computers and in the form of robots that

[26] *Id*. at 25.
[27] *Id*. at 7.
[28] *Id*. at 8.

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automatically link AI and algorithms to robotics and the Internet of Things. To this day, no statute explicitly regulates AI in the workplace. The courts have failed to provide case law on AI in the workplace. The legal status of AI in the workplace is not entirely clear.

The introduction of AI and robotics into working life results in workers being laid off and labor law does not prevent an employer from replacing workers with robots and AI. The employer's decision to use AI and robots results in workers being redundant for economic, technological and structural reasons. In some jurisdictions, a seniority principle regulates the order in which employees are dismissed, so that employees with shorter employment periods are dismissed earlier than employees with longer employment periods like the Last In, First Out. Since the decision to introduce AI and robots in the workplace is at the discretion of the employer, employees must agree to work with robots. A worker must keep pace with technological changes in work processes. Therefore, a key policy goal to retrain workers in jobs is likely to disappear and help them transition to other job Professionals.

It is possible for an AI to represent the employer at work. An algorithm or robot can perform the role of a manager at work to the extent that the actions taken can be construed as emanating from a human legally holding the power to allot and direct work. The employee and the employer can stipulate in the employment contract that an algorithm will represent the will of the employer and that the employee is to receive binding instructions from role. The legal responsibility of the actions of the algorithm is borne by the employer, and the instructions given must respect labor law and also the terms of the contract. AI systems in a management role must not be in breach of data protection law, like the right to transparency regarding processing, and right not to be profiled or subject to particular decisions based solely on automated means. Because of the power imbalance between employer and employee, it is possible that employees, legally speaking, cannot freely consent to every type of data processing.

Robots and AI at workplace present both challenges and opportunities for health and safety at work. To the extent it is reasonably practicable, the employer is required to ensure that the workplace, machinery, equipment, and processes under his or her control are safe and without risk to health. Firstly, algorithms and robots can be useful for workers engaged in dangerous work. It might actually very well be reasonably practicable to demand that the employer implements the assistance of this type of new technology at work. Secondly, people who work with such thinking machines can be exposed to new forms of stress and mental health risks due to the autonomous and potentially unpredictable behavior of automated decision-making machines and algorithms. Employers are obliged to take measures to decrease these noble risks.

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Health and safety law provides workers with the right to training on new machinery and algorithms, and should a worker be injured by a robot, it would count as an occupational injury. Most existing legislation on health and safety at work operates under the assumption that machines and robots present dangerous to workers, and that there should be a safe distance between the two. Health and safety law must be updated so that it takes into account the implications of humans working closely to robots and AI.

In addition to this, the idea that management by algorithm and artificial intelligence can necessarily lead to more objective and bias-free HR practices may prove materially wrong. The risk is that these systems will reflect the prejudices of their human programmers and focus only on their ideas about productivity and job performance. The use of AI can present new problems regarding both direct and indirect discrimination. Applicants for a position as well as workers are protected against directed discrimination. That is being treated less favorably in a comparable situation because they have protected characteristic, for example, race or gender. In an official Opinion on artificial intelligence, the European Economic and Social Council recently observed: "the development of AI is currently taking place within a homogenous environment principally consisting of young, white men, with the result that (whether intentionally or unintentionally) cultural and gender disparities are being embedded in AI, among other things because AI systems learn from training data". The Committee warned against the misconception that data is by definition objective. Data, instead, "is easy to manipulate, may be biased, may reflect cultural, gender and other prejudices and preferences and may contain errors".[29] An algorithm engaged in management must be instructed not to discriminate in this way. Indirect discrimination is also primitive. This means that it is not allowed to implement a policy that applies in the same way for everybody, but in effect disadvantages a group of people who share a protected characteristic. A policy that applies equally can still be discriminatory. Requirements concerning height or language proficiency might constitute indirect discrimination on the grounds of sex and ethnicity respectively. AI must not be allowed to reproduce prejudices possibly held by the people who constructed the system. The algorithm must be instructed so as not to ask questions that are irrelevant to the particular context, for example, a hiring process or the setting of wages. Since AI and Machine Learning collect and process data on historical events, it is of key importance that algorithms are programmed in a way that does not perpetuate historical biases and exclusionary practices.

[29] Catelijne Muller, European Economic and Social Council, Artificial intelligence – The consequences of artificial intelligence on the (digital) single market, production, consumption, employment and society (own-initiative opinion), OJ C 288, 2017, 43.

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A company's previous recruitment practices might have favored a particular category of candidates, and the algorithm must not be allowed to carry this practice into future recruitment.

Artificial intelligence basically enables the monitoring and surveillance of the activities of employees to a previously unthinkable extent, as well as the collection and processing of an enormous amount of data about these activities. AI systems must comply with data protection laws, which define the rights and obligations of the employer and the employee. At the workplace, AI and robotics often presupposed that employees are subjected to different kinds of surveillance while working. An employer is allowed to implement surveillance systems at work, but these must respect employee privacy and be proportional in the individual instance to a legitimate overriding interest on part of the employer, and employees must be informed of the surveillance in advance. AI systems must not be in breach of employees' right to privacy at work. To sum up, everything that labor law prohibits an ordinary human employer from doing is also not allowed from algorithm.

The employer is legally speaking responsible for the actions of algorithms and robots. AI and robotics must be implemented to the workplace in a way that complies with health and safety law, anti-discrimination legislation, data protection legislation, and workers' rights to personal integrity. AI reaches into many areas of labor protection under regulation of the workplace. It is also important that labor law responds to the call for human-centered vision for AI put forward by, for example, international organization, OECD, which ask that governments work closely with stakeholders to promote the responsible use of AI at work, to enhance the safety of workers and the quality of jobs, to foster entrepreneurship and productivity and aim to ensure that the benefits from AI are broadly and fairly shared.

IX. AI AND COMPETITION LAW

The principle objects of Competition Law are to eliminate practices which may adversely affect the competition, to promote competition in the market, to protect the interest of the consumers and ensure freedom of trade carried on by various participants in the market, with respect to the economic developments in the country. The Competition enforcement typically focuses on possible illegal agreements between competitors, anticompetitive vertical restraints (such as resale price maintenance), the abuse of dominant market power, and mergers that have the potential to substantially arrest competition.[30]

Under competition law, it does not make a difference whether two sellers directly agree to set

[30] The Antitrust Laws, FEDERAL TRADE COMMISSION (June 24, 2021, 9:40 PM), https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/antitrust-laws.

a price, or whether they use a third party to set the counter price for them. Such a scenario is referred to as an illegal hub & spoke cartel. In such situations, the cartel members do not directly communicate, but they use a hub as a messenger for their communication on prices. Why is this now interesting case in the context of AI? AI systems have started to influence the competitive market owing to their inherent ability to subvert the fundamental balance between independent market forces. These days, a lot of platforms use AI to determine the prices for the sellers on their platform. So on these platforms; price competition between sellers does not really take place. An example could be Uber that uses AI to determine the price for rides booked via the platform. The AI takes numerous factors into account when setting the price. These include, for example, the date, the time of the day, the number of available drivers and the demand for rides. So far, there is no clear answer to how competition law would and should treat such situations.

In the most advanced AI situations, it can be assumed that two very advanced AI systems are installed at two competing companies. These AI systems set the prices for these companies. Both are independently programmed, so that they are maximizing the profit for that company. Further, there are two subsets of situations, where competition does not take place anymore. One involves both AI, independently learning how the other one sets the price. In the end, they might even learn that rather than strongly competing against each other, they can increase their profit when they have matching prices. The second situation, involves a similar learning process, but to an even higher level. The AI learns to communicate with each other, and then agree on one price. In both situations, the result is the same. Consumers cannot take advantage of competing offers. "To the extent that the effects of increased oligopoly fall through cracks of antitrust law, the advent of the robo-seller may widen those cracks into chasms. For several reasons, the roboseller should increase the power of oligopolists to charge supracompetitive prices: the increased accuracy in detecting changes in price, greater speed in pricing response, and reduced irrationality in discount rates all should make the robo-seller a more skillful oligopolist than its human counterpart in competitive intelligence and sales. … the robo-seller should also enhance the ability of oligopolists to create durable cartels"[31]

So how can competition law deal with such a situation? The sellers were not involved in the price setting. The AI, without even being told so, learned that behavior. So far, there is no satisfying solution to these questions. These questions are particularly challenging, since in normal cartel situations, the fines can be rather high. But the core questions are still the same.

[31] Salil Mehra, Antitrust and the Robo-Seller: Competition in the Time of Algorithms, Minnesota Law Review, 2016, 1340.

Companies are predominantly encouraged for the formation of a cartel, it is the duty of the state to prevent the formation of cartel and prevent any price escalation. The consumers should not be susceptible to unwarranted consequences of the competition malpractices.[32] AI technology currently presents competitive market challenges and threats such as consumer infidelity.

Addressing AI's influence in the current scenario, it will be desirable that the competent authority frames regulations providing a definite time-frame for completion of investigation, inquiry and final disposal of the matters pending before the Commission.[33] Until specific legal regulations are framed for AI, the courts must indulge themselves in finding solutions to curb the anti-competitive behavior through machine learning and AI mechanisms.

X. CONCLUSION

Artificial Intelligence is expected to aid or even imitate human creativity. AI software can already be used today to create works of art, research and develop technologies. It can also be used by legal professionals to optimize contracts, determine the likelihood of getting a right or to win an argument and even find evidence that the law is being used without permission.

The reality is that today's AI systems are definitely not intelligent thinking machines in a meaningful sense. These systems do this primarily through heuristics, by recognizing patterns in data and using knowledge, rules, and information that have been specifically coded by humans so that they can be processed by computers. Therefore, machine-learning algorithms are, in some sense, able to program themselves because they have the capability of detecting useful decision rules on their own as they examine data and detect statistical outliers, rather than having those rules laid out for them explicitly, ahead of time, by human programmers.

In contrast, AI tends to malfunction in areas that are conceptual, abstract, value-laden, open, policy-oriented, or judgment-oriented; they require common sense or intuition; involve persuasion or arbitrary conversation; or commitment to the importance of humanistic concepts in the real world, such as social norms, social constructions or social institutions. In short, to the extent a problem area looks more like the latter—open-ended, value-laden, and subjective, without definite right-or-wrong answers—AI technology will tend to be much less useful.[34]

To conclude then, the rise of intelligent autonomous machines and the legal challenges that

[32] B.S.N. Joshi & Sons Ltd. v Ajoy Mehta, (2009) 3 S.C.C. 458 (India).
[33] CCI v SAIL, (2010) 10 S.C.C. 744 (India).
[34] S. Abbas Raza, The Values of Artificial Intelligence, EDGE (June 24, 2021, 10:01 PM), https://www.edge.org/response-detail/26050.

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they create, does not necessarily make legal regulation less relevant in this domain, but it does call for some legal engineering and for a great deal of legal ingenuity.

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