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**“ARTIFICIAL INTELLIGENCE IN LEGAL PROFESSION”.**

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**1. INTRODUCTION AND RESEARCH METHODOLOGY:**

**1.1 Introduction:**

From Alexa, the virtual assistant to self-driving cars, Artificial intelligence is developing rapidly. Artificial Intelligence which basically in laymen’s language is intelligence by the machine or machine learning. Artificial intelligence is, at its core, a computer that has been programmed to mimic the “natural” intelligence of human beings, such as by learning, reasoning, or making decisions. It has a lot of implications on the various sectors of the world making the task of human to be reduced to a great deal by saving time and money being used in many other sectors from quite a long time now. Artificial intelligence has transformed almost every professional sector and now it has slowly started to pave its way into the legal industry as well.

Today, artificial intelligence (AI) is beginning to transform the legal profession in many ways, but in most cases it augments what humans do and frees them up to take on higher-level tasks such as advising to clients, negotiating deals and appearing in court. The software solution is replacing paperwork and data management and is making the work and research in legal profession more efficient and less time consuming. Multiple companies have begun marketing AI systems to attorneys as a cost-effective means to perform document review, to wade through voluminous information, to interpret contracts, and to perform legal research. Though being a totally new concept to the legal industry the debate has started among the eminent persons of these field with lots of questions looming in the minds of the people over

impacts and demerits of its on the legal industry. The paper tries to explain in depth the various uses or applications of Artificial Intelligence in legal profession and how far it has proven to be beneficial for lawyers. This paper will delve into various aspects of Artificial Intelligence in legal profession and will state the importance and requirement of it in the present world. Further, along with its positive implications it has some demerits too, but Artificial Intelligence has proven so efficient in the legal profession, that it outweighs the demerits of the same. Thus, this paper will provide an analysis by giving an insight about applications of Artificial Intelligence in Legal Profession.

## **1.2 Research Methodology:**

### **1.2.1. Title:**

Artificial Intelligence in Legal Profession

### **1.2.2. Problem of the Study:**

With the advancement of technology, usage of Artificial Intelligence is increasing day by day as it is making the work of the lawyers more efficient and less time consuming but in return it is acting as a threat to employment and cyber security and is also responsible for lack of knowledge of lawyer.

### **1.2.3. Rationale of The Study:**

The study is conducted in order to find out the implications of Artificial Intelligence in legal profession. With the use of Artificial Intelligence, the legal research is done very effectively and efficiently. So, this study is conducted in order to see that to what extent lawyers are benefitted with the introduction of Artificial Intelligence.

### **1.2.4. Objectives:**

- a) To find out what is Artificial Intelligence.
- b) To find out the role of Artificial Intelligence in legal profession.
- c) To find out the implications of Artificial Intelligence in legal profession.
- d) To find out how far it has benefitted lawyers in their work.

**1.2.5. Review of Literature:**

- a) **Swapnil Tripathi and Chandni Ghatak, Artificial Intelligence and Intellectual Property Law, Christ University Law Journal 2017, Vol. 7, No. 1, 83-97:** This journal discusses about the importance of artificial intelligence in intellectual property laws and how intellectual property laws will be benefitted regarding the same.
- b) **Prof. A.Lakshminath & Dr.MukundSarda, Digital Revolution and Artificial Intelligence- Challenges to Legal Education and Legal Research, CNLU LJ (2) (2011-2012):** In this journal various demerits of artificial intelligence has been given like economic constraint and cyber security which helped to analyze the study properly.
- c) **Leia Parker, Menlo Park's Lex Machina Sold to LexisNexis, Silicon Valley Business Journal Vol 1 No 52 (Nov. 23, 2015):** Through this journal I got to know about the implication of artificial intelligence in law and how lex machine helps in legal research.
- d) **Raquel Acosta, Artificial Intelligence and Authorship Rights, Harvard Journal of Law And Technology, Vol 3 No 112 (Feb. 17, 2012):** This journal gave me an idea about the intricacies of artificial intelligence involved in intellectual property laws regarding authorship rights.

**1.2.6. Hypothesis:**

Artificial Intelligence has made a positive transformation in legal profession by making the work easy and less time consuming but due to some demerits like taking away of jobs, cyber security and economic constraints, it has received a setback in its development.

**1.2.7. Research Design:**

1.2.7 (A) The research design that I have employed in my project is 'Doctrinal Research Method'. In the research I took help from the library sources from the HNLU library.

1.2.7 (B) The proposed research study will be carried out with the help of the following strategies:

1. Studying Primary Sources (Indian Copyright Act, Indian Patent Act, 1957 )
2. Studying Secondary Sources( Books, Articles, Journals)

### **1.2.8. Chapterization:**

- 1) *Chapter 1*, deals with the introduction of the paper, it gives an overview as to what the paper deals with.
- 2) *Chapter 2*, deals with the meaning and origin of Artificial Intelligence. It also gives an idea that how far it has developed and benefitted the society.
- 3) *Chapter 3*, deals with the implications of artificial intelligence in legal profession. It tells about its usage done by lawyers for speeding up their research.
- 4) *Chapter 4*, deals with current status of artificial intelligence and intellectual property in Indian legal profession.
- 5) *Chapter 5*, deals with the demerits of artificial intelligence and why the due to these reasons the progress is slow of artificial intelligence in legal profession.
- 6) *Chapter 6*, deals with the analysis of the demerits and the conclusion of the study.

### **1.2.9. Scope of the Study:**

The study is has not taken any jurisdiction particularly, it has rather taken a general overview along with some glimpse of Artificial Intelligence in legal profession in India.

### **1.2.10. Time-Limit:**

The researcher took around two months in order to complete the research paper.

### **1.2.11. Contribution of Study:**

This study provides a view that despite of the demerits of artificial intelligence in legal profession, the merits and implications of artificial intelligence overshadow the same.

## **2. ORIGIN AND CONCEPT OF ARTIFICIAL INTELLIGENCE:**

### **2.1. Origin of Artificial Intelligence:**

Earlier in the 1700s, philosophers contemplated how human thinking could be artificially mechanized and manipulated by intelligent non-human machines.<sup>1</sup> The thought processes that fuelled interest in Artificial Intelligence has the origins when mathematicians, logicians and

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<sup>1</sup> Jordan Bigda, *The Legal Profession: From Humans To Robots*, (2018), <https://cpb-us-e1.wpmucdn.com/sites.suffolk.edu/dist/5/1153/files/2018/05/THE-LEGAL-PROFESSION-FROM-HUMANS-TO-ROBOTS-121x1wu.pdf>.

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classical philosophers considered the manipulation of symbols (mechanically), eventually leading to the invention of a programmable digital computer, the Atanasoff Berry Computer (ABC) in the 1940s. This specific invention inspired scientists to move forward with the idea of creating an “electronic brain,” or an artificially intelligent being.<sup>2</sup> However, a question arose whether the outcomes being rendered by the machine are a consequence of its own intelligence, or algorithms and commands and in order to tackle the same, Sir Alan Turing proposed a test called the ‘Turing test’.<sup>3</sup> This test was useful in measuring a machine’s ability to replicate human actions to an extent which is indistinguishable from human behaviour. It was this reliance and curiosity towards machines that AI projects were developed in such a manner which allowed for the performance of tasks in requirement of human-like creativity. The test called for the users to converse with a machine/human in a text only format, and then suggest whether they believed they communicated with a human or a machine.<sup>4</sup> As per Turing, an AI machine showed intelligence if the responses submitted by the same were indistinguishable from real human responses.

Later that decade, the field of AI research was founded during a summer conference at Dartmouth College in the mid-1950s, where John McCarthy, computer and cognitive scientist coined the term “artificial intelligence.”<sup>5</sup> According to him, it was the notion of a program, processing and acting on information, such that the result is parallel to how an intelligent person would respond in response to similar input.<sup>6</sup> Thus, from the 1950s forward, many scientists, programmers, logicians, and theorists helped in solidifying the modern understanding of artificial intelligence as a whole. With each new decade came innovations and findings that transformed people’s fundamental knowledge of the field of artificial intelligence and how historical development has catapulted AI from being an unattainable fantasy to a tangible reality for present and future generations.

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<sup>2</sup> J. Stephen O'Donnell, *Artificial Intelligence Use in the Legal Profession: What are Its Liabilities, Software Law*, <https://heinonline.org/HOL/P?h=hein.journals/softljou4&i=82>.

<sup>3</sup> Swapnil Tripathi and Chandni Ghatak, *Artificial Intelligence and Intellectual Property Law*, *Christ University Law Journal* 2017, Vol. 7, No. 1, 83-97, <https://doi.org/10.12728/culj.12.5>

<sup>4</sup> *Id.* at 85.

<sup>5</sup> Prof. A.Lakshminath&Dr.MukundSarda, *Digital Revolution and Artificial Intelligence- Challenges to Legal Education and Legal Research*, *CNLU LJ* (2) (2011-2012).

<sup>6</sup> Raquel Acosta, *Artificial Intelligence and Authorship Rights*, *Harvard Journal Of Law And Technology* (Feb. 17, 2012), <http://jolt.law.harvard.edu/digest/copyright/artificial-intelligence-andauthorship-rights>.

## **2.2. Concept of Artificial Intelligence:**

Artificial intelligence is a collection of concepts and technologies which can be interpreted differently by different people. AI can be defined as: “An AI is a computer system which can perform tasks which ordinarily require human intelligence.”<sup>7</sup> Self-driving cars, robots that impersonate humans, machine learning, and more and its applications are everywhere we look. The person who coined the term artificial intelligence i.e. John McCarthy has also divided its sub-field. One of the being Machine Learning. Artificial intelligence systems are powered by machine learning. Machine Learning (ML) is a method to teach a computer to answer a yes or no question about something. That something might be a picture, which is often referred to as an image.<sup>8</sup> It might be an audio stream. It might be a spreadsheet. AI (artificial intelligence) is the simulation of human intelligence processes by machines, and computer systems. These methods comprise of learning, reasoning and self-correction. The idea of ML (machine learning) is that we teach the computer how to answer the questions. This is done by presenting the computer with a large number of examples. Some of the examples have the answer “yes”, and others have as the answer “no” as the answer.<sup>9</sup> Ideally, there will be many examples of both answers. The word ‘lots’, mean one needs to provide hundreds for minimal learning and thousands for good learning; in high stakes cases, tens or hundreds of thousands of examples must be supplied.<sup>10</sup>

In the 1960s, the US Department of Defense took keen interest in AI and began training computers to mimic basic human reasoning. For instance, the Defense Advanced Research Projects Agency (DARPA) finished street mapping projects in the 1970s. And DARPA produced intelligent personal assistants in 2003, much before Siri, Alexa or Cortana were household names.<sup>11</sup> Artificial intelligence is a machine working smartly. It is the application of a brain into machines that can enable them to take decisions by themselves is the literal meaning and purpose of artificial intelligence. Artificial intelligence is developed with the

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<sup>7</sup> *Id.*

<sup>8</sup> Oksana Tunikova, *What You Need To Know About Artificial Intelligence*, ( January 5, 2018), <https://stopad.io/blog/artificial-intelligence-facts>.

<sup>9</sup> Tripathi and Ghatak, *supra* note 3.

<sup>10</sup> *Id.*

<sup>11</sup> [https://www.sas.com/en\\_in/insights/analytics/what-is-artificial-intelligence.html](https://www.sas.com/en_in/insights/analytics/what-is-artificial-intelligence.html).

aim to offer users experience with the machine just like they can have with humans. These machines and software that use artificial intelligence behave like humans and interact like them too.<sup>12</sup> App development companies take the help of the artificial intelligence in order to solve problems and deliver a quick solution to end users. Just the way humans need time and experience in order to grow up mentally, artificial intelligence also needs time. When a baby touches a hot vessel, the data is stored in his mind that is hurts and not to repeat it. Similarly, artificial intelligence works. It keeps growing with the experiences by storing data and applying it in future whenever necessary. AI is very complicated to learn & implement but very easy in its usage. One of the common area where AI is adopted and is currently being used are-(a) *Speech Recognition like Siri, Google assistant*, (b) *AI optimized hardware*, (c) *Machine learning platforms like Amazon, Google, Microsoft*, (d) *Biometrics like in Affectiva, Agnitio, 3V*, (e) *Cyber defence*, (f) *Emotion recognition*.

### **3. CURRENT APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN LEGAL PROFESSION:**

Litigators in the legal profession have been utilizing AI for almost ten years in the discovery process. There are more than 30 legal applications of AI currently being used by the legal profession today.<sup>13</sup> There are five major categories under which those applications fall, specifically: (1) *Prediction Technology*, (2) *Legal Analytics*, (3) *Due Diligence*, (4) *Document Automation*, (5) *Electronic Billing*.<sup>14</sup> This analysis will discuss each of these six categories and will include information about some of the software applications for each of them, which are currently available to, or are in use by the legal profession.

#### **3.1. Prediction Technology:**

AI software that forecasts the outcome of litigation is referred to as Prediction Technology. This type of technology “analyzes past legal reference data to provide insights into future

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<sup>12</sup> Hemendra Singh, *What is AI? Know all about Artificial Intelligence*, (June 23, 2018), <http://customerthink.com/what-is-ai-know-all-about-artificial-intelligence/>.

<sup>13</sup> Edgar Alan Rayo, *AI and Legal Practice – A Comprehensive View of Current Applications*, TechEmergence (Sept. 19, 2018), <https://www.techemergence.com/ai-in-law-legal-practice-current-applications/>.

<sup>14</sup> *Id.*

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outcomes, powered by advances in machine learning; Legal analytics quantitatively could forecast a judge's holding in litigation, or an examiner's allowance of a patent application."<sup>15</sup> With this comes excitement over possibilities, namely revealing that certain judges are re-using the same language over and over again, or are according themselves to patterns.<sup>16</sup> Such solutions are favourable to evaluate a litigant's probability of winning by being shown "the win rate of motions" in a certain court.<sup>17</sup> Although several studies have attempted to predict the outcome of Supreme Court decisions based upon a guess at Justices' behaviour by the use algorithms, one, in particular, has brought itself special attention.<sup>18</sup>

In 2011, researchers, Roger Guimerà and Marta Sales-Pardo made use of the Supreme Court Database, "which contains information on cases dating back to 1791, to build a general algorithm for predicting any justice's vote at any time. They drew on sixteen features of each vote, including the justice, the term, the issue, and the court of origin. Researchers also added other factors, such as whether oral arguments were heard."<sup>19</sup> The team then creates a machine-learning statistical model, which they call a random forest, for each year between 1816 and 2015. The machine's review of all prior years found "associations between case features and decision outcomes."<sup>20</sup> Each Justice's vote along with information as to whether the Supreme Court reversed a lower court's ruling was a part of the outcome of the decisions. Next, the model made its predictions about decisions outcomes by review of the features of each case for that year.<sup>21</sup> In order to update the model's strategy and proceed to the next year, the algorithm was fed information about the outcomes. The machine-learning statistical model's results, as reported in PLOS ONE, indicates, "from 1816 until 2015, the algorithm predicted 70.2% of the court's 28,000 decisions and 71.9% of the justices' 240,000 votes."<sup>22</sup>

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<sup>15</sup> Jonathan Marciano, *Automating The Law: A Landscape of AI Solutions*, TOPBOTS (June 10, 2017), <https://www.topbots.com/automating-the-law-a-landscape-of-legal-a-i-solutions/>.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> Matthew Hutson, *Artificial Intelligence Prevails at Predicting Supreme Court Decisions*, Science Magazine (May 2, 2017), <http://www.sciencemag.org/news/2017/05/artificial-intelligence-prevails-predicting-supreme-courtdecisions>.

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> Brandy Jo Lea, *Artificial Intelligence ("Ai") In The Legal Profession*, (Dec 3, 2018),

<https://www.academia.edu/people/search?utf8=%E2%9C%93&q=Artificial+intelligence++in+legal+profession>.

<sup>22</sup> *Id.*

“That bests the popular betting strategy of “always guess reverse,” which has been the case in 63% of Supreme Court cases over the last 35 terms. It is also better than another strategy that uses rulings from the previous 10 years to automatically go with a "reverse" or an "affirm" prediction.”<sup>23</sup> Guimerà’s take on the new algorithm is that it “is rigorous and well done.”<sup>24</sup> Thus, as a result of this new technology, a lawyer could make their decision as to whether or not to proceed to the Supreme Court with their case, based upon their probability of winning.<sup>25</sup>

### **3.2. Legal Analytics:**

As it has been for “hundreds of years,” a core skill of a successful lawyer is to conduct accurate legal research.<sup>26</sup> To do this, a lawyer will first identify the relevant law, (e.g., statutes, cases, and rules), for which the lawyer will use “to apply to the facts of a case.” In an attempt to make this process more efficient, new technology has “appeared in litigators’ toolkits: legal analytics.”<sup>27</sup> Legal analytics software is predictive technology that comprises of advanced technologies, such as machine-learning, and natural language processing to extract and analyze key data points from millions of case documents and docket entries.<sup>28</sup> It is important to note that “Data-driven insights from legal analytics do not replace legal research or reasoning, or lawyers themselves; they are a supplement, both prior to and during litigation.”<sup>29</sup> Before the emergence of legal analytics, litigators have had to rely upon their colleagues to obtain insight and information as to patterns or behaviours of a particular judge, and even a firm/attorney who may be on the opposing side of a case, for which those colleagues may have dealt with in the past. Because this subjective data “often relies on a small sample size,” and therefore, could be misleading and is not likely “to provide a

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<sup>23</sup> Hutson, *supra* note 18.

<sup>24</sup> *Id.*

<sup>25</sup> Lea, *supra* note 21.

<sup>26</sup> Owen Byrd, *Legal Analytics vs. Legal Research: What’s The Difference?* Law Technology Today, American Bar Association (June 12, 2017), <https://www.lawtechnologytoday.org/2017/06/legal-analytics-vs-legal-research/>.

<sup>27</sup> Priya Barua, *Artificial Intelligence and Law*, (Feb 24, 2019), <https://lawtimesjournal.in/artificial-intelligence-and-law/>.

<sup>28</sup> *Id.*

<sup>29</sup> Owen Byrd, *Legal Analytics vs. Legal Research: What’s The Difference?* Law Technology Today, American Bar Association (June 12, 2017), <https://www.lawtechnologytoday.org/2017/06/legal-analytics-vs-legal-research/>.

complete, accurate picture.”<sup>30</sup> As a result, the use of legal analytics for litigators can be advantageous. One of the significant legal analytics software currently in use in the legal profession is also Lex Machina.<sup>31</sup>

### **3.2.1. Lex Machina:**

In 2006, experts from Stanford University’s Computer Science Department and Law School built Lex Machina as a public interest project with the idea in mind to make “intellectual property law more transparent.”<sup>32</sup> In November of 2015, LexisNexis bought Machina, Inc.<sup>33</sup> LexisNexis is “a leading information provider and a pioneer in delivering trusted legal content and insights through innovative research and productivity solutions, supporting the needs of legal professionals at every step of their workflow.”<sup>34</sup> With Lex Machina now a product of LexisNexis, many software applications began to flourish, including applications for AI software. LexisNexis and Lex Machina were named Legal A.I. Leaders in the National Law Journal’s Inaugural List, in February of 2018.<sup>35</sup> Lex Machina provides legal analytics to law firms and other companies, aiding them to craft effective tactics, win cases, and close business. The function of legal analytics is that it “combines data and software to provide the winning edge in the highly competitive business and practice of law.”<sup>36</sup> Lex Machina’s Lexpressions engine produces data sets from millions of pages of litigation information regarding judges, lawyers, parties, and the subjects of lawsuits, which has never before been available.

With the help of this data, for the first time, lawyers can predict the behaviours and outcomes that different legal strategies will produce.<sup>37</sup> For instance Lex Machina’s Legal Analytics Apps combine instant access to analytic insights with ultimate ease of use. They deliver

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<sup>30</sup> *Id.*

<sup>31</sup> Rayo, *supra* note 13.

<sup>32</sup> Leia Parker, *Menlo Park’s Lex Machina Sold to LexisNexis*, Silicon Valley Business Journal (Nov. 23, 2015), <https://www.bizjournals.com/sanjose/news/2015/11/23/menlo-parks-lex-machina-sold-to-lexisnexis.html>.

<sup>33</sup> Press Release, *Lex Machina, LexisNexis Acquires Premier Legal Analytics Provider Lex Machina* (Nov. 23, 2105), <https://lexmachina.com/media/press/lexisnexis-acquires-lex-machina/>.

<sup>34</sup> Lex Machina, <https://lexmachina.com/about/>.

<sup>35</sup> Lex Machina, <https://lexmachina.com/media/press/lexisnexis-lex-machina-named-legal-leaders-national-lawjournals-inaugural-list/>.

<sup>36</sup> Lex Machina, <https://lexmachina.com/about/>.

<sup>37</sup> *Id.*

answers for specific use cases, such as comparing courts, judges, or law firms, early case assessment, motion strategy, and patent portfolio evaluation.

### **3.3. Due Diligence:**

The AI application category of due diligence comprises of electronic discovery, contract review and legal research. As a lawyer, a major undertaking one will perform on behalf of one's clients is meticulously reviewing the facts of a client's case along with performing legal research in order to assess their legal issue.<sup>38</sup> As a result, the lawyer may then appropriately advise the client as to what their options are; and give their advice and guidance on what, if any, actions the client should take.<sup>39</sup> Performance of this task can be lengthy and monotonous for lawyers and due to this reason, chance are there that lawyers could be prone to mistakes or inaccuracy as to their understanding of the law in relation to their client's matter. Consequently, the emergence of AI applications to assist with critical due diligence tasks, as discussed above, was founded and employed.<sup>40</sup>

#### **3.3.1. Kira Systems:**

In January 2011, Waisberg (junior associate of a firm) got together with Dr. Alexander Hudek, from Canada's University of Waterloo, to devise an AI system for lawyers to use during their Due Diligence document search.<sup>41</sup> This system would be one in which it could learn the repetitive search patterns used by lawyers in order to perform Due Diligence work on a daily basis. Consequently, this led to the formation of Kira Systems, wherein Waisberg is co-founder and CEO, and Hudek is co-founder and CTO. Kira Systems automates the analysis and extraction of major provisions from across a company's contracts. It also automatically locates provisions imperative in M&A, and also comprises of unfamiliar contracts.<sup>42</sup> A user can select provisions which are necessary to the user's specific contract from Kira's built-in provisions, or a user can create custom provisions. Once the provisions are selected, Kira Systems will identify and highlight those provisions within the user's

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<sup>38</sup> Rayo, *supra* note 13.

<sup>39</sup> Mark McKamey, *Legal Technology: Artificial Intelligence And The Future Of Law Practice*, <https://journals.uvic.ca/index.php/appeal/article/viewFile/16750/7104>.

<sup>40</sup> *Id.*

<sup>41</sup> Artificial Lawyer, *AI Founders: The Kira Systems Story*, Artificial Lawyer (Dec. 28, 2016), <https://www.artificiallawyer.com/2016/12/28/ai-founders-the-kira-systems-story/>.

<sup>42</sup> Kira, Inc., <https://kirasystems.com/how-it-works/due-diligence>.

document. Kira can keep a team organized and makes it easy to do so because it can “assign documents to reviewers, keep track of which documents or provisions have been reviewed, escalate problems, and much more.”<sup>43</sup> In short, the job for Kira Systems is clear, “extract vital information from documents and do it with the accuracy and speed one would expect from an applied AI system, which can be a time saving of 20% to 90%.”<sup>44</sup> In any law firm, big or small, this amount of time-saving could potentially raise a firm's client base, which consequently could increase revenue.

### **3.4. Document Automation:**

Traditionally, “document creation and assembly were simultaneously the nuisances and the “bread and butter of generations of associates.”<sup>45</sup> Drafting new documents, such as contracts and other legal documents, for every issue involved constant care and efforts that were prone for introduction of errors and it involves a long period of time. But with the development of document automation, this problem is solved very easily. Document automation software is analogous to software such as TurboTax in that the software automates a document based upon information/data it collects from a questionnaire for which a user inputs their answers.<sup>46</sup> “Based on the input provided by the users, the appropriate data and elements of the master template are then automatically inserted into a final document, which is generated by the system and then returned to them.”<sup>47</sup> One of the examples of Document Automation software is Neota Logic System.

#### **3.4.1. Neota Logic System – PerfectNDA:**

Neota Logic System (“NLS”) is an AI software platform that began in 2010 with a group of technology-savvy lawyers working out of their homes assembled a team of ten to brainstorm and create an AI software from which clients can “create innovative services that can help reduce risks, reduce costs and improve business decisions.”<sup>48</sup> The NLS “is a no-code, AI-

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<sup>43</sup> Bernard Marr, *How AI And Machine Learning Are Transforming Law Firms And The Legal Sector*, (May 13 2018), <https://www.forbes.com/sites/bernardmarr/2018/05/23/how-ai-and-machine-learning-are-transforming-law-firms-and-the-legal-sector/#7e919b4c32c3>.

<sup>44</sup> *Id.*

<sup>45</sup> Geoffrey Goldberg, *What is Document Automation? Law Technology Today* (Jan. 30, 2015), <https://www.lawtechnologytoday.org/2015/01/document-automation/>.

<sup>46</sup> Lea, *supra* note 21 at 16.

<sup>47</sup> *Id.*

<sup>48</sup> Neota Logic, <https://www.neotalogic.com/neotas-story/>.

powered software development platform with which subject matter experts and other professionals can develop intelligent applications to automate expertise, processes, and documents.”<sup>49</sup> Moreover, the basis of NLS is explained as being: “The foundation of NLS is a uniquely powerful hybrid reasoning engine, which delivers substantive guidance on legal, regulatory, and policy questions and also drives the integrated document automation engine and the process workflow manager.”<sup>50</sup>

PerfectNDA is an example of NLS software that shortens the nondisclosure process by offering templates selected by AI according to a user’s scenario. Once the user answers a series of questions, the software creates a pre-populated template, and it will then email the signing party.<sup>51</sup> Additionally, PerfectNDA comprises of features, such as document filing and integrated e-signatures in order to “streamline related manual processes included in NDA drafting.” Consequently, a user can complete and file an NDA in just "six clicks," hence allowing a user more time to devote to the "business at hand." Thus, the usage of document automation by law firms reduces the errors, costs and overall inefficiencies in relation with traditional drafting methods.

### **3.5. Electronic Billing:**

As an alternative to paper-based invoices, the development of Electronic Billing platforms came about with the purpose of reducing disputes online items, more aptly client adjustments, accurate reporting and tracking, and reduction in paper costs. Employing an efficient and accurate legal billing tool is vital for lawyers and law firms; because if clients are not getting invoices, lawyers and law firms are not getting paid.<sup>52</sup> When a lawyer or law firm sets out to search for legal billing software, it is essential to confirm that the invoices the software creates are “editable, easy to read and can be easily shared with clients in electronic format.”<sup>53</sup> As a result, the lawyer or law firm could avoid the costly, inefficient and time-

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<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

<sup>51</sup> Lea, *supra* note 21 at 18.

<sup>52</sup> Nicole Black, *Some Choices For Legal Billing Software That Really Pay Off*, ABA Journal (June 22, 2018), [http://www.abajournal.com/news/article/some\\_choices\\_for\\_legal\\_billing\\_software\\_that\\_really\\_pay\\_off](http://www.abajournal.com/news/article/some_choices_for_legal_billing_software_that_really_pay_off).

<sup>53</sup> *Id.*

consuming process of creating, printing out and mailing paper invoices. Brightflag and Smokeball are two AI applications that are currently in use for electronic billing software.

**3.5.1. Brightflag:**

Brightflag offers centralized legal pricing software that automatically adjusts line-by-line items. It also allows users to centralize the invoice review so that all documents submitted are routed directly to the correct approver. Also, the AI provides analytics features by tracking and categorizing all pricing data to determinate alternative fee arrangements ("AFA") and budgets."<sup>54</sup> According to Brightflag, by using its platform's assisted review feature, its average client reduces administrative costs as they relate to payment management by 8%-12%. Among Brightflag's current "marquee" clients are telecom giant Telstra and Uber.<sup>55</sup>

**3.5.2. Smokeball:**

Smokeball is a cloud-based legal practice management tool, which "automates the recording of time and activities by law firms."<sup>56</sup> A crucial characteristic of this legal practice management tool is its capability to track all activities comprising of emails that are valid for billing. According to its website, Smokeball has "automated more than 600,000 forms and managed over 10 million documents;" and "small law firms using Smokeball see a 34% average increase in profitability."<sup>57</sup>

Therefore, electronic billing applications that employ AI in the use of their software demonstrates the benefits lawyers/law firms will receive if they choose to employ the same. Each one of the AI startups that are currently in use by the legal profession has the same goals, i.e., efficiency, and accuracy. These technology companies set out to build a machine learning system that could assist lawyers with the routine tasks they perform on a daily basis, in hopes to alleviate common mistakes or inaccuracies that junior associate lawyers inadvertently make in performing mundane tasks.<sup>58</sup>

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<sup>54</sup>Lea, *supra* note 21.

<sup>55</sup>*Id.*

<sup>56</sup> Smokeball.com, <https://www.smokeball.com/features/legal-time-and-billing-software/>.

<sup>57</sup>*Id.*

<sup>58</sup> Lea, *supra* note 21.

## **4. RECENT TRENDS OF ARTIFICIAL INTELLIGENCE AND INTELLECTUAL PROPERTY IN INDIAN LEGAL PROFESSION:**

### **4.1. Artificial Intelligence in Indian Legal Profession:**

Nowadays, we have seen artificial intelligence being implemented at a small but highly effective scale in various Industries, from robotic concierges in hotels to automated entertainment or in Cell phones.<sup>59</sup> Artificial intelligence has changed the shape of multiple industries. The Indian legal sector has seen very little innovation in terms of technology and lawyers these days still comfortable and relying on the methods and solutions that were designed years ago. Artificial intelligence can play a big part in changing the way lawyers operate and the law is looked at in India. One of the biggest disruptions that can be caused by Artificial Intelligence in law is that in the field of legal research. The Indian legal system is vast and constantly changing and with the use of Artificial Intelligence, lawyers can get unparalleled insight into the legal domain within seconds.<sup>60</sup> Currently to get legal research done a significant number of man-hours are required and this significantly reduces the profit-making ability of a law firm, however, with Artificial Intelligence the entire legal fraternity can be balanced.

An artificially intelligent platform for research can get research done in seconds and be it a law firm with 400 lawyers or single practising lawyer, artificial intelligence can balance the expenditure required for in legal research making the quality of research uniform.<sup>61</sup> It can provide lawyers with highly efficient and advanced tools helping lawyers become better in advising clients or litigating. A slew of Indian legal tech start-ups i.e. SpotDraft, CaseMine, NearLaw, Pensieve, Practice League etc are building Natural Language Processing [NLP] based applications and introducing next-generation legal research platforms that help law

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<sup>59</sup> Shubham Borkar and Nitish Daniel, India: Advent Of AI And Its Increasing Presence In Legal Sector With Special Reference To Insolvency Resolution, (Dec 13, 2018), <http://www.mondaq.com/india/x/763746/fin+tech/Advent+Of+AI+And+Its+Increasing+Presence+In+Legal+Sector+With+Special+Reference+To+Insolvency+Resolution>.

<sup>60</sup> *Id.*

<sup>61</sup> Sakshi Goyal, *Emerging Artificial Intelligence (AI) Trends in The Legal Profession*, (Sep 25, 2018), <https://blog.ipleaders.in/ai-in-legal-profession/>.

firms go beyond simple, keyword-based research, thereby making it less time-consuming.<sup>62</sup> Many legal start-ups are fast rising in Artificial Intelligence research capabilities, some of whom have their own AI research labs.

But on the other hand, Indian Legal industry has not been completely open to the technological changes in comparison with the international legal industry. The principles on which the industry is based are the main reason for its resistance towards the technological development.<sup>63</sup> The technological changes are expensive and inaccessible. Indian Legal system has always been labour intensive. Many people in this country are not aware of the artificial intelligence which is tailored specifically for the legal work. In 2017, Cyril Amarchand Mangaldas, was the first Legal firm to sign an agreement with Kira Systems, a Canada-based machine learning software provider, to improve the efficiency, accuracy and speed of the firm's delivery model for legal services for legal research.<sup>64</sup> With the spread of Digital India, the Supreme Court has for the first time digitized its record which indeed has resulted into an adoption of AI technology by more law firms as AI uses the online information available.<sup>65</sup> Thus, it can be said that India being a developing country and following the traditional methods of research is not taking Artificial Intelligence into usage but with the growing technological advancements in adopting Artificial Intelligence into Indian Society.

#### **4.2. Application of Artificial Intelligence in Intellectual Property:**

It is of no surprise that "Securing patents, copyrights and trademarks are often best left to a lawyer's expertise; however, the entire patent application process can be long and arduous."<sup>66</sup> For instance, conventional trademark and patent search "comprises of looking into hundreds, if not thousands, of results through manual research," which can be extremely time-consuming.<sup>67</sup> With the time constraint on patent applications, the need for a more efficient

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<sup>62</sup> S. Kalyanakrishnan, R. A. Panicker, S. Natarajan, and S. Rao, Opportunities and Challenges for Artificial Intelligence in India, [https://www.cse.iitb.ac.in/~shivaram/papers/kpnr\\_aies\\_2018.pdf](https://www.cse.iitb.ac.in/~shivaram/papers/kpnr_aies_2018.pdf).

<sup>63</sup> *Id.*

<sup>64</sup> Goyal, *supra* note 61.

<sup>65</sup> *Id.*

<sup>66</sup> Ben Gardner, *Comment: Artificial Intelligence – Application in Legal*, (March 22 2016),

<https://www.legaltechnology.com/latest-news/comment-artificial-intelligence-application-in-legal/>.

<sup>67</sup> Tripathi and Ghatak, *supra* note 3.

way to conduct the necessary research is crucial.<sup>68</sup> And for performing this, more efficiently various AI models are formed in the field of Intellectual Property Laws.

#### **4.2.1. TrademarkNow:**

In 2012, TrademarkNow came on to the scene, and as part of its services, it handles some of the manual knowledge work of intellectual property (“IP”) applications with AI.<sup>69</sup> The software uses “a complex algorithm that is said to shorten weeklong searches for registered products and trademark using the Trademark Clearance platform, which returns search results in less than 15 seconds according to the company’s claims.”<sup>70</sup> The framework breaks down the results and places them as per importance to the “user” as recognized by the algorithm. 2.

#### **4.2.2. ANAQUA Studio:**

ANAQUA Studio is a cloud-based application, the design of which was particular for use for drafting prosecutions and patents. ANAQUA is “The first patent application-drafting tool specifically designed to save attorney’s time while improving the legal and technical quality of patent applications and Office Action responses.”<sup>71</sup>

Furthermore, ANAQUA Studio “cuts the time to produce, prosecute, and process high-quality patent applications by 50% or more.”<sup>72</sup> In addition, with ANAQUA Studio, a user could save four hours on provisional patent applications and 20 hours on non-provisional applications. Moreover, the system can detect document errors, circular claim references, and formatting defects, apart from automatically generating support for literal claims.<sup>73</sup> Consequently, IP lawyers/firms who choose to employ the AI software such as TrademarkNow and ANAQUA Studio can avail a lot of benefits from its usage because it creates a more efficient and accurate way to handle IP matters, and as a result, the clients may also benefit.

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<sup>68</sup> *Id.*

<sup>69</sup> PR Newswire, *Trademark Now Records Year Over Year Global Revenue Growth of 416% in 2015*, Trademark Now (Dec. 17, 2015), <https://www.prnewswire.com/news-releases/trademarknow-records-year-over-year-global-revenue-growth-of-416-in-2015-300194390.html>.

<sup>70</sup> Rayo, *supra* note 13.

<sup>71</sup> Anaqua, Inc., *Anaqua Studio Data Sheet* (2016), [https://www.anaqua.com/system/files/Assets/anaqua-studiodata-sheet.pdf?det=GL\\_UN\\_WEB\\_Anaqua\\_2016\\_AnaquaStudioDataSheet](https://www.anaqua.com/system/files/Assets/anaqua-studiodata-sheet.pdf?det=GL_UN_WEB_Anaqua_2016_AnaquaStudioDataSheet).

<sup>72</sup> *Id.*

<sup>73</sup> Lea, *supra* note 21.

### **4.3. Artificial Intelligence in Indian Intellectual Property Law:**

Developing high end AI systems requires huge amount of investment. Therefore, there is a dire requirement of development of such IP related laws which can protect the developments of AI technology and compensate the innovators through the copyright or patent grant. But according to the Intellectual Property Laws in India, patents and copyrights are granted to the inventors or artists on the basis of fulfilment of criteria like novelty, creativity, unobviousness, inventive step etc. The challenge involved here is that the current legal definition of creativity and innovation do not mention anything about non-human innovation.<sup>74</sup> Therefore the ownership of AI inventions still remains unanswered. The current Indian Intellectual Property regime is “unattractive” and averse to incentivising research and adoption of AI. Section 3(k) of Patents Act exempts algorithms from being patented, and the Computer Related Inventions (CRI) Guidelines have faced much controversy over the patentability of mere software without a novel hardware component.<sup>75</sup> Furthermore, there needs to be a standard either in the CRI Guidelines or the Patent Act that differentiates between AI algorithms and non-AI algorithms. Additionally, given that there is no historical precedence on the need of patent rights in order to incentivise creation of AI, innovative investment protection mechanisms that have lesser negative externalities, such as compensatory liability regimes would be more desirable.<sup>76</sup>

In the UK, the author of a work is defined by the Copyright Designs and Patents Act 1988 (the "CDPA") as the person who "creates" it.<sup>77</sup> Though for inventions/innovative works by machines with weak AI which means where a programmer is in direct control of every output; the IPRs can be granted to the human/author operating these machines. The UK CDPA also provides that where a work "is generated by a computer in circumstances such that there is no human author of the work" the author will be "the person by whom the

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<sup>74</sup> India: *Artificial Intelligence And Intellectual Property Rights*, (Aug 21, 2017), <http://www.mondaq.com/india/x/617260/new+technology/Artificial+Intelligence+and+Intellectual+Property+Rights>.

<sup>75</sup> Amber Sinha, Elonnai Hickok and Arindrajit Basu, *AI in India: A Policy Agenda*, (Sep 5, 2018), <https://cis-india.org/internet-governance/blog/ai-in-india-a-policy-agenda>.

<sup>76</sup> <https://cis-india.org/internet-governance/blog/niti-aayog-discussion-paper-an-aspirational-step-towards-india2019s-ai-policy>.

<sup>77</sup> *Id.*

arrangements necessary for the creation of the work are undertaken".<sup>78</sup> This provision doesn't leave any room for the AI itself to be considered the author so a human author needs to be found from somewhere. But for the machines with strong AI, working out on who owns the IP rights of the content created by these machines is far more complex than it appears; especially when it comes to licensing or enforcing those rights.<sup>79</sup> As for now, the AI systems are not considered as persons and there is no single law which sets out who will own the IP rights in any content they create. Therefore, there is lot of scope for improvement in this field of law. There needs to be a paradigm shift in current IP law framework, so that an AI system can be involved in creating the relevant content. As AI becomes harder to differentiate from human acts, the questions of law pertaining to the ownership are bound to become more and more tricky and inevitable in the years to come.<sup>80</sup>

## **5. DEMERITS OF ARTIFICIAL INTELLIGENCE IN LEGAL PROFESSION:**

### **(a) Taking away of jobs:**

The jobs of office clerks, receptionists, customer service reps, analysts, marketers, doctors, attorneys, underwriters and creative's could be replaced by AI in the next decade. As Sundar Pichai, the CEO of Google says, —In the next decade, we will shift to a world that is AI-first.<sup>81</sup> Thus, AI is a potential threat to employment.

### **(b) Vulnerable to attack:**

While A.I. protection has its fair share of strengths, A.I. driven cyber security may not be as impactful as portrayed. Experts in fact are very concerned about the many shortcomings that instil a false sense of security in organizations.

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<sup>78</sup> Yogima Sharma, *IP regime may be tweaked to boost Artificial Intelligence research*, ( June 14, 2018), <https://economictimes.indiatimes.com/news/economy/policy/ip-regime-may-be-tweaked-to-boost-artificial-intelligence-research/articleshow/64593342.cms>.

<sup>79</sup> *Id.*

<sup>80</sup> *Id.*

<sup>81</sup> Andrew Kucheriavy, *Artificial Intelligence Will Take Your Job: What You Can Do Today To Protect It Tomorrow*, (Feb 26, 2018), <https://www.forbes.com/sites/forbestechcouncil/2018/02/26/artificial-intelligence-will-take-your-job-what-you-can-do-today-to-protect-it-tomorrow/#7d4fc4bc4f27>.

**(c) Economic Problem Formation of Artificial Intelligence:**

A.I. requires tremendous expenses because they are exceptionally complex machines. Their repair and upkeep require gigantic expenses. They have programming programs which require visit up degree to take into account the necessities of the changing condition and the requirement for the machines to be more intelligent continuously. On account of serious breakdowns, the method to recuperate lost codes and restoring the framework may require tremendous time and cost.

**(d) Untrained professionals at the lower level:**

Artificial Intelligence is expected to create a lot of untrained legal professional at the joining level. The main task of the newly recruited employee at the law firm is to prepare and review document. If this work is done by the AI to perfection within few seconds then it might lead to untrained and unskilled professionals in the Law firm.

**(e) Only sticks to the programming:**

First, and most glaring, the AI is only as strong as the algorithm and data underpinning it. The strength and weakness of AI are that it does exactly what it is programmed to do. A human must program the AI system at the outset and must supervise and review the results produced by the AI system.<sup>82</sup> Failure in adequately supervising can result in malpractice allegations. *In J-M Manufacturing Co. v. McDermott Will & Emery*,<sup>83</sup> a law firm was sued and accused of failing to adequately supervise, among other things, a discovery vendor that used search term and keyword filters to filter privileged documents. Unfortunately for the firm, it did not adequately review the vendor and check the documents before production, which resulted in privileged documents being produced in a qui tam action by the government.<sup>84</sup> The case is still ongoing seven years later and serves as a reminder to not put complete faith in the AI systems utilized.

**(f) Lacks human Reasoning:**

AI also lacks human reasoning that can provide a “sanity check” to the results and lacks the personal experience that leads to a person’s intuitive response to situations. This reasoning

<sup>82</sup> Alarie, Benjamin and Niblett, Anthony and Yoon, Albert, *How Artificial Intelligence Will Affect the Practice of Law* (November 7, 2017), <http://dx.doi.org/10.2139/ssrn.3066816>.

<sup>83</sup> No. BC 462 832 (Cal. Super. Ct. July 28, 2011).

<sup>84</sup> *Id.*

and experience can allow a human lawyer of the evaluation of merits and likelihood of success. This also applies to AI systems that have a stylistic component, such as translation. A recent study published in the MIT Technology Review determined that, while AI translations work well at the word or sentence level, translations of whole documents still leave much to be desired.<sup>85</sup> In the comparison of human to machine translations, the fluency of the translation, which is effectively a measure of how awkward the translation is, was significantly better for human translators than for machines.<sup>86</sup> The accuracy of the translation at the document level was also better for human translators. Additionally, human lawyers still maintain the advantage in oral advocacy.

**(g) Data Privacy:**

For AI systems in order to provide valuable services, fundamentally they need to have access to and use large amounts of data. AI systems will also probably generate significant amounts of information. As a result, a buyer of AI-related services should understand how an AI solutions provider protects and uses its data.<sup>87</sup> Since the AI world does serve to increase the surface area for potential targets for cybercriminals and because data privacy laws continue to evolve, consumers of AI-related services should carefully evaluate AI providers and clearly understand what specific steps they take to appropriately safeguard data.<sup>88</sup>

**(h) Lack of Regulatory Framework & Standards:**

Since AI is still very much in its early stages, there are no meaningful AI-related laws or standards that can be relied upon, although given AI's dependence on data, applicable data privacy laws will be relevant.<sup>89</sup> From a regulatory perspective, some may view AI as the Wild West. While this lack of an AI regulatory framework or standards can create some

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<sup>85</sup>Human Translators Are Still on Top—for Now, MIT Tech. Rev. (Sept. 5, 2018), <https://www.technologyreview.com/s/611957/human-translators-are-still-on-top-for-now/>.

<sup>86</sup> Timothy J. Carroll and Manny Caixeiro, *Pros and Pitfalls of Artificial Intelligence in IP and the Broader Legal Profession*, (2019), [https://www.americanbar.org/groups/intellectual\\_property\\_law/publications/landslide/2018-19/january-february/pros-pitfalls-artificial-intelligence-ip-broader-legal-profession/](https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2018-19/january-february/pros-pitfalls-artificial-intelligence-ip-broader-legal-profession/).

<sup>87</sup>Thomson Reuters, *Legal Department 2025: Ready or Not: Artificial Intelligence and Corporate Legal Departments* 11 (2017), [https://static.legalsolutions.thomsonreuters.com/static/pdf/S045344\\_final.pdf](https://static.legalsolutions.thomsonreuters.com/static/pdf/S045344_final.pdf).

<sup>88</sup> Carrol, *supra* note 18.

<sup>89</sup>Dennis Garcia, *Preparing for Artificial Intelligence in the Legal Profession*, (July 6, 2017), <https://www.lexisnexis.com/lexis-practice-advisor/the-journal/b/lpa/posts/preparing-for-artificial-intelligence-in-the-legal-profession>.

confusion and ambiguity, it does provide opportunities for lawyers to help build and develop this area from the ground up.<sup>90</sup>

## **6. CONCLUSION AND SUGGESTIONS:**

The technological development in the legal sector has changed the framework in which it operates. It is difficult to consider the future of legal industry without thinking about the AI software which are evolving in markets. Legal research is done through online software. Lawyers and firms are taking help of these software to draft and review the contracts as well as the case documents. AI has benefited the lawyers and small law firms the most by providing them with the information and resources and bringing them at par with well-established law firms in terms of resource.

Legal research is the most important aspect of practising law and because of technology; it has undergone a series of development. From journals and reporters to CD-ROMS and Online software, legal technological innovation has changed the way how legal services were rendered. This technology advancement is to help the lawyers and users to do the task efficiently and quickly, but this does not mean that technology is going to replace the lawyers or their judgement or instinct; in spite it will help them in their work. It will make the working of the lawyers more efficient and will make their work easier by saving their time. Although, there are some demerits to the development of Artificial Intelligence such as lack of trained professional at lower levels, data privacy, taking way of jobs, cyber-insecurity e.tc.

But in practicality, these demerits are overshadowed by usage and applications of Artificial Intelligence in legal profession. One of the demerits being, the taking away of jobs is not that impactful, only 3.25% of people are affected by it. And on the contrary, with the use of AI, large numbers of people are benefitted. Similar is with the case security issues; there are many software in cyberspace for end to end encryption and security cases are very less. And one of the biggest drawbacks is that it will produce unskilled lawyers at lower level but on

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<sup>90</sup> *Id.*

the other side it will save their time so that they can prepare their arguments for the case which is comparatively more important. Hence, in all aspects Artificial Intelligence proves to be efficient and thus should be developed more and should also be taken into usage more and also proper laws should be made in order to utilize this technological advancement at its fullest.

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