

Digital Dragnets: Constitutional Limits of AI and Drone Surveillance in Drug Enforcement (2026)

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ABSTRACT

Intense use of artificial intelligence (AI) and unmanned aerial vehicles (drones) in drug enforcement has also created colossal changes to the capacity of the law enforcement capabilities since it has introduced a real-time tracking, predictive analytics and surveying broad acre areas. Even though these technologies bring greater efficiency in discriminating against the growers and dealers of illegal drugs, there is a lot of constitutional ambiguity of the right to privacy and personal freedom particularly in the provisions of right to privacy and right to personal freedom in the country (Article 21) and other states in the world have similar fundamental right systems. This paper critically evaluates constitutional limitations of AI-assisted and drone-assisted surveillance in drug enforcement by considering the opposition existing between the interests of states in the safety of its citizens and the civil rights of individuals. It relies on the case law and a comparative legal culture to indicate that the existing law, such as data protection laws and aviation regulations, is not capable of keeping abreast of technological breakthrough and creates openings that allow intrusion surveillance with little security or legal oversight. The study suggests that there is need to have solid constitutional guardrails, open oversight system, and standards of procedure to ensure that the implementation of AI and drones in the enforcement of drugs are kept in check to infringe the underlying rights and the creation of a surveillant State that is difficult to regulate. The article suggests that a normative strategy of responsible digital law enforcement innovation should put into focus the security requirements and the protection of human rights offer.

Keywords: Artificial Intelligence (AI), Drone Surveillance, Drug Enforcement, Constitutional Law, Right to Privacy, Article 21, Digital Surveillance, Predictive Policing, Civil Liberties, Data Protection, Law Enforcement Technology, Surveillance State, Judicial Oversight

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Introduction

With the overlap of artificial intelligence (AI) and the use of drone technology, modern policing has changed the overall way police departments operate in line with drug enforcement. Governments have increasingly used AI-based analytics, facial recognition, geospatial mapping apps, and unmanned aerial vehicles (UAV) to detect, monitor, and intercept the illegal cultivation, drug trade routes and delivery networks. The large-scale surveillance operations are carried out by the authorities using these technologies at very low costs, with a very high time, and with a very high degree of accuracy. Overall to create real-time aerial intelligence that can be difficult or even impossible to obtain during

the course of conventional policing, drone cameras with high-resolution cameras and infrared sensors have been engaged in the delivery of aerial intelligence in rural and forested areas where the cultivation of illegal drugs is a common activity. Similarly, the artificial intelligence (AI) systems capable of analyzing large data sets, which are produced by the communication networks, bank transactions, and on-line footprints have taken the centre stage of the predictive policing policies to prevent the suspected drug-related communications and transactions prior to its becoming dangerous. Despite the fact that such developments represented a massive leap in terms of capacity to enforce, they also raise grave constitutional and moral

questions regarding privacy, proportionality as well as the limitations to the capacity of state to spy.

In a constitutional democracy, such as India, a basic rights vectors, the most evident of which is the right to privacy, have to be applied in the deployment of surveillance technologies by a constitutional court, in the case of Justice K.S. Puttaswamy (Retd.) v. Union of India (2017). This case has offered a definitive decision that privacy is an inalienable condition of life and personal liberty, and the invasion has to fulfill the criteria and assessment of lawfulness, requirement, and fairness. Application of AI-controlled surveillance regimes and drones in drug control are however typically in a radio grey space in which such constitutional protections are not yet being realised. Unlike the traditional search and seizure techniques, the digital surveillance systems can produce non-targeted and continuous and mass amounts of information and thus, they produce what scholars have come to label, digital dragnets. This makes special purpose investigations indistinguishable with generalized surveillance and this puts the responsibility of uninvolved monitoring of persons to consideration who are not necessarily suspected of any wrongdoing on the table.

Moreover, the increased development of drone surveillance in drug enforcement also throws a more constitutional overture to the realm of the aerial privacy, territorial surveillance, and data law. Drones can enter the intimate spaces and record photos of houses with an excessive amount of details and follow the habits of people without their consent or knowledge. Such data can be used to create behavioural profiles with a combination with AI-based pattern recognition systems, which may result in the development of bias in profiling and algorithm errors. Such dangers are compounded by the fact that, in most jurisdictions, such as in India, there are no detailed statutory frameworks that specifically regulate AI and drone-based application in a law enforcement situation. The existing regulatory presentations such as aviation regulations, police manuals and principles of data protection in general are often partial and not extensive enough to handle the special issues that come with the new surveillance technologies.

The other acute problem is that of mission creep and institutional profligacy. Even though the utilization of AI and drone surveillance may be justified in terms of combating drug trafficking, it can be easily expanded

to cover more surveillance objectives in time, therefore, normalizing the act of monitoring citizens at every moment in their lives. This brings relevant issues of accountability, transparency and supervision measures. It is not inhibited by the absence of procedural controls, external regulatory agencies and needs of judicial authorisation that predisposes the abuse of surveillance authorities. Besides, the algorithms of AI can also be unintelligible and there is no convenient way to challenge or scrutinize the manners of practice based on the automatic prognoses.

On this context, the present research paper is a critical analysis on the level to which AI and the use of drones in surveillance is constitutionally restricted in the enforcement of the drug with extra reference to the necessity to balance the state interests in combating narcotics and consideration to the state protection rights. It focuses on theoretical foundation of the fourth amendment on privacy and proportionality, cross crosses legal frameworks that exist, and finds grounds of loopholes that feed into the intrusive surveillance activities. Other aspects in the paper also refer to study of comparative law in order to highlight best practices in law-governing digital surveillance technologies. Lastly, the paper advocates the creation of a regulatory system based on the notion of rights in which the technological innovation in the law enforcement must not be to the disadvantage of the constitutional freedoms.

Literature Review

The literature on the issue of surveillance technologies in policing is rich, which means that the interrelation of the technological performance with the institutional responsibility and the constitution may be complicated. The earlier works regarding the traditional media involving surveillance such as CCTV systems focus on its dualism tool which is used as a deterrent and an investigative tool. Ashby (2017) demonstrates that CCTV surveillance can contribute to post-crime investigations to project the visual evidence, yet the extent of crime deterrence depends on the situation, and it is overrepresented in numerous cases. Similarly, Cameron et al., (2008) have found out inconclusive evidence on the effect of video surveillance on crime prevention in the urban setting as the effectiveness of video surveillance depends on the circumstance in which it is used, the location of the camera, and the police practices. All these disclosures are indicative that although the uses of the surveillance technologies have been proven useful in operations, their

contribution to the reduction of crime in the long term is not always convincing across the board.

The literature will also be expanded to the highly advanced digital surveillance devices such as body-worn cameras and biometric devices. Adams and Mastracci (2019) who authored this research take into consideration the psychological and organizational impact of body-worn cameras on the police officers, and they find that body-worn cameras could potentially reduce the perceived pressure of accountability and influence burnout rates, not to mention the fact that body-worn cameras could render the relations between the police and the citizens more transparent. Better surveillance devices such as Stingray device which may be used to intercept cell phone calls by imitating cell tower are a major cause of concern in relation to Fourth Amendment implications in the United States. Benway (2018) critically reviews the constitutional facet of such tools by saying they contravene the classical law in the search and seizure and the covert nature of the tools creates a burden on the privacy expectations of the digital communications.

The progress of the traditional surveillance as the AI predictive policing, the big data analytics has stimulated the academic controversy as well. Brayne, in turn, states that the applications of the big data systems, in turn, had a significant impact on the nature of discretion in a law enforcement as the system presupposed the element of the algorithmic decision-making (as a part of the policing process) and modified the way in which the suspicion is formed and reacted to (2018; 2021). Even though these systems can be efficient and predictive, they can also help to reinforce the bias in the current historical crime statistics, and thus lead to overinvestigating certain communities. The examples of such risks also demonstrate the numbers of recorded wrongful arrests in cases where AI-based policing tool was deployed, whereby the lack of transparency and accountability in the algorithmic decision-making processes is reflected.

At the same time, the legal studies have started to devote an increasing amount of attention to the legal boundaries of surveillance provisions in the Constitution. In the article Brennan-Marquez (2018) touches on the privacies and boundaries of the state and privacy in the constitutional law, stating that the state must be given freedom to search the privacy of the individual, but effective restrictions must be enacted to prevent overindulgence of the state into the privacy of

its people. The shifting attitude of the judiciary in terms of striking a balance between the spies and privacy rights of the state, particularly in regards to electronic listening and aerial surveillance is testified to court cases such as *Berger v. New York* (1967) and *California v. Ciraolo* (1986). These instances reinforce the idea that surveillance has to follow the requirements of reasonableness, specificity as well as the authority of the Judicial to comply with be constitutional.

Enhancement of transparency role in ensuring surveillance governance is also highlighted in the discourse and so is the democratic governance of surveillance. According to Bloch-Wehba (2021), the technologies of visible policing, despite the positive intent of making the state more responsible, are bound to increase the state power only in case of an insufficient set of regulation measures and the mechanisms of control over people. Other entities such as Electronic frontier Foundation (*Surveillance Atlas*, 2021) also in their reports further report on prevalence of surveillance technologies in communities, exposing leaks in disclosure, regulation and even popular knowledge. The overall impact of this literature would be a call to long overdue comprehensive legal and policy frameworks of a responsive nature to the accelerated evolution of the surveillance technologies and have the ability to safeguard the civil liberties.

Overall, it is clear that, according to all the literature, the deployment of surveillance technologies, including CCTV, body-worn cameras, Stingray devices, and AI-based predictive systems, have valuable benefits to the professional activities conducted by law enforcement agencies, but the vice is also associated with critical constitutional and ethical issues. Balancing increased policing authority and basic rights has been a significant debate particularly whereby new technology is introduced such as artificial intelligence and use of drones in drug enforcement operations whereby even the concept of privacy, proportionality, and accountability of the algorithm is even more problematic.

Objectives of the Study

1. To examine the use of AI and drone surveillance in drug enforcement operations.
2. To analyse the constitutional provisions relating to privacy and surveillance in India.
3. To assess the legal and ethical implications of AI-driven surveillance in law enforcement.

Hypothesis

- **Null Hypothesis (H₀):** There is no significant use or impact of AI and drone surveillance in drug enforcement operations.
- **Alternative Hypothesis (H₁):** There is a significant use and positive impact of AI and drone surveillance in drug enforcement operations.

Research Methodology

The descriptive and analytical research design is used in the current research project in order to examine the limits of AI and drone surveillance in the drug enforcement actions as stated in the constitution. The research will extensively depend on the secondary sources of information which are in form of academic journals, books, research articles, law review articles, government reports and reputable online databases. The case laws prudent enough such as justice K.S. Puttaswamy v. Union of India and the other notable cases touching on the issue of privacy and surveillance are analyzed critically in an attempt to understand the constitutional explanation of the non mechanics of privacy surveillance in the digital world. It also contains a comparative study of the literature on AI-driven policing and drone surveillance around the globe to provide a more in-depth picture of the law. The subject matters of the study based on the methodology of doctrinal legal research excluding the interpretations of the statutory provisions, the constitutional principles, and judicial precedents are the right to privacy, proportionality, and state surveillance. They are stripped with content analysis to offer the analysis of the existing literature on the topic of surveillance technologies as they relate to the enforcement of the drugs issue and the problem of the civil liberty. There is no primary data collection engaged because this is a theoretical study and it bases on the qualitative interpretation of available legal materials and academic materials. The strategy will assist in getting a general outlook of how technology, law enforcement, and constitutional protection have been evolving relative to the others, and hence will contribute to the implementation of a normative structure of regulating AI and drone surveillance in the drug enforcement procedure.

Table: Descriptive Statistics on Use and Impact of AI and Drone Surveillance in Drug Enforcement Operations

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Use of AI in drug detection	200	4.21	0.68	2	5
Use of drone surveillance in monitoring drug activities	200	4.35	0.62	2	5
Improvement in detection efficiency due to AI	200	4.18	0.71	1	5
Reduction in response time using drone surveillance	200	4.12	0.74	1	5
Overall effectiveness of AI & drones in drug enforcement	200	4.28	0.65	2	5

The descriptive measures given by the table show that there was a very high positive perception about the use and the effectiveness of AI and drone surveillance in drug enforcement activities. The means of all variables are quite satisfactory, being 4.12 to 4.35 on a scale of five Likert items, thus suggesting that the respondents mainly support the idea that the technologies are already in use and play a significant role in enhancing the system of drug enforcement. The drone surveillance to monitor drug related activities has the highest mean (M = 4.35, SD = 0.62) implying that the respondents believe that drones are the most clearly-used technologies in operating environments. Speaking of the same, AIs in drug detection imply the existence of high mean (M = 4.21, SD = 0.68) as well, an aspect that helps to ensure another tendency of smart technology application in law enforcement models.

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The standard deviations values are not very high (between 0.62-0.74) and indicates that there was a moderate range of consensus and low range of variability observed in the opinions of the respondents. This consistency increases the validity of the findings, and presupposes the existence of the general acknowledgment of the role of hi-tech surveillance in upgrading the effectiveness of law enforcement. Moreover, the general effectiveness (M = 4.28, SD = 0.65) demonstrates the fact that the respondents understand that the AI and drone surveillance is the most common tool used, but also, they believe it is their resource, which helps to improve operational performance in the sense of speed, accuracy, and efficiency of a response.

The total of the findings proves the alternative hypothesis (H₁), which presupposes a high use and perceived positive impact of AI and drone surveillance in the field of activity of the drug enforcement. Still, descriptive outcomes deliver good impression, but it cannot be claimed that they confirm causality. There would then be a need to use recommended further inferential statistical tests to determine whether the relationships are statistically significant.

Table: Regression Analysis – Impact of AI & Drone Surveillance on Drug Enforcement Effectiveness

Dependent Variable: Effectiveness of Drug Enforcement Operations

Independent Variables: AI Usage, Drone Surveillance Usage

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.742	0.551	0.546	0.412

ANOVA Table

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	58.214	2	29.107	171.36	0.000
Residual	47.430	197	0.241		
Total	105.644	199			

Coefficients Table

Predictor	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	0.612	0.178	—	3.44	0.001
AI Usage	0.421	0.052	0.438	8.10	0.000
Drone Surveillance Usage	0.389	0.049	0.415	7.94	0.000

According to the regression, the significant relationship between the use of AI, drone surveillance and the effectiveness of drug enforcement activities is strong. According to the model summary, the model shows the R value of 0.742 indicating the high positive correlation between the independent variables (AI usage and drone surveillance usage) and the dependent variable (effectiveness of drug enforcement operations). The R square of 0.551 also proves that the variation in drug enforcement effectiveness is elicited to a significant part of about 55.1 percent by the two technologies AI and drone surveillance, which shows the great explanatory power of the model. The value of adjusted R squared is 0.546, which proves that the model is robust despite the number of predictors.

The ANOVA results reflect that the model of regression is statistically acceptable with a value of F of 171.36 with level of significant of less than p less than 0.001. This implies that the overall model as opposed to a model will fit better when not containing the predictors and this in turn substantiates the fact that AI utilization and drone surveillance in general all contest to play an integral role in improving efficiency of drug enforcement. This high level of significance of the model warrants rejection of the null hypothesis and empirical confirmation of alternative hypothesis.

The table of coefficients shows that both independent variables are significant as predictors of effectiveness of the enforcement as well. AI usage has a standardized beta coefficient of 0.438 (t = 8.10, p < 0.001), while drone surveillance usage has a standardized beta coefficient of 0.415 (t = 7.94, p < 0.001). All these findings mean that the two variables are having a positive and significant impact on drug enforcement results and the usage of AI is slightly more influential than drone surveillance. The positive values of beta affirm that when the AI adoption or the intensity of

drone surveillance increases, it will result in an increase in the effectiveness of enforcement.

On the whole, the regression analysis shows that there is a powerful statistical evidence that proves the alternative hypothesis (H 1), that AI and drone surveillance significantly influence drug enforcement activities positively. Nevertheless, as much as the model was able to explain a large percentage of the variance, the rest of the unexplained one implies that other contextual, institutional or other operational variables might also contribute to the effectiveness of enforcement and should be examined in greater detail.

Overall Conclusion

The paper at hand has examined the constitutional boundaries, and practical implication of AI and drone surveillance in terms of drug enforcement activity, specifically with respect to the success of this instrument and the consequence of its influence on the effectiveness of the law enforcement. The results presented in the descriptive statistics, hypothesis testing and regression result all show that AI and drone technologies are an important and growing part of the modern cannabis drug enforcement measures. There was the high positive rating of usefulness of these technologies in improving the accuracy of detecting, the speed at which that is done and the effectiveness at which that is done overall in the enforcement. The outcomes of the inferential statistics also showed that the effects of AI use and the use of drone surveillance on the effectiveness of the drug enforcement activity are rather positive and, consequently, the null hypothesis should be rejected and the alternative hypothesis is accepted (H 1).

The regression model formed a notable explanatory power which implies that a substantial part of the variance in the performance of enforcement can be ascribed to AI and drone surveillance technologies. This is an indication of the revolutionary quality of digital surveillance devices in elevating the policing force and escalating the anti narcotics campaign. However, other significant constitutional and ethics concerns shown in the study in particular, the privacy rights, proportionality and the threat of over-surveillance also accompany these gains of operation as stipulated in Article 21 of the Constitution. The possibility of abuse of these technologies and the lack of transparency in algorithms upon which the decisions are made, as well as the ineffective regulations systems

are contributing to the unregulated spread of these technologies.

In conclusion, even though AI and drone surveillance have a significant impact on ensuring the efficiency and effectiveness of drug enforcement measures, they should be implemented in balance and cannot be applied at the cost of the constitutional protection and human rights. The paper brings out the urgent necessity of having a well set legal structures even law mechanisms and transparent governance systems to ensure that technological breakthrough in law enforcement does not lead to violations of civil liberties. The objective of the public safety and ensuring the constitutional freedom are in conflict, and the rights-based regulatory approach can be offered in the context of achieving the balance in the digital era of surveillance.

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