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# PREDICTIVE POLICING: BALANCING CRIME PREVENTION AND FUNDAMENTAL RIGHTS (*)

## *Öngörücü Polislik: Suç Önleme ve Temel Hakları Dengelemek*

**Volkan MAVİŞ (**)**

## ABSTRACT

Crime prediction is not a new concept in the effort to prevent criminal activities before they occur. However, with the help of technological advancements, the use of predictive techniques by law enforcement agencies has increased significantly, aiming to reduce crime and improve resource efficiency. Despite these perceived advantages, the idea of crime prediction must be approached with great caution due to its exploitable nature. In this respect, the paper highlights significant concerns related to its effectiveness, transparency, and ethical implications, as demonstrated by previous experiences. Particular attention must be given to the risks of biased data, algorithmic opacity, and the violation of fundamental rights such as privacy and the presumption of innocence. Drawing from examples in the United States and Europe, the paper argues that although predictive policing may offer short-term advantages, it poses significant long-term threats to democratic accountability, public trust, and social equity if not properly regulated and critically evaluated.

**Key Words:** Predictive Policing, Preventive Policing, Crime Prediction, Crime Prevention, PredPol.

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** Dr. Öğretim Üyesi, Eskişehir Osmangazi Üniversitesi Hukuk Fakültesi Ceza ve Ceza Muhakemesi Hukuku Anabilim Dalı.
0000-0001-9182-3130.

## ÖZET

Suçun henüz işlenmeden engellenmesine yönelik bir çaba olan suç öngörüsü yeni bir kavram değildir. Öte yandan, teknolojik gelişmelerin de etkisiyle, öngörücü tekniklerin kolluk kuvvetlerince kullanımı suç oranlarını azaltmak ve kaynak verimliliğini artırmak amaçlarıyla önemli ölçüde artmıştır. Söz konusu tekniklerin sağladığı düşünülen avantajlara karşın, suç öngörüsü fikrine suistimale açık yapısına istinaden dikkatle yaklaşılmalıdır. Bu bağlamda, makale, önceki deneyimlerin de gösterdiği gibi, öngörüye dayalı polisliğin etkinliği, şeffaflığı ve etik sonuçlarıyla ilgili önemli endişeleri vurgulamaktadır. Özellikle, önyargılı veri kullanımı, algoritmik şeffaflık eksikliği ve özel hayatın gizliliği ile masumiyet karinesi gibi temel hakların ihlali gibi risklere dikkat çekilmesi gerekmektedir. Amerika Birleşik Devletleri ve Avrupa'dan örnekler üzerinden yapılan değerlendirmeyle, makale, öngörüye dayalı polisliğin kısa vadeli bazı avantajlar sunmakla birlikte, uygun şekilde düzenlenip eleştirel olarak değerlendirilmediği takdirde, uzun vadede demokratik hesap verebilirlik, kamu güveni ve toplumsal eşitlik açısından ciddi tehditler oluşturduğunu savunmaktadır.

**Anahtar Kelimeler:** Öngörücü Polislik, Önleyici Polislik, Suç Öngörüsü, Suç Önleme, PredPol.

## INTRODUCTION

Crime is as old as the human race, and a society without any criminal behaviour is nothing but a utopia - even though it is possible to reduce crime through various precautions. Given this reality, the importance of preventing criminal activity before it occurs has gained significant attention. In fact, preventing crime in advance is an undeniable advantage due to the profound consequences crime has on private citizens and society as a whole. Today, it is widely accepted that achieving this prevention is one of the key responsibilities of a modern state. In a democratic society, the state is obligated to prevent possible wrongdoings against its citizens and society. However, this obligation cannot be pursued at any cost, especially if it infringes on the fundamental rights of individuals.

Although crime prevention is a widely accepted concept, there is ongoing debate about which approach is best. Police forces have been using crime statistics to make predictions for decades. Therefore, forecasting crime is not new to police

departments. However, predictive policing as it is known today is relatively new, emerging alongside technological advancements since the 1990s. Nowadays, it is comparatively easy to process crime data and generate recommendations for preventive measures. As a result, many departments around the world have adopted this relatively accessible preventive tool.

Despite these advantages, predictive policing should not create an illusion of a perfect solution, as it also brings significant disadvantages in various areas. Moreover, its effectiveness has not yet been conclusively proven, and it remains unclear how effective these systems truly are. In this context, the aim of this paper is to provide a general overview of the concept of predictive policing and its outcomes. First, the concept will be explained, as there is no consensus on the topic. Second, its usage will be reviewed through examples from different countries. Finally, the paper will present findings on the advantages and disadvantages of predictive policing in the light of these experiences.

## I. WHAT IS PREDICTIVE POLICING?

In the literature, there is no consensus on the definition of preventive policing[1]. The main reason is that the term of predictive policing is a collective phenomenon. By using algorithmic data analysis to address the future, predictive policing benefit from many models, processes and software applications[2]. In this sense, the present author believes that firstly determining the position of predictive policing in crime prevention can offer a general idea to readers about later explanations.

### A. Crime Prediction as a Preventive Tool

Crime prevention is not a recent phenomenon as the idea of reducing criminal behaviour goes back to thousands of years before[3]. On the other hand, since the 1960s, crime prevention has been a growing interest, even though a universally accepted definition of the term and its boundaries are missing[4]. In fact, a vast

1 Albert Meijer and Martijn Wessels, 'Predictive Policing: Review of Benefits and Drawbacks' (2019) 42(12) International Journal of Public Administration 1031, 1033; Ishmael Mugari and Emeka E. Obioha, 'Predictive Policing and Crime Control in The United States of America and Europe: Trends in a Decade of Research and the Future of Predictive Policing' (2021) 10(6) Social Sciences 1, 2.

2 Simon Egbert and Matthias Leese, *Criminal Futures: Predictive Policing and Everyday Police Work* (1st edn, Routledge 2021) 19.

3 Steven P. Lab, *Crime Prevention* (7th edn, Anderson 2010) 22.

4 Stephen Schneider, *Crime Prevention: Theory and Practice* (2nd edn, CRC 2015) 5.

number of strategies, practices, programs and ideas, which can be considered as crime prevention, exist. For instance, some crime prevention approaches focus on changing the social conditions (community crime prevention), while others have different aims such as reducing opportunities for crime (situational crime prevention) and correcting behavioural patterns (developmental crime prevention). The complexity of a general definition aside, crime prevention can be seen as a general concept which contains any kind of action created to decrease the level of crime[5].

As various crime prevention strategies have been developed, criminologists continue to work on categorizing prevention approaches. However, in general, crime prevention is divided into three main levels which can be seen in public health models[6]. Brantingham and Faust created crime prevention classification which incorporates three stages: primary, secondary and tertiary[7]. There is a distinction between the first and the latter two levels since primary prevention focuses on eliminating the conditions which can cause criminal behaviour[8].

Primary crime prevention aims to prevent crime before even emerging by eliminating conditions of environment[9]. In public health, primary prevention identifies general conditions which create disease and focus on diminishing them by using different intervention strategies such as vaccination and hygiene education of public. In the same manner, primary crime prevention addresses situations which may create favourable conditions for a crime to be committed, like poor environmental design or social solidarity within a community[10]. In addition, components of criminal justice system play a crucial role in this level. Police patrols in a specific can alleviate criminal activities by discouraging potential offenders.

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5 Lorraine Green Mazerolle, 'Crime Prevention' in Richar A. Wright and J. Mitchell Miller (eds), *Encyclopedia of Criminology Volume I* (Routledge 2005) 277.

6 Daniel Gilling, *Crime Prevention; Theory, Policy and Politics* (1st edn, Routledge 1997) 3; Adam Crawford and Karen Evans, 'Crime Prevention and Community Safety' in Mike Maguire, Rod Morgan and Robert Reiner (eds), *The Oxford Handbook of Criminology* (5th edn, Oxford University Press 2012) 772; Lab (n 3) 27; Clive Coleman and Clive Norris, *Introducing Criminology* (Routledge 2011) 146.

7 Paul J. Brantingham and Frederic L. Faust, 'A Conceptual Model of Crime Prevention' (1976) 22(3) Crime & Delinquency 284, 289.

8 Schneider (n 4) 28.

9 Brantingham and Faust (n 7) 290.

10 Schneider (n 4) 28.

Secondary crime prevention seeks to determine possible criminals and engages in their activities on the purpose of blocking future violations[11]. In this stage of prevention, main concerns are offender and victims rather than offence. In other words, within the realm of secondary prevention, the interest it to identify people who are at risk of involving crime[12]. However, primary prevention concerns with increasing the negative consequences of committing crime and reducing possible opportunities[13]. Thus, the difference between primary and secondary prevention is that the former aims to limit the causes which may induce criminality, while the latter focuses on existing circumstances that sustain criminal behaviour[14]. In this regard, secondary prevention intends to transform people who are at risk of attempting a criminal act. Targeting these individuals and creating physiological or behavioural programs is an example of secondary prevention.

Tertiary crime prevention focuses on individuals who have already offended, implementing interventions to prevent them from reoffending[15]. In order to achieve this goal, tertiary prevention addresses offenders, victims or locations that are associated with the crime pattern[16]. This kind of prevention is mostly in probation officers or prison psychologists area of expertise since they purpose to change convicts[17]. For example, alcohol treatment programs for offenders whose addiction led to criminal behaviour are a form of tertiary prevention.

In accordance with the explanation provided, it can be said that predictive policing primely falls within second crime prevention[18]. As mentioned earlier, secondary prevention intends to intervene before a crime has been committed. In parallel with this objective, predictive policing uses different techniques to prevent criminal activities by determining potential crime locations and times[19]. Therefore, predictive

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11 Brantingham and Faust (n 7) 290. In contrast to traditional criminal law, which addresses offenses after they occur, lawmakers often opt to criminalize certain predatory or even morally neutral acts as a means of preventing criminal behaviour before it takes place. *See generally* Ali Emrah Bozbayındır, 'The Advent of Preventive Criminal Law: An Erosion of The Traditional Criminal Law?' (2018) 29 Criminal Law Forum 25.

12 Gilling (n 6) 3.

13 Coleman and Norris (n 6) 148.

14 Lab (n 3) 29; Mazerolle (n 5) 279.

15 Brantingham and Faust (n 7) 290.

16 Crawford and Evans (n 6) 772.

17 Coleman and Norris (n 6) 147.

18 Henning Hofmann, *Predictive Policing* (Duncker & Humblot 2020) 37.

19 Justin Nix, 'Predictive Policing' in Roger G. Dunham and Geoffrey P. Alpert (eds), *Critical Issues in Policing: Contemporary Reading* (7th edn, Waveland 2015) 275.

policing considered as a proactive work which occurs when police officers try to find who and/or where of a crime that has yet to emerge[20].

Another point is that predictive policing is also useful for evaluating the effectiveness of other secondary preventive measures. Police forces utilize predictive information to take necessary precautions, such as increasing patrols in specific areas or installing new CCTVs (Closed-Circuit Television). If there is a drop in criminal activity in a particular area following these safeguards, it suggests that the preventive actions taken by officials are effective.

## B. Defining Predictive Policing

Both institutions and authors attempt to clarify the concept of predictive policing from their own perspectives. According to a common definition given by the RAND Corporation, which is also used in Turkish literature[21], predictive policing is *"the application of analytical techniques to identify likely targets for police intervention and prevent crime or solve past crimes by making statistical predictions"*[22]. The problem is that scope of the quoted definition is far broader than the focus of predictive policing. The main goal of this kind of policing is to prevent criminal behaviours before they occur instead of responding afterwards. Therefore, solving past criminal activities is not within the interest area of predictive policing. Crime prevention is the reason why police organisations turn their face to the use of analytical techniques.

Predictive policing is also an ill-defined subject in terms of its content. Different conceptualizations of the subject can be found in the literature, with some focusing on place, while others include individuals as well. For instance, Australian Institute of Criminology's definition[23] identifies the purpose of predictive policing as forecasting

[20] Jerry Ratcliffe, 'Predictive Policing' in David Weisburd and Anthony A. Braga (eds), *Police Innovation: Contrasting Perspectives* (2nd edn, Cambridge University Press 2019) 348.

[21] Murat Volkan Dülger, 'Prevention of Discrimination in the Practices of Predictive Policing' in Muharrem Kılıç and Sezer Bozkuş Kahyaoğlu (eds), *Algorithmic Discrimination and Ethical Perspective of Artifical Intelligence* (Springer 2024) 106; Zafer İçer, 'Yapay Zekâ Temelli Önleyici Hukuk Mekanizmaları - Öngörücü Polislik' (Yapay Zeka Çağında Hukuk, Yearly Report 2021) 33.

[22] Walter L. Perry, Brian McInnis, Carter C. Price, Susan C. Smith and John S. Hollywood, *Predictive Policing: The Role of Crime Forecasting in Law Enforcement Operations* (Rand Corporation 2013) 1; Dean Wilson, 'Algorithmic Patrol: The Futures of Predictive Policing' in Ales Zavrsnik (ed), *Big Data, Crime and Social Control* (1st edn, Routledge 2018) 109.

[23] *"The use of dynamic prediction models that apply spatio-temporal algorithms to core business data supplemented by secondary data sources, including internal corporate data and external environment and socio-economic data, with the purpose of forecasting areas and times of increased crime risk, which could be targeted by law enforcement agencies with associated prevention strategies designed*

areas and times of increased crime risk. In the same vein, the definition given by National Institute of Justice, which concerns location and time of future crimes, has also been referred[24]. On the other hand, more extensive concept which also aims to identify individuals was justifiably suggested. In this sense, Meijer and Wessels define predictive policing as *"Predictive policing is the collection and analysis of data about previous crimes for identification and statistical prediction of individuals or geospatial areas with an increased probability of criminal activity to help developing policing intervention and prevention strategies and tactics"*[25].

In this sense, it is the present author's belief that concentrate on key features of predictive policing is beneficial. Almost all the definitions in literature contain common aspects of this phenomenon. Firstly, future predicting concept is based on historical data. Data related to previous criminal activities and perpetrators are analysed with the purpose of predicting future crimes. Secondly, modern technology is essential to predictive policing, as it facilitates the generation of accurate predictive insights[26]. In fact, technological progress is one of the reasons which caused the emergence of predictive policing. In comparison to other predictive methods, predictive policing can provide more advantageous information due to technology[27]. Lastly, as mentioned earlier, the results of past data analysis are used to prevent and respond to future criminal behaviour[28]. While historical data can aid law enforcement in solving past crimes, such use is not the main objective of predictive policing.

Clarifying the confusion associated with the terminology of predictive policing is also essential. In the literature, it has been stated that 'hotspot analysis' of crime or 'crime mapping' can be used interchangeably with predictive policing[29]. In fact, these are methods which use historical crime data to predict areas with an increased risk

*to mitigate those risks."* Daniel Birks, Michael Townsley and Timothy Hart, *Predictive Policing in an Australian Context: Assessing Viability and Utility* (Australian Institute of Criminology 2023) 2.

24 Andre Norton, 'Predictive Policing- The Future of Law Enforcement in the Trinidad and Tobago Police Service' (2013) 62(4) International Journal of Computer Applications 32, 33. Also see Richard A. Berk, 'Artificial Intelligence, Predictive Policing, and Risk Assessment for Law Enforcement' (2021) 4 Annual Review of Criminology 209, 215; Craig D Uchida, 'Predictive Policing' in Gerben Bruinsma and David Weisburd (eds), *Encyclopedia of Criminology and Criminal Justice* (Springer 2014) 3871.

25 Meijer and Wessels (n 1) 1033.

26 Mugari and Obioha (n 1) 4.

27 Erik Bakke, 'Predictive Policing: The Argument For Pubiıc Transparency' (2018) 74(1) Annual Survey of American Law 131, 134.

28 Schneider (n 4) 374.

29 Shivangi Narayan, *Predictive Policing and the Construction of the 'Criminal': An Ethnographic Study of Delhi Police* (Palgrave Macmillan 2023) 5.

of criminal activity[30]. However, predictive policing encompasses a broader range of techniques, including not only spatial analysis but also temporal forecasting and individual risk assessment.

## II. HOW DOES PREDICTIVE POLICING WORK?

Predictive policing consists of multiple sequential and interconnected elements. In fact, this type of policing is more than collecting and analysing crime data. The findings of these steps will lead to police operations and help to evaluate criminal response. Criminals adapt to changes in their environment - some may cease activity, alter their methods, or relocate. Thus, the original data becomes outdated, requiring new data for continued analysis[31]. As a result, predictive policing involves a continuous cycle of activities: data collection, analysis, police operations and criminal response[32].

All of the components of predictive policing depend on *data collection*. In other terms, predictive policing draws on a wide range of data sources such as historical crime records (time, location, type), activities on social media or real-time incident reports. These kinds of data sometimes appended with socio-economic data environmental variables and opportunity factors (e.g. close access to a highway)[33]. Data must be accurate and complete, although some analytical techniques are more tolerant of minor errors than others. It is also important to update data sets regularly to ensure they remain current and accurately reflect the impact of interventions[34]. Additionally, data should be collected promptly. The idea is that faster access to crime data allows for quicker risk estimates, enabling patrols to respond more flexibly to emerging tempo spatial risks[35].

Data collection is followed by computer-assisted *analysis*. Predictive policing utilizes business intelligence models and data analysis tools similar to those employed by

30 Perry, McInnis, Price, Smith and Hollywood (n 22) 19.
31 Perry, McInnis, Price, Smith and Hollywood (n 22) 13.
32 Lyria Bennett Moses and Janet Chan, 'Algorithmic Prediction in Policing: Assumptions, Evaluation, and
Accountability' (2018) 28(7) Policing and Society 806, 807.
33 EUCPN, *Artificial Intelligence and Predictive Policing: Risks and Challenges* (EUCPN 2022) 6; Andrew Guthrie Ferguson, 'Policing Predictive Policing' (2017) 94(5) Washington University Law Review 1109, 1137.
34 Perry, McInnis, Price, Smith and Hollywood (n 22) 13.
35 Egbert and Leese (n 2) 69.

major companies in industries like retail and insurance[36]. The predictive analysis process consists of a number of different statistical and analytical techniques such as data mining and risk terrain analysis. Police departments globally employ software from tech companies like PredPol and IBM that performs highly sophisticated analyses. Even though this kind of software primarily focuses on making probabilistic forecasts, there are others with different objectives, such as social media surveillance[37].

Analysed data should inform police operations; without actionable outcomes, the processes of data collection and analysis lose their purpose. The implementation of *police intervention* is essential for the prevention and suppression of criminal activities. Police intervention practices are shaped by individual circumstances, influenced by the personnel and technical resources available to police authorities, as well as the demographic, infrastructural, architectural, sociocultural, and economic characteristics of the operational area[38]. There are three types of interventions: generic interventions, which involve increasing resources in high-risk areas; crime-specific interventions, which are tailored to particular types of crimes; and problem-specific interventions, which focus on identifying high-risk locations and underlying crime factors[39].

Lastly, following police intervention, a *criminal response* emerges: some offenders are prosecuted and thereby prevented from committing further crimes. Others, however, may either choose to refrain from further criminal activity or continue to engage in new offenses. The scale of the police response varies according to the type of crime and the nature of the intervention undertaken[40]. As a result, the previously collected data becomes outdated, necessitating a new cycle of data collection. In conclusion, the predictive policing cycle recommences from the beginning.

36 Uchida (n 24) 3872.
37 Moses and Chan (n 32) 808.
38 Hofmann (n 18)109.
39 Perry, McInnis, Price, Smith and Hollywood (n 22) 14.
40 Moses and Chan (n 32) 814.

## III. PREDICTIVE POLICING IN DIFFERENT COUNTRIES

### A. The United States of America

The United States of America (USA) is likely the first country to utilize predictive policing, beginning in the early 2000s by adopting new technologies to forecast criminal activities[41]. One of the pioneers in the United States, the Richmond Police Department, began using predictive methods in 2003. With the help of private firms, the department developed a system that combined crime analysis, data mining, and geographical information to report back to officials. Using analysed data on time, day, holidays, weather, city events, paydays, and crime records, the Richmond Police Department deployed officers to different locations across the city at various times to address different types of offenses[42]. Shortly after this practice, similar methods based on data mining spread to other police departments.

In 2008, a national discussion on predictive policing -considered the next phase of policing- emerged. Additionally, the National Institute of Justice awarded funding to various police departments across the United States, including those in Los Angeles and Chicago[43]. In 2011, the Los Angeles Police Department launched a pilot initiative known as Operation Laser, which targeted burglary, automobile theft, and theft from vehicles[44]. Moreover, the department entered into a contract with a company called PredPol, founded by George Mohler and Jeff Brantingham, to assist in predicting the time and location of criminal activities. The PredPol algorithm, which later became one of the most widely used predictive policing tools in the United States, generates maps divided into 500-by-500-foot (approx. 152 meter) zones indicating areas where criminal activity is most likely to occur[45]. Police officers are notified of the zones with the highest predicted likelihood of criminal activity and are subsequently deployed to those locations.

In 2014, approximately 38 percent of police departments in the United States reported using predictive policing methods. Moreover, 70 percent anticipated implementing such strategies within the following five years[46]. However, this trend was eventually curtailed due to a range of issues that will be discussed later. As a

41 Mugari and Obioha (n 1) 5.
42 Uchida (n 24) 3876.
43 Nix (n 19) 278.
44 Ferguson (n 33) 267.
45 Nix (n 19) 279.
46 Police Executive Research Forum, *Future Trends in Policing* (Office of Community Oriented Policing Service 2014) 3.

result, many departments have since discontinued the use of predictive policing software, such as PredPol. In fact, in some states, the use of predictive policing techniques has been formally banned.

## B. Germany

Similar to the United States, Germany's federal structure has led to varying approaches to predictive policing across its individual states[47]. Predictive policing software is currently employed in several German states, including Hessen, Lower Saxony, and North Rhine-Westphalia[48]. In some states, however, such as Baden-Württemberg and Bavaria, the implementation of these software systems came to an end due to a lack of available data for the systems to function properly[49].

In North Rhine-Westphalia, the system called SKALA (Crime Analysis and Anticipation System) was put into practice in 2015 and ended in February 2018. Initially, the system was used in police stations in urban areas and was later expanded to rural areas. The main goal of the project was to examine the possibilities and limitations of crime prediction, as well as to evaluate the effectiveness of police intervention[50]. The software is primarily utilized to predict incidents of both commercial and residential burglary, in addition to vehicle-related crimes. This process relies not only by historical crime data but also by socioeconomic and infrastructural factors, such as income distribution, rental structures, and the presence of various facilities within a given area[51].

In Lower Saxony, the PreMAP (Predictive Mobile Analytics for Police) project was launched in 2016 through a collaboration between IBM and the Karlsruhe Service Research Institute. The software predicts domestic burglary based on historical crime data collected between 2008 and 2013. The PreMAP generates a risk score that remains valid for 72 hours and covers an area within a 400-meter radius of a

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47 Kai Seidensticker, Felix Bode and Florian Stoffel, 'Predictive Policing in Germany' (2018) Konstanz University Working Paper, 2 <https://kops.uni-konstanz.de/server/api/core/bitstreams/10477c12-a4b9-46b2-b9d0-5b58cbd127bf/content> accessed 29 April 2025.

48 Simon Egbert, 'Predictive Policing in Deutschland: Grundlagen, Risiken, (Mögliche) Zukunft' in Strafverteidigervereinigungen (ed), *Räume der Unfreiheit. Texte und Ergebnisse des 42. Strafverteidigertages Münster* (1st edn, Organisationsbüro der Strafverteidigervereinigungen 2018) 249.

49 Johanna Sprenger and Dominik Brodowski, 'Predictive Policing, Predictive Justice, and the Use of Artificial Intelligence in the Administration of Criminal Justice in Germany' (2023) eRDIP <https://penal.org/sites/default/files/files/A-02-23.pdf> accessed 30 April 2025, 7.

50 Seidensticker, Bode and Stoffel (n 47) 5.

51 Egbert (n 48) 246.

reported burglary incident[52]. In addition, one of the key features of the PreMAP project is its mobility, as predictions are displayed on interactive maps accessible to patrolling officers in the field[53]. In fact, the primary goal from the beginning was to develop a mobile application using up-to-date data[54].

## C. Netherlands

As demonstrated in the case of Germany, predictive policing is commonly applied to domestic burglary and vehicle-related crimes - and the Netherlands is no exception. In 2019, the Netherlands became the first country to implement a predictive policing tool at the national level with the rollout of the Crime Anticipation System (CAS)[55]. Originally developed by the Amsterdam Regional Police Unit in 2014, CAS was adopted by 160 frontline teams following a trial period[56]. In addition to burglary and vehicle-related offenses, CAS also addresses other forms of criminal activity, including mugging, pickpocketing, and violent crimes[57].

CAS is based on near-repeat concept which relies on empirical findings that the likelihood of further crimes rises in a specific area and timeframe following an initial offense[58]. As can be observed, the system focuses on identifying high-risk locations and time periods rather than individuals[59]. In cases of burglary, research has shown that the risk of victimization can spread to nearby locations. Properties located within 400 metres of a burgled home -especially those on the same side of the street- are at a heightened risk of burglary for up to two months after the first incident[60].

Apart from CAS, the Dutch police, along with national and local authorities, also use other tools that focus on offenders. These tools, known as Risk Assessment

52 Oskar J Gstrein, Anno Bunnik and Andrej J. Zwitter, 'Ethical, Legal and Social Challenges of Predictive Policing', (2019) 3(3) Catolica Law Review 77, 86.

53 Seidensticker, Bode and Stoffel (n 47) 4.

54 Maximilian Querbach, Marian Krom and Armando Jongejan, 'Review of State of the Art: Predictive Policing', (August 2020). <https://www.cuttingcrimeimpact.eu/download/30-april-2019_d23_1014042330.pdf> accessed 5 May 2025, 14.

55 Litska Strikwerda, 'Predictive Policing: The Risks Associated with Risk Assessment' (2020) 94(3) The Police Journal 422, 422.

56 Marc Schuilenburg and Melvin Soudijn, 'Big Data Policing: The Use of Big Data and Algorithms by the Netherlands Police' (2023) 17 Policing 1, 5.

57 EUCPN (n 33) 8.

58 Strikwerda (n 55) 425.

59 Querbach, Krom and Jongejan (n 54) 16.

60 Kate J Bowers, Shane D Johnson and Ken Pease, 'Prospective Hot-Spotting: The Future of Crime Mapping?' (2004) 44(5) The British Journal of Criminology 641, 642.

Instruments, are designed to predict the likelihood of individuals of all ages committing a crime or carrying out a terrorist attack[61]. The system in the USA known as COMPAS, which evaluates the risk of recidivism, is an example of such instruments. On the other hand, it is fair to say that such individual-focused measures raise legitimate ethical concerns. Placing individuals at the center often creates fears of government oppression, which will be addressed in further chapters.

## D. Turkey

In Turkey, there are no specific legal regulations addressing predictive policing. In this context, it has been argued that predictive policing methods are not formally implemented in the country[62]. Moreover, academic publications on the subject remain scarce. Consequently, it can be confidently stated that the general population is largely uninformed about the topic. Although there is a lack of legislative regulation and academic research on the subject, it appears that police departments in some cities have begun using artificial intelligence for traffic enforcement[63]. Moreover, it has been officially acknowledged that statistical data is used by AI in the fight against drug-related offenses, which raises more concerns.

In 2023, the former Interior Minister revealed that ASENA (Analysis Systems Narcotics Network) was used to address 6,636 drug-related cases over a period of 18 months[64]. The Minister explains the way of ASENA software as: *"ASENA program detects whether a car is involved in drug trafficking by combining millions of data points with artificial intelligence. It analyzes questions like: What is this car doing here? Who owns this car? Why is this car taking this route? Or, for an individual, why is this person connected to these people? An alarm is immediately triggered, and action is taken"*[65]. As can be seen, ASENA is more than a preventive mechanism, as it also makes predictions about the future based on previous data. In fact, this finding was verified by the Ministry in a previous press release. Police forces organize their

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61 Querbach, Krom and Jongejan (n 54) 17.

62 Irmak Erdoğan, Selin Çetin Kumkumoğlu and Ahmet Kemal Kumkumoğlu, 'Turkish Report on AI and Administration of Justice' (2023) eRDIP <https://penal.org/sites/default/files/files/A-16-23.pdf> accessed 6 May 2025, 1; Dülger (n 21) 115.

63 Emniyet Genel Müdürlüğü Trafik Başkanlığı, 'Yapay Zekâ Destekli Mobil Hız Tespit Sistemi Kullanılmaya Başlandı' (30 June 2024) <https://www.trafik.gov.tr/yapay-zek-destekli-mobil-hiz-tespit-sistemi-kullanilmaya-baslandi > accessed 5 May 2025.

64 Türkiye Cumhuriyeti İçişleri Bakanlığı, 'Analiz Sistemleri Narkotik Ağı (ASENA) Yazılımı Sayesinde 1,5 yılda 6 bin 636 Olaya Müdahale Edildi' (26 January 2023) <https://www.icisleri.gov.tr/analiz-sistemleri-narkotik-agi-asena-yazilimi-sayesinde-15-yilda-6-bin-636-mudahale-edildi> accessed 6 May 2025.

65 *Ibid*.

operations based on the findings and predictions of ASENA, which incorporates a large volume of data, including tactics developed by offenders[66].

Another project developed by the Ministry of Interior is NARVAS (Narcotic Case Analysis System), which operates based on tips provided by citizens[67]. According to the Ministry, the software uses these tips for crime mapping and identifies crime hot spots. NARVAS, which is regarded as a proactive tool against drug-related criminal activities, helps police officers be in the right place at the right time[68]. Therefore, predictive policing is in use in Turkey, despite the lack of direct regulations on the topic. Turkish police departments utilize not only preventive but also predictive methods, which rely on the large-scale collection of data. The present author believes that utilizing such a developed technique is ethically, and most importantly constitutionally, risky.

In spite of the absence of legal provisions specifically addressing predictive policing, key articles in the Constitution of the Republic of Turkey and various laws impose limitations on the use of related techniques. According to Article 13 of the Turkish Constitution, fundamental rights and freedoms may be restricted only by law. Therefore, predictive policing measures must be expressly regulated by legislation, as such methods have the potential to impact essential rights and freedoms. Another important point is that, as will be discussed, predictive policing has faced justified criticism regarding racial bias. Past implementations have shown that the algorithms used by police departments can operate with prejudice against minority groups. In this context, Article 10 of the Turkish Constitution must be taken into account, as it emphasizes that everyone is equal before the law, without distinction based on language, race, colour, sex, political opinion, philosophical belief, religion, sect, or any similar grounds.

The Personal Data Protection Code No. 6698 (PDPC) prohibits the processing of personal data without the explicit consent of the individual. Furthermore, any such data processing must comply with the general principles outlined in Article 4 of the Code, including lawfulness, fairness, proportionality, and legitimacy. On the other hand, Article 28 of the Personal Data Protection Law outlines several exceptions to the general rules on personal data processing. According to Article 28/1-b, personal

66 Türkiye Cumhuriyeti İçişleri Bakanlığı, 'Yapay Zeka ASENA Uyuşturucunun İzini Sürüyor' (2 June 2022) <https://www.icisleri.gov.tr/yapay-zeka-asena-uyusturucunun-izini-suruyor> accessed 6 May 2025.

67 Türkiye Cumhuriyeti İçişleri Bakanlığı, 'Narkotik Vaka Analiz Sistemi (NARVAS)' (01 November 2023) <https://www.icisleri.gov.tr/narkotik-vaka-analiz-sistemi-narvas> accessed 7 May 2023.

68 *Ibid.*

data may be processed in anonymized form for purposes such as research, planning, and statistical analysis. More significantly, the law permits the processing of personal data for the prevention and investigation of criminal activities. In such cases, however, law enforcement authorities are still obligated to comply with the fundamental principles set forth in the Code itself.

## IV. CAN THE POLICE PREDICT CRIMINAL ACTIVITIES?

Since all efforts are aimed at predicting crime and preventing harm before it occurs, the key question to address is whether predictive policing actually works. In this section, empirical findings will be presented to the readers. However, it is important to note that there is no clear answer to this question. While some studies indicate a reduction in criminal activity following the implementation of predictive methods, others question whether these methods produce any statistically significant results. Another point is that measuring the effectiveness of predictive policing is extremely difficult, as it is hard to determine whether a crime attempt failed due to the help of predictive policing or for another reason[69]. Thus, setting statistical evaluation as a success criterion, as adopted by police departments, seems to be the best option.

One of the most well-known software programs, PredPol, had a significant impact on crime reduction within the first six months of its implementation in 2012. In Santa Cruz, burglaries dropped by 19 percent compared to the same period in 2011, under similar conditions such as shift schedules and the number of officers on duty[70]. Similarly, in Los Angeles, where PredPol was also used, a 25 percent decrease in burglaries was recorded during a 2012 pilot phase[71].

The operation conducted by Richmond police on New Year's Eve in 2003 has been presented as a successful example of predictive policing. A 47 percent decrease in random gunfire was recorded as a result of deploying officers to locations identified through years of data collection[72]. In the following years, the use of the predictive

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69 Egbert and Leese (n 2) 174.

70 Miriam Jones, 'Predictive Policing a Success in Santa Cruz, Calif.' (8 October 2012) <https://www.govtech.com/public-safety/predictive-policing-a-success-in-santa-cruz-calif.html> accessed 8 May 2025.

71 Robert Mitchell, 'Predictive Policing Gets Personal' (24 October 2013) <https://www.computerworld.com/article/1603273/predictive-policing-gets-personal.html> accessed 13 May 2025.

72 Beth Pearsall, 'Predictive Policing: The Future of the Law Enforcement?' (2010) 266 NIJ Journal 16, 17.

policing system in Richmond was considered a success due to a decline in certain types of crimes. For instance, the Chief of Richmond Police reported a 20 percent drop in violent crimes and a 30 percent reduction in property crimes[73].

Although positive numbers have been presented as indicators of the success of predictive policing, several studies have shown that predictive policing does not yield significant results. Even within the same study, it was found that while some areas experienced a decrease, others showed an increase. During the trial period of the software known as PRECOBS, which relies on near-repeat prediction, Stuttgart police observed a reduction in burglaries, even though there was an increase in the urban area of Karlsruhe[74]. These findings indicate that the impact of predictive policing on crime remains unclear.

The effectiveness of the Shreveport Police Department's predictive policing program, titled Predictive Intelligence Led Operational Targeting (PILOT), which focuses on property crimes, was examined. The key finding is that the program did not lead to any significant reduction in property crimes[75]. The authors of the study emphasize that the null effect may be due to various reasons, such as the program not working or not being implemented as planned. Hence, the negative results could be specific to the PILOT program, not to predictive policing systems as a whole.

Predictive policing systems also appear to have failed in France, according to a recent study[76]. Eleven law enforcement departments tested a predictive policing software called PAVED between late 2017 and early 2019. The primary purpose of the system was to predict vehicle theft and burglaries and to deter these crimes through increased patrolling. The researchers observed no effect of PAVED on burglaries, while there was up to a 5 percent decrease in vehicle theft[77]. As can be seen, there is no significant overall effect of the predictive policing software. The slight success in reducing vehicle theft may be due to the fact that such crimes

73 Mitchell (n 71).

74 Dominik Gerstner, 'Predictive Policing in the Context of Residential Burglary: An Empirical Illustration on the Basis of a Pilot Project in Baden-Württemberg, Germany' (2018) 3(2) European Journal for Security Research 115, 135.

75 Priscillia Hunt, Jessica Saunders and John S Hollywood, *Evaluation of the Shreveport Predictive Policing Experiment* (RAND 2014) 38.

76 Yann Lecorps and Gaspard Tissandier, 'PAVED with Good Intentions? An Evaluation of a French Police Predictive Policing System' (2023) SSRN <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4314831> accessed 14 May 2025 2.

77 *Ibid* 35.

typically occur in public streets, where increased police presence makes them more difficult to commit.

A study that focuses on the findings of 161 studies on the effectiveness of big data–driven predictive policing presents a general overview of the topic. The vital finding of the study is that the number of studies proving the effectiveness of predictive policing systems is extraordinarily limited[78]. Another point is that the majority of the studies (96%) were retrospective, and the rest focused on real-world implementations, which generally suffer from a lack of testing of place-based police interventions[79].

## V. BENEFITS OF PREDICTIVE POLICING

### A. Effective Use of Resources and Reducing Costs

By predicting the location and timing of criminal activity as an alternative to conventional policing methods, police departments can operate more efficiently. In theory, both the economic and human costs of combating crime would be minimized, while public safety would be enhanced.[80] Optimally determining patrol zones where the likelihood of criminal behaviour is highest is a challenging task for police departments[81]. In this sense, predictive tools can contribute to the efficient distribution of police officers in operational areas. Strategically positioning police officers at the optimal time and location increases the likelihood of effective outcomes while minimizing additional strain on the state budget. In addition, focusing on potential offenders with known ties to criminal activity contributes to the efficient use of police resources[82]. For example, in Washington, individuals with a history of violence and gang affiliation were identified in advance and subjected to interventions, including face-to-face meetings.

Another advantage of predictive policing is to reduce social costs of criminal actions in a society. By preventing such behaviours in the first place, the possible victimisation of individuals can be prohibited. Reducing criminality within a society

78 Youngsub Lee, Ben Bradford and Krisztian Posch, 'The Effectiveness of Big Data-Driven Predictive Policing: Systematic Review' (2024) 7(2) Justice Evaluation Journal 127, 144.

79 *Ibid.*

80 Bakke (n 27) 137; Police Executive Research Forum (n 46) 8; İçer (n 21) 41.

81 Meijer and Wessels (n 1) 1034.

82 Andrew Guthrie Ferguson, 'Big Data and Predictive Reasonable Suspicion' (2015) 163(2) University of Pennsylvania Law Review 327, 395.

directly contributes to the well-being of that community. In addition to these social benefits, it has been argued that predictive policing can reduce other forms of social costs by minimizing unnecessary surveillance activities, which may otherwise raise concerns regarding human rights[83]. For instance, routine police activities such as stops and searches consume time and, more importantly, can humiliate the individuals involved. However, this perspective may be overly optimistic, as predictive policing systems have been shown to produce racially biased outcomes, a concern that will be discussed in detail later.

Some studies support the assumptions made by proponents of predictive policing. For example, the previously mentioned New Year's Eve operation by the Richmond Police reportedly saved the department $15,000 in personnel costs[84]. Additionally, research on the PILOT program suggests that predictive policing can reduce operational costs, even if it does not significantly impact crime prevention. The use of predictive software was found to be up to 10 percent less costly compared to traditional policing methods[85].

## B. Ensuring Transparency and Accountability in Police Operations

Predictive policing can assist law enforcement officers in reinforcing the legitimacy of the precautions they take. Traditionally, police officers often do not document the rationale behind interventions -such as stop-and-search procedures- in advance[86]. However, with the data-driven insights provided by predictive policing software, it becomes possible, at least in some cases, to retrospectively justify and understand the basis for specific police actions[87]. By justifying the actions of police officers, not only the confidence of the individual directly affected but also the trust of the broader society can be strengthened.

The documentation of police actions and the collection of past data can contribute significantly to police training. For example, measures previously taken by a police officer can be stored in a database for future evaluation. Through such internal monitoring, police departments can develop new training tools and establish accountability mechanisms by making comparisons over time[88].

83 Bakke (n 27) 138.
84 Pearsall (n 72) 17.
85 Hunt, Saunders and Hollywood (n 75) 47.
86 Ferguson (n 82) 393.
87 Hofmann (n 18) 265.
88 Ferguson (n 82) 393.

Another argument related to transparency is that police misconduct, often rooted in racial stigmatization, can be uncovered.[89] In the state of North Carolina, a social justice organization conducted a study using traffic stop data to investigate racial profiling by law enforcement. Analysing such data and maintaining large datasets enables comparative studies and informed inferences[90]. Ultimately, gaining a comprehensive understanding of the criminal justice system and exposing existing inequalities becomes possible.

## C. Identifying Crime Patterns

Predictive policing can be utilized to reveal crime patterns that might remain hidden using traditional crime analysis techniques. Given that large volumes of data can be processed by predictive policing systems, various aspects of criminal activity -and potential links between them- can be uncovered. In this way, it becomes possible to generate a comprehensive overview of vulnerable individuals or entities, as well as to classify criminal behaviours committed by the same individuals or groups[91].

Analysing criminal data at a general level reveals repeating patterns in crime incidents and serial criminal activities - often organized crime. Having prior information about locations vulnerable to criminal activity helps police departments develop strategies against these offenses. In addition, such software provides specific types of data, such as markets susceptible to criminal exploitation or unusual money transfers (e.g., deposits)[92]. By monitoring these patterns, police can identify criminals involved in illicit purchases or money laundering.

Knowledge of crime patterns also enables law enforcement to track criminal activities on a national and even transnational level[93]. In the case of human trafficking, historical data can help identify potential offenders and individuals at risk of victimization. Additionally, mapping both origin and destination countries commonly involved in trafficking can support the development of strategies to combat these violations. Moreover, understanding the connections between widespread crimes like trafficking and other crime types is essential in addressing

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89 Hofmann (n 18) 265.

90 Alex Rosenblat, Kate Wikelius, Danah Boyd, Seeta Peña Gangadharan and Corrine Yu, 'Data & Civil Rights: Criminal Justice Primer' <http://www.datacivilrights.org/pubs/2014-1030/CriminalJustice.pdf> accessed 16 May 2025.

91 Hofmann (n 18) 266.

92 Eva Schlehahn, Patrick Aichroth, Sebastian Mann, Rudolf Schreiner, Ulrich Lang, Ifan D. H. Shepherd and B.L. William Wong, 'Benefits and Pitfalls of Predictive Policing' (European Intelligence and Security Informatics Conference, Manchester, September 2015) 145.

93 Ferguson (n 82) 396.

criminal behaviour. For example, human trafficking is often committed to force victims into sexual exploitation. By analysing the crime patterns of human trafficking, it becomes possible to shed light on related sexual crimes.

## VI. PITFALLS OF PREDICTIVE POLICING

### A. Biases in Predictive Policing

The findings of predictive policing systems are based on algorithms, which can produce unequal and discriminatory outcomes. Even algorithms developed through machine learning suffer from this issue[94]. In fact, the arguments presented in the literature are not groundless, as various practices have shown that predictive policing can lead to biased practices due to factors such as dirty data or insufficient information. There is no doubt that such biased outcomes, even if unintended, can lead to erosion of trust and increased societal mistrust.

Previous experiences have shown that some police officers, unfortunately, engage in discriminatory practices against individuals or specific groups. Official statistics indicate that governments have conducted investigations into police officers allegedly involved in discriminatory practices based on various factors such as racism, homophobia, or sexism[95]. Police actions such as vehicle profiling, pedestrian stops, use of force may be conducted on prejudicial grounds[96]. Data collected by such organizations may be unreliable due to its biased nature. Consequently, predictive policing systems could generate prejudiced recommendations, as they would be influenced by distorted or inaccurate data. This is because biased data is directly integrated into the system, and identifying and correcting such information is extremely difficult[97].

In fact, this problem persists even in the absence of explicitly biased data stemming from discriminatory police actions. In addition to biased data, algorithmic bias

94 Melissa Hamilton, 'Predictive Policing through Risk Assessment' in John L M McDaniel and Ken G Pease (eds), *Predictive Policing and Artificial Intelligence* (1st edn, Routledge 2021) 66.

95 European Union Agency for Fundamental Rights, *Addressing Racism in Policing* (Publication Office of the European Union 2024) 98.

96 P Jeffrey Brantingham, Matthew Valasik and George O Mohler, 'Does Predictive Policing Lead to Biased Arrests? Results From a Randomized Controlled Trial' (2018) 5(1) Statistics and Public Policy 1, 2.

97 Martín Sabelli, Lisa M Wayne, Kyle O'Dowd, Jumana Musa, Wendy Lee, 'Garbage in, Gospel out: How Data-Driven Policing Technologies Entrench Historic Racism and 'Tech-wash' Bias in the Criminal Legal System' (National Association of Criminal Defense Lawyers 2021) 47.

presents another significant issue[98]. It is well-documented that certain communities have historically been over-policed and are therefore more likely to be over-policed in the future compared to others. When law enforcement consistently patrols areas considered high-risk, more crimes are likely to be documented. If a community is already under police scrutiny, it is more likely to be examined further, and additional data on criminal activities from that area will be fed into the system[99]. Particularly when socio-economic correlations are incorporated, the system may indicate a high risk of criminal activity in economically disadvantaged neighbourhoods[100].

Over time, it became evident that the drawbacks of predictive policing, particularly its potential for bias, were valid. A significant wave of suspensions of predictive policing software occurred, especially in the United States. The LASER program in Los Angeles was terminated in 2019 after it was found to unjustly target certain members of society, even in the absence of prior arrests[101]. In Santa Cruz, where one of the pioneering programs was implemented, predictive policing was banned in 2020. Similarly, in Pittsburgh, the program was suspended in 2020 due to concerns about potential racial bias[102]. On the other hand, a study examining the link between predictive policing and biased arrests found no significant differences in the percentage of arrests by racial or ethnic group between the control and treatment conditions[103].

## B. Concerns About Transparency and Accountability

As mentioned previously, proponents argue that predictive policing can enhance the transparency and accountability of police operations. However, these very issues also raise significant concerns regarding the implementation of such systems. While the recommendations generated by predictive policing programs can be used to document the actions of law enforcement, the prediction process itself is often difficult to understand -not only for ordinary citizens, but also for police officers and policymakers- because the algorithms are highly complex[104]. In this respect, such

98 Janet Chan, 'The Future of AI Policing: Explroing the Sociotechnical Imaginaries' in John L M McDaniel and Ken G Pease (eds), *Predictive Policing and Artificial Intelligence* (1st edn, Routledge 2021) 46.

99 Sprenger and Brodowski (n 49) 32.

100 Seumas Miller, 'Predictive Policing' in David Edmonds (ed), *Future Morality* (1st edn, Oxford University Press 2021) 78; Querbach, Krom and Jongejan (n 54) 19.

101 Miller (n 100) 75.

102 Sabelli *et al.* (n 97) 72.

103 Brantingham, Valasik and Mohler (n 96) 5.

104 Gstrein, Bunnik and Zwitter (n 52) 88.

algorithms are often referred to as 'black boxes', as it is nearly impossible to explain the reasoning behind their decisions[105]. Ultimately, the lack of transparency leads to a lack of accountability for police actions[106].

The problem of transparency and accountability relates not only to the relationship between the public and law enforcement, but also to internal issues within police departments[107]. Predictive policing tools are often developed by private companies, as police forces frequently face shortages in personnel and budget. As a result, law enforcement agencies are heavily dependent on private analysts who control the design of these algorithms[108]. In connection with this, security becomes a concern, as the primary goal of private companies is often profit rather than data protection.

Police officials, as well as entire police departments, must be held accountable for their practices in order to uphold democratic values. Individuals in a society should be able to trust that law enforcement consistently operates within the boundaries of the law. Because of the logic behind predictive policing, the question of accountability becomes more complicated, as the system collects and processes the data, leaving the human operator with little choice but to select from the options it presents[109]. Even though this may be an extreme example, it highlights the core of the issue. In such cases, the burden of responsibility is effectively shifted away from the individual. Lastly,

In the case of federal governments, the situation becomes even more complex. As seen in countries like the United States and Germany, different predictive policing programs are implemented at the state level. As a result, there is no national standard governing how data should be collected and processed. Such variation in practices across the country makes it difficult for courts to establish consistent case law on key issues like reasonable suspicion[110].

## C. Effects on Fundamental Rights

Predictive policing technologies are still in use today and have been implemented on a national scale in various parts of the world. The continued and systematic deployment of such programs raises serious concerns not only from an ethical perspective but also from a legal standpoint, particularly regarding potential

[105] EUCPN (n 33) 10.
[106] Egbert and Leese (n 2) 199.
[107] Gstrein, Bunnik and Zwitter (n 52) 88.
[108] Bakke (n 27) 151.
[109] Egbert and Leese (n 2) 197.
[110] Hofmann (n 18) 279.

violations of the rights and freedoms of large segments of the population. Despite the potential contribution of predictive policing to the fight against crime, inappropriate use of these systems can lead to an erosion of civil liberties. In this respect, concerns regarding various aspects of fundamental rights -such as human dignity, presumption of innocence and the right to privacy- are frequently discussed in the literature[111].

Predictive policing software identifies individuals as high-risk offenders based on assumptions, placing them under increased scrutiny simply because they match certain factors -such as being unemployed or living in an area deemed risky- selected by unclear criteria[112]. Labeling individuals as potential offenders, without a doubt, directly undermines the presumption of innocence, which is one of the core principles of criminal procedure. This claim may be challenged on the grounds that, according to Article 6.2 of the European Convention on Human Rights, the principle does not apply before formal charges are issued. However, the European Court of Human Rights interprets this principle on a case-by-case basis. According to the Court, the presumption of innocence can be violated not only by judges or courts but also by other public authorities. Even if a person has not been officially charged, arrest and detention are considered part of the judicial process[113]. Therefore, police intervention based on the recommendations of predictive policing programs may infringe upon this principle.

Another aspect of predictive policing with the potential to violate fundamental rights is its reliance on large volumes of data. One of the key factors in the success of predictive policing is the collection of as much useful data as possible. To achieve this, police authorities may pursue a strategy of gathering all available information, without sufficiently assessing whether the data is actually relevant[114]. As a result, this practice can lead to mass surveillance and the intrusion into individuals' private lives. The constant feeling of being watched can lead to self-censorship, as individuals might refrain from lawful behaviour out of fear that it could be misinterpreted or flagged as suspicious.

## D. Ineffective and Costly Practices

Even though the positive effects of predictive policing on reducing crime rates and lowering costs are often highlighted, the existence of these benefits remains

111 Chan (n 98) 54; Egbert and Leese (n 2) 199.
112 Schlehahn *et al.* (n 92) 146.
113 *Allenet de Ribemont v. France* App no 15175/89 (ECtHR, 20 February 1995) para. 36.
114 Schlehahn *et al.* (n 92) 146.

questionable. It is true that software-generated predictions have the potential to influence criminal statistics and reduce expenditures. However, as previously mentioned, the biggest challenge lies in proving the actual effectiveness of predictive policing. Police departments that have utilized predictive technologies have reported both positive and negative outcomes, making it difficult to draw definitive conclusions about their success[115]. Even when a decrease in crime is observed, it may not be directly attributable to the use of predictive policing technologies[116].

Many police departments across the United States have decided to end their use of predictive policing, citing its ineffectiveness, though with varying justifications. The Palo Alto Police Department decided to suspend its contract with Geolitica, a private company, due to the software's ineffectiveness in solving crimes. Similarly, the Rio Rancho Police Department terminated its contract with the same company, because the software did not generate any recommendations that were not already known to the department[117].

Lastly, one of the risks that should not be overlooked is the potential for predictive policing to backfire. As law enforcement agencies rely on predictions to prevent criminal activities, potential offenders may adapt their behaviour in response. For example, individuals labelled as potential criminals might alter their personal profiles to avoid detection. Similarly, offenders may shift their operations to new locations if their usual areas are identified as crime hotspots.

## CONCLUSION

While traditional methods used by law enforcement continue to hold their importance, the integration of modern crime prevention strategies has become both necessary and inevitable. As with every other branch of the state, police forces are increasingly adopting new technological advancements to enhance public safety and prevent crime. From CCTV surveillance and body-worn cameras to facial recognition systems, a wide array of tools is now available. One of the most recent trends in this field is the use of predictive policing - software-driven systems that process large volumes of data to forecast crime hotspots, identify high-risk individuals, and flag potential offenders. Thanks to advancements in technology,

[115] Gstrein, Bunnik and Zwitter (n 52) 89.
[116] Querbach, Krom and Jongejan (n 54) 19.
[117] Sabelli *et al.* (n 97) 72.

particularly artificial intelligence, the processing and analysis of crime data -previously conducted on a limited scale- can now be done with greater speed, accuracy, and scope.

Proponents of predictive policing often present positive arguments centered around efficiency, transparency, and the ability to identify crime patterns. The core idea is that predictive software can help police departments reduce criminal activity and save public resources. Additionally, by relying on predictive tools, police decisions can be more easily documented, thereby promoting transparency and strengthening public trust. The belief is that individuals subject to police intervention will feel more assured knowing that actions are based on neutral, data-driven algorithms rather than personal bias. Lastly, the continuous use of predictive methods may help identify recurring crime patterns, enabling the development of more effective and targeted policing strategies.

As critics of predictive policing have rightly pointed out, the purported benefits of this approach are often exaggerated. Several studies suggest that its efficiency is far from certain, with many police departments reporting no noticeable improvements in crime prevention. It is important to consider that this may partly stem from the inherent difficulty of measuring effectiveness. When crime rates are used as the main metric -as is typically the case- only slight reductions have been observed. Moreover, predictive policing systems are often expensive to implement and maintain. As a result, the claim that they offer significant budget savings appears unconvincing, further calling into question their overall efficiency.

The idea of achieving transparency through the use of predictive policing is far from reality, as prediction software generates recommendations based on the data uploaded into the system. Therefore, if biased data -such as data disproportionately targeting a minority group- is fed into the software, it is highly likely that the system will produce results that affirm police actions like searches or arrests against those groups. Furthermore, it is widely acknowledged that in some urban areas -especially underdeveloped ones- crime rates are relatively high. As a result, the software's output tends to disproportionately focus on these regions, further entrenching existing inequalities.

According to the present author, the most significant problem with predictive policing is the potential violation of fundamental rights. First, predictive software is often developed by private companies, which raises serious concerns about the exposure of sensitive personal data to corporate entities. This creates substantial doubts about the security and privacy of such data. Second, the effectiveness of

these programs depends on vast amounts of data, which may lead police departments to collect as much information as possible in an attempt to increase predictive accuracy. In such scenarios, it would be up to officials to determine how much data is deemed necessary, potentially resulting in invasive surveillance practices.

Most importantly, predictive policing introduces a risk of bias from the very beginning of the criminal process. There is a real possibility that individuals could be subjected to police intervention simply because they match the software's predictions. In such a society, it becomes impossible to uphold core democratic values like human dignity, freedom, and justice. A historical comparison can be made with the introduction of the right to remain silent. At the time, critics argued that this right would make it harder to prove a defendant's guilt. Similarly, it can be argued that predictive technologies assist in identifying potential criminal activity before it happens. However, just as the legal system did not abandon due process for convenience in the case of the right to silence, the same principle should apply here. Criminal procedures must not be conducted at any cost to liberty and justice.

It must be acknowledged that the use of technology is both inevitable and necessary. However, this paper argues that in a society where human rights are respected, a clear boundary must be drawn between fundamental rights and any intervention that may infringe upon them. For this reason, legal regulations concerning predictive methods must be carefully and precisely crafted. The data processed by such software should be strictly limited, and the use of this data should not become a routine part of criminal procedure. Finally, as a safeguard for these requirements, the entire process must be as transparent as possible to ensure both public trust and the protection of personal privacy.

**Araştırma ve Yayın Etiği Beyanı**
Bu çalışma bilimsel araştırma ve yayın etiği kurallarına uygun olarak hazırlanmıştır.
**Yazarların Makaleye Olan Katkıları**
Yazar 1'in makaleye katkısı %100'dür.
**Destek Beyanı**
Araştırmada herhangi bir kurumdan destek alınmamıştır.
**Çıkar Beyanı**
Bu çalışmada herhangi bir çıkar çatışması bulunmamaktadır.

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