

# DNA DATABASES FOR CRIMINAL JUSTICE SYSTEM: A PATHWAY TOWARDS UTOPIAN OR DYSTOPIAN FUTURE?

RAHIME ERBAŞ\*

**Abstract:** DNA evidence has increasingly become a widespread instrument in solving crime as well as crime prevention. As such, creation of DNA databases or expanding the existing ones have been on the rise in the world. On the one side, storing DNA profiles serves as a pivotal tool in crime solving, but on the other, privacy based on genome concerns occur. DNA databases appears as an example of biotechnology today and in the future that are argued in a spectrum ranging from utopia to dystopia. This methodical approach, of course, is nothing new or novel for a DNA database-related study. This study, however, aims to analyse the matter from the standpoint of criminal law and to discuss whether *the modus operandi* of criminal procedure on the use of DNA databases paves the way towards utopian or dystopian vision for future. It does not consider the argument that the journey in criminal justice, as opposed to the 20<sup>th</sup> century, today has been directed towards ex-ante prevention rather than ex- post correction. Because the legitimacy of such expansion of the scope of criminal law still remains as unanswered question indeed, even if today, DNA might be salient for the purpose of prevention rather than detection. As such, after introducing theme and indicating scope of the study (I), it provides an overview regarding the involvement of DNA as evidence and respectively database in criminal justice system in the world (II). Whether databases established for criminal justice system serve for dystopian?

**Keywords:** DNA evidence, DNA database, crime-solving, criminal law, utopia, dystopia.

**Summary:** 1. INTRODUCTION. 2. THE INVOLVEMENT OF DNA AS EVIDENCE IN CRIMINAL COURTS. 3. SOLVING CRIMINAL CASES AS *LEGITIMATE AIM*. 4. CREATING A SYSTEM OR NON-SYSTEM APPROACH? 5. MEASURES TO MITIGATE THE TENSIONS: PRIVACY CONCERNS. 6. TECHNOLOGY AS A TOOL IN THE SERVICE OF CRIMINAL COURTS. 7. CRIMINAL JUSTICE SYSTEM AS A GOOD START POINT FOR “FUNCTION CREEP”? 8. CONCLUDING THOUGHTS.

## 1. INTRODUCTION

“When a DNA database initially presented as a tool for solving serious crimes is expanded to cover volume crimes, is that a new purpose or still the same one: Catch as many criminals as possible?” (Dahl & Rudinow, 2009, p. 86).

Imagine a scenario in which a country that has gradually included DNA evidence into its criminal justice system, soon after the discovery of the significance of DNA profiling for crime-solving. As such, initially DNA testing was conducted on a case-by-case basis in the frame of expert evidence. After having the possibility to store DNA profiles, profiles being conducted for serious crimes such as homicide, murder and rape were included in a base, which brought the DNA database in the volume of A. Because

---

\* Assistant Professor at the University of Istanbul, Faculty of Law, The Chair of Criminal Law & Criminal Procedure Law, Turkey (rerbas@istanbul.edu.tr).

thanks to that database, even cold cases could be solved, the crime catalogue was extended to less serious crimes such as theft and damaging property and this brought DNA database in the volume B. After a while, excluding DNA profile of children from including in database did not seem having any particular ground and so DNA database in the volume C was formed. Later, seeing the benefits of such database in criminal justice system, it was also given to the service of civil and administrative courts and database in the volume D occurred. Then, the aim of database was extended to finding missing people. As such, DNA samples not only from the suspect, the accused or the victim, but also from volunteers were taken and DNA database in the volume E came into being. Then, the country began to cooperate with its neighbour countries for sharing databases with each other in order to fight the cross border acting criminals. In so doing, DNA databases with different alphabets fused with each other. Ultimately, the question emerges: Why shall only justice system benefit from DNA technology?

In this scenario, having a DNA database in the volume of A or B might be sufficient to serve criminal justice system for that time period. However, this country did not content itself with it, rather constantly sought for creating more voluminous ones. Why did this country have a tendency towards so called “all- inclusive!” approach to database (Tracy & Morgan, 2000, p. 645)? Is that an outcome of utopian or dystopian vision for future?

DNA technology appears as a significant examples of biotechnology on the changing the world, indeed. DNA databases are rapidly expanding in the world (Erbaş, 2017, p. 167); (Uygun, 2017, p. 91). Regarding whether having DNA database poses an utopia or dystopia, at first glance, the argument that DNA databases for criminal justice system paves a way towards dystopia attracts the attention in the literature. To illustrate, the works alike Marx’s as “DNA ‘Fingerprints’ May One Day Be Our National ID Card” (Marx, 1998), follow as “Big Brother and His Science Kit: DNA Databases for 21st Century Crime Control” (Tracy & Morgan, 2000), “It all happened so slowly’- On controlling function creep in forensic DNA databases” (Dahl & Rudinow, 2009), “Brave New Circuit: Creeping Towards DNA Database Dystopia in U.S. v. Weikert” (Rice, 2009), “Circuits of Surveillance” (Williams & Johnson, 2004). On the contrary, the opposite argument that having DNA database for criminal justice system does not represent dystopia exists in the literature (Etzioni, 2004), saying that “...DNA usages often can enhance both public safety and individual rights” (Etzioni, 2004, p. 203). However, it should be noted that utopian vision on this context, finds overwhelmingly in the eyes of public (Cutter, 2006, pp. 2-3) by virtue of TV’s programmes such as a drama called *Crime Scene Investigation (CSI)* in the USA, which is later coined as *CSI effect* (Machado & Granja, DNA Technologies in Criminal Investigation and Courts, 2020, pp. 50-51) that draws an utopian vision on DNA evidence in public eyes (Tyler, 2006). Further, the news having such headline as “*Police hope DNA from helmets will solve 1982 Troubles murder case*” (McDonald, 2020) may have similar effect on public (Amankwaa & McCartney, 2019, p. 45). Of course, the justice authorities have had a utopian vision on DNA database so that databases came into being. It is not surprising to observe the statements above;

“As we explore the impact of the NDNAD [the UK’s database], and by association other databases designed for the same purpose, we are faced

with complex utopian visions of a criminal justice service armed with an all powerful database for the benefit of society, contrasted with the dystopian vision of a criminal justice service, armed with the identical, all powerful database intent on mischief to our detriment” (Cutter, 2006, p. 11).

The study bases on arguments of literature regarding practice, but not practice itself. Indeed, *Cutter* concludes that “in essence, we remain to unable to navigate between the competing visions of the future” (Cutter, 2006, p. 12). It is very true that “new technologies that provide answers also raise new questions” (Marx, 1998). Nevertheless, the question arises whether DNA Databases for criminal justice system on the way towards dystopia are really? Do they have to hold either utopian or dystopian way? This way of thinking as utopian or dystopian (Tokgöz, 2020, pp. 453-454) is noted as ‘science fiction’, not a ‘science potentia’ (Cutter, 2006, p. 6). There is, *albeit*, a benefit of looking into theme through the lens of utopia and dystopia as *Cutter* explains further;

“Thus whilst utopian and dystopian visions of the future can often have the effect of polarising debates, in the early stages of the debate their presence is perhaps vital to allowing the framing of the debate and therefore facilitating this balancing process” (Cutter, 2006, p. 6).

This study, of course, considers ‘science potentia’, not fiction. However, it takes the opportunity to analyse and discuss the risks and benefits of DNA databases as an example of biotechnology today and in the future by referring a spectrum ranging from utopia to dystopia. This methodical approach is nothing new or novel for a DNA database-related study in social sciences. However, this study mainly focuses on exactly where criminal justice system stands in this discussion regarding whether the human being’s pathway is towards utopia or dystopia in future.

In so doing, this study considers the core question on whether and if so, how, criminal justice system through the use of DNA, referred as “forensic DNA usages” (Etzioni, 2004, p. 201), contributes to this way visioning. As such, the aim is not to reach an outcome, rather to bring out the proper questions and points stemming from the position of criminal justice system on the use of DNA evidence, respectively applying databases. Therefore, even if today, DNA might be salient for the purpose of prevention rather than detection, this study does not consider the argument that the journey in criminal justice, as opposed to the 20<sup>th</sup> century, today has been directed towards ex-ante prevention rather than ex- post correction. Because the legitimacy of such expansion of the scope of criminal law still remains as unanswered question, indeed. Within this aim, after proving an overview regarding the involvement of DNA as evidence and respectively database in criminal justice system in the world, the study firstly highlights the solving crime as a legitimate aim in use of DNA database. Within this aim, it questions whether refraining from creating a database as system represents a way to prevent a dystopian future. As such, the study displays the tension between this legitimate aim and individual rights, *inter alia*, right to privacy. Then, it considers DNA evidence as a technological tools in the courts. Ultimately, whether the use of DNA by criminal justice system serves as a starting point for the so called “function” creep phenomenon.

## 2. THE INVOLVEMENT OF DNA AS EVIDENCE IN CRIMINAL COURTS

The advent of DNA double helix structure and the discovery of the significance of DNA profiling for crime-solving brought DNA analysis to criminal courts' service. The first use of DNA in solving crime was in 1987 in the United States in which Florida rapist was convicted by the use of DNA evidence (James, 2009). Consequently, "receiving evidentiary acceptance of DNA" (Kaye, Bieber, & Primorac, 2014, p. 509) samples in trials in the USA, it was considered as expert evidence. It was only 1990 when it was stated that "The FBI currently is exploring ways to enter the DNA profile identifying information into a centralized computer databank..." (Gorgey, 1990, p. 382). At the beginning, it was not distinguished from another type of expert evidence. As the courts faced some special problems regarding DNA evidence, scientific evidence specified rules are provided (Kaye, Bieber, & Primorac, 2014, p. 510).

The USA has its own national DNA Database called *CODIS (Combined DNA Index System)* since the year of 1994. The FBI retains and searches DNA profiles submitted to CODIS by federal and state law enforcement authorities (Silverstein, 2013). This shows that DNA evidence has increasingly become a widespread instrument in solving crime in the USA (Erbaş, 2017, p. 164). As a matter of fact, a great emphasis on use of DNA is placed as evidence in the court application, as it is considered as a scientific evidence and it can avoid arbitrariness in determining conviction. *Professor Jonathan J. Koehler* has written that "DNA identification has been and will continue to be powerful evidence against criminal defendants" (Koehler, 1993, p. 21). However, at criminal trials, it serves as a tool just as being fingerprints or witness testimony. Respectively, DNA evidence has two sides as bright and dark. The innocent may be exonerated thanks to DNA evidence as well as be found guilty after mismatched DNA profile. Even if DNA evidence is of scientific and it, thus, appears as reliable evidence for criminal trials, it cannot be asserted as absolute infallible evidence (Thompson, *Forensic DNA Evidence: The Myth of Infallibility*, 2013). *Elster* states that;

"At times, DNA evidence has been misused or misunderstood, leading to miscarriages of justice. A man with Parkinson's disease who was unable to walk more than a few feet without assistance was convicted of a burglary based on a partial DNA profile match" (Elster, 2017).

Indeed some types of errors such as "false association", "cross- contamination of samples", "mislabeling of samples" and "misinterpretation of the results" (Thompson, *DNA Evidence in the O.J. Simpson Trial*, 1996, pp. 229-233; Gill, 2012, p.56) can occur and so mislead the criminal justice system (Machado & Granja, *DNA Technologies in Criminal Investigation and Courts*, 2020, p. 52).

*O. J. Simpson case-* murder case- was discussed as an important example for both strengths and weaknesses of DNA evidence in criminal trial (Thompson, *DNA Evidence in the O.J. Simpson Trial*, 1996, p. 827) as *O. J. Simpson* was first charged for the murder by an amassed DNA evidence through testing in different laboratories that were introduced by the public prosecutor (Thompson, *DNA Evidence in the O.J. Simpson Trial*, 1996, p. 828) and then he was acquitted thanks to challenging by science on DNA

evidence in criminal trial (Thompson, DNA Evidence in the O.J. Simpson Trial, 1996, p. 857). However, he was subsequently held liable for the same murder case in the civil trial (Encyclopaedia Britannica, 2020). Indeed, *William C. Thompson* has conveyed the police officer's concern by stating that "...[B]etween 1995 and 2006, a period when DNA testing was becoming more common, the clearance rate for rape cases reportedly declined by 10 percent" (Thompson, *Forensic DNA Evidence: The Myth of Infallibility*, 2013, pp. 250-251).

Creating a DNA database for the criminal courts' service has not been something peculiar to the USA law. The creation of DNA databases for use in criminal cases is prevalent among the European Union countries (Santos, Machado, & Silva, 2013, p. 7). The UK has had reputation (S and Marper v. The United Kingdom, 2008) for its enormous national DNA database (called *NDNAD*) (Tracy & Morgan, 2000, p. 645). It is considered as "the largest DNA database for criminal justice purposes in the world" (Cutter, 2006, p. 6). "Total number of subject sample profiles retained on NDNAD" as of 30<sup>th</sup> June 2019 is reported by Home Office as in the amount of 6.423.123 (Home Office, n.d.) in comparison with the other European countries as well as the USA (Amelung & Machado, 2019, p. 591). In fact, the EU mandates the member states to create their own DNA database to facilitate cooperation among the member countries in criminal affairs. For that purpose, *the Prüm Decisions* (the multilateral treaty in 2005 and the decisions in 2008) (EUR-Lex ), in Art. 2, entitled "Establishment of national DNA analysis files" reads in the 1st paragraph as below;

"Member States shall open and keep national DNA analysis files for the investigation of criminal offences. Processing of data kept in those files, under this Decision, shall be carried out in accordance with this Decision, in compliance with the national law applicable to the processing"<sup>1</sup>.

As for the jurisdictions in which no DNA database still exists, Turkey appears an example for it. Turkey, an EU candidate country since 1999 (Enlargement, n.d.), and one of the founding members of the Council of Europe (part of the ECtHR jurisdiction) (Council of Europe), the potential of DNA for criminal cases has reflected on Turkish legal system just as other jurisdictions in the world. There was an attempt to create a DNA database in 2001, but it was not signed into law. In 2005, DNA evidence specified-regulations were first introduced into the Turkish criminal justice system and broadly regulated by the new Turkish Criminal Procedure Code as scientific evidence under the title of "molecular genetic investigation".

### 3. SOLVING CRIMINAL CASES AS *LEGITIMATE AIM*

At the first sight, seeing the words, 'DNA' and 'storing', together may sound as a dangerous couple against individual rights, particularly against privacy. How proper is it to

---

<sup>1</sup> Council Regulation (EC), 2008/615/JHA of 23 June 2008 on the stepping up of cross-border cooperation, particularly in combating terrorism and cross-border crime [2008] OJ L 210/1 Art 2.



seek for utopian or dystopian vision when DNA databases serve for criminal justice system purposes, indeed? When a crime is committed, it poses already a negative vision for a society. Therefore, it is difficult to visualize retaining DNA profile in a database for such use an utopia or dystopia where a crime stands as theme. Because the crimes committed refers to a sphere on which such use DNA by criminal justice system is justified. For example;

“Cold case murder of Montana girl, five, is solved 46 years later after DNA evidence from the scene identified killer as a man who died in 2012” (Jeweris, 2020).

This was a news headline in *Daily Mail* in October 2020. In a similar vein, another news in 2020 reads as “Police hope DNA from helmets will solve 1982 Troubles murder case” (McDonald, Police hope DNA from helmets will solve 1982 Troubles murder case, 2020) on which it is stated that;

“...[I]nquiry team into the triple murder has “made significant progress applying modern forensic techniques that would never have been available and would not have been known about by those responsible for the attack in 1982” (McDonald, Police hope DNA from helmets will solve 1982 Troubles murder case, 2020).

These examples indicate that having a DNA database ensures to protect individual rights better (Etzioni, 2004, p. 203). In fact, the statistics shows that “...crimes are more readily solved if there is DNA evidence” (Cutter, 2006, p. 7). As for the frequencies of the use of DNA evidence, in the USA history, 375 persons have been exonerated through post-conviction DNA testing so far (DNA Exonerations in the United States, n.d.). When it comes to the use of DNA for forensic purposes, *Etzioni* draws an inference that no one argues for a total banning (Etzioni, 2004, p. 204). Because the solving crime is legitimized through the common good, public as beholder of that interest (Etzioni, 2004, p. 209).

The questions on when and how such use lose their justification are crucial, however. It was stressed “what safeguards need to be in place to govern forensic DNA databases?” (Dahl & Rudinow, 2009, p. 88). Furthermore, the question on whether or not there is a place to use DNA evidence to deal with crimes like diseases to wipe off from society. Put differently, the use of DNA evidence for prevention of prospective crimes is controversial issue. Here comes the measures to mitigate tensions between State’s interest in solving crimes and individual rights and freedoms, especially right to privacy.

#### **4. CREATING A SYSTEM OR NON-SYSTEM APPROACH?**

Considering creating DNA database is identical with establishment of system on the use of DNA for justice system, countries which do not have any DNA database appears a having no-system on such use. Do countries on which there is no DNA database represent the way towards utopian visions? Do ‘DNA’ and ‘Database’ as together lay a dangerous couple against privacy under any circumstances, indeed? Whether creating DNA database is inevitable or not is arguable (Erbaş, 2017, p. 169), the use of DNA evidence in criminal

procedure is today inevitable (Atalay, 2019, p. 177). As a matter of fact, it is noted that its reliability is exaggerated in judicial practice (Machado & Granja, DNA Technologies in Criminal Investigation and Courts, 2020, p. 46). Seeing that, having system as a unique database may provide more ensures to protect individual rights across a jurisdiction rather than taking DNA samples on a case-by-case basis in the frame of expert evidence that is kept on a case file. For example, Turkey does not have its national DNA database. However, a great emphasis on use of DNA is placed in the court application in Turkey, as it is seen as a scientific evidence and can avoid arbitrariness in determining conviction. In many cases, the Turkish Court of Cassation (*Yargıtay*), overruled the conviction by arguing that if sample is obtained, it is to be subject to analysis and then all evidence must be collectively assessed by corroborating each other. The Court stated that a person cannot be convicted by basing only on her statements and held that samples obtained from t-shirt of the accused must be subjected to DNA analysis<sup>2</sup>. Turkish scholars call on creation of such database by ensuring its safety measures by law (Uğurlubay, 2017, pp. 82-83; Atalay, 2019, p. 180). At the current state of using DNA in criminal courts, these safety measures are argued as limited (Küzeci, 2010, p. 314),.

Creating a DNA database may provide a system based approach to protect privacy for DNA information which is considered as *sensitive personal data* (Uygun, 2017, p. 91; Atalay, 2019) such as “*ancestry or susceptibility to disease*” (Ashworth & Redmayne, 2010), which demands specific protection. That is to say, this is the legal recognition of the proposition that every piece of information about a person is considered as personal data, and that DNA evidence implies a level of sensitivity. In that regard, it could be argued that *the Prüm Convention* functions as unity in DNA database as well as DNA cooperation among the EU member states.

## 5. MEASURES TO MITIGATE THE TENSIONS: PRIVACY CONCERNS

Creating or leading a criminal justice system that allows to use of modern scientific techniques *at any cost* and *unproportionally* for the sake of delivery of criminal justice system and rights and freedoms of any individual implies a contradiction with the ECHR case-law.

“The Court observes that the protection afforded by Article 8 of the Convention would be unacceptably weakened if the use of modern scientific techniques in the criminal-justice system were allowed at any cost and without carefully balancing the potential benefits of the extensive use of such techniques against important private-life interests”<sup>3</sup>.

A considerable tension exists between retention and expunction of DNA samples and results as each of them lies as a core point between competing interests in ensuring right to privacy and the State’s interest in solving crimes (Erbaş, 2017). Because whereas

<sup>2</sup> Yargıtay 2 CD, Date: 06.03.2019, E. 2017/475, K. 2019/4351.

<sup>3</sup> *S and Marper v. The United Kingdom* App no 30562/04 and 30566/04 (ECHR, 4 December 2008) para 112.

the utility of DNA samples in the criminal justice system receives a wide spread of acknowledgement, the growth of large size of DNA database appears as a highly controversial issue (Ashworth & Redmayne, 2010, p. 141). Therefore, a question whether a national DNA database can be justified by the State's interest in solving and fighting against crimes or not arises. To the ECHR states;

“...[T]hat the blanket and indiscriminate nature of the powers of retention of the fingerprints, cellular samples and DNA profiles of persons suspected but not convicted of offences, as applied in the case of the present applicants, fails to strike a fair balance between the competing public and private interests and that the respondent State has overstepped any acceptable margin of appreciation in this regard” (S and Marper v. The United Kingdom, 2008, para.125).

However, the ECHR currently approaches to the use of DNA evidence, respectively databases, in bold outline, *i.e.*, it does not provide any detailed prerequisites displaying the use of DNA is proportional and not at any cost. Though, that the infringement of fundamental rights in using of DNA evidence in criminal trial, today, is more obscure and wide-ranging than it was.

There are some set of principles in govern personal data (Küzeci, 2010). In particular, in mitigating this tension comes *the principle of proportionality* in, which brings out some criteria which are mainly classified as entry, storage and destruction criteria (Erbaş, 2017, p. 171; Machado & Granja, DNA Databases and Big Data, 2020, p. 59). *Santos, Machado and Silva* shows that even among the EU member states, these criteria to govern entry, storage and distraction vary highly (Santos, Machado, & Silva, 2013; Machado & Granja, DNA Databases and Big Data, 2020, p. 62). This proves that the current tendency is lack of systematic approach to the principle of proportionality in DNA database through using these criteria (Erbaş, 2017, p. 176).

## 6. TECHNOLOGY AS A TOOL IN THE SERVICE OF CRIMINAL COURTS

DNA evidence is a scientific evidence and as such highly reliable in delivery of justice. Yet, *Cutter* comments that “Is it really a concern that if (in the future) the police had the ability to screen for genetic indicators of personality, they might assume these to be definitive indicators of guilt or innocence?” (Cutter, 2006, p. 5). Indeed, the position of DNA sampling as being reliable scientific evidence while retaining forensic science related problems such as cross-contamination or false association problems on the forensic medicine side of DNA samples, for criminal justice authorities, this contrary nature in DNA evidence makes it *the most useful evidence and the most challenging evidence!*

Nevertheless, the question that in favour of whom does technology develop remains untouched. In favour of the justice authorities (and victims) or the perpetrators or both of them? Biotechnology and overall technology develops in a neutral way. Technology does not always itself develop for the favor of justice system, victim and



against perpetrator. DNA technology stands as a tool. It is people who decide on which purpose it should be used. Today, the DNA technology provides the courts with the possibility for DNA profiling, storing and matching to solve the crimes. In the future, the state of DNA technology may come to the point which provides the perpetrator with the possibility to disguise her/himself, and consequently, the courts may refrain from resorting to DNA technology. Consider, for example, fingerprints as evidence in justice system. Today, DNA has been seen more valuable evidence than fingerprints because fingerprint may go change throughout the life of a person such as skin disease. For which purposes DNA technology is going to be useful today remains still unpredictable. Does this unpredictable feature of bio-technology has to automatically lead to the dystopian vision? For example, technology is changing in a way that allows to re-structure DNA as it is so called “the CRISPR/Cas9 genetic scissors” (The Royal Swedish Academy of Sciences, 2020). Consequently, there is a risk for a country having such a database to end up with a garbage dump of DNA profiles. Machado & Granja emphasise the high cost of creating and maintaining such database (Machado & Granja, DNA Databases and Big Data, 2020, p. 60).

#### **7. CRIMINAL JUSTICE SYSTEM AS A GOOD START POINT FOR “FUNCTION CREEP”?**

In the above mentioned scenario, having a DNA database in the volume of A or B might be sufficient to serve criminal justice system for that time period. However, this country did not content itself with it, rather constantly sought for creating more voluminous ones. Why did this country have a tendency towards so called “all-inclusive!” approach to database (Tracy & Morgan, 2000, p. 645)? The crime ratio may be doubled in the future? Or, the way in which committing a crime would become more complicated for justice authorities than it was? It might be the crime statistics that approve that, indeed? In that point, the concept, *function creep* (Dahl & Rudinow, 2009), might appear.

“Function creep” is defined in dictionary as “the gradual widening of the use of a technology or system beyond the purpose for which it was originally intended, esp when this leads to potential invasion of privacy” (Collins English Dictionary, 2021). It was criminal justice system to have brought the first use of DNA technology. Did criminal justice system in so doing provide function creep with a basis? Indeed, it was only 1998 when it was pointed out that;

“Once DNA analysis comes to be seen as a familiar and benign crime control tactic, will the way be paved for more controversial uses--for example denial of certain types of employment or insurance, or even the right to have children in those whose genetic makeup indicates they may be prone to particular illnesses or forms of anti-social behavior?” (Marx, 1998).

DNA technology appears as a significant examples of biotechnology on the changing the world, in fact. However, this comment fundamentally represents a dystopian way of thinking on DNA database.

## 8. CONCLUDING THOUGHTS

The use of DNA is, of course, stands as inevitable in the field of criminal procedure at pre-trial and trial phase. Consequently, the DNA databases has been rapidly extending in the world. DNA technology appears as a significant examples of biotechnology on the changing the world. Therefore, the question whether that pathway of criminal justice system regarding DNA databases towards utopian or dystopian future arises. Although the way of thinking as utopian or dystopian represents ‘science fiction’, this study attempted to look into theme through the lens of utopia and dystopia.

It is not difficult to draw an inference that when “DNA” (personal data) and “store” (database) comes together, they pose a negative visioning, a dystopia, for future in terms of individual rights and freedoms, *inter alia*, privacy. However, the study aims to overcome some clichés on the DNA database and its forensic use. It is very true that dystopian visioning may stimulate a sense of a caution in society for the individual rights and freedoms. Nevertheless, this inference would be a superficial and would not meet the realities. As such, there is an obligation of a State to solve the crimes. In that respect, a legitimate aim may exist. Because of this legitimate aim, it may be even argued that criminal justice system serves as a starting point for the so called “function” creep phenomenon. On the other hand, having a database is not automatically against individual rights and freedoms, *i.e.*, a database may represent a system that is governed by the principles and rules of democratic state as the principle of proportionality. What’s more, that technology develops quickly does not mean that the individual automatically lose their control on their rights in the future. Technology develops in a neutral way. That today some phase of this development serves for criminal courts does not refers to that this will be the same in the future.

## REFERENCES

- Amankwaa, A. O., & McCartney, C. (2019). The effectiveness of the UK national DNA database. *Forensic Science International: Synergy*(1), 45-55. <https://doi.org/10.1016/j.fsisyn.2019.03.004>
- Amelung, N., & Machado, H. (2019). Affected for good or for evil: The formation of issue- publics that relate to the UK National DNA Database. *Public Understanding of Science*, 28(5), 590-605. <https://doi.org/10.1177/0963662519836346>
- Ashworth, A., & Redmayne, M. (2010). *The Criminal Process*. Oxford: Oxford University Press. <https://doi.org/10.1093/he/9780199547289.001.0001>
- Atalay, A. Ö. (2019). Ceza Muhakemesi Hukukunda Moleküler Genetik İncelemelerin Özel Nitelikli Kişisel Verilerin Korunması Açısından Değerlendirilmesi. *Journal of Penal Law and Criminology*, 7(2), 127-184. <https://doi.org/10.26650/JPLC2019-0018>
- Collins English Dictionary*. (2021). Retrieved from <https://www.collinsdictionary.com/dictionary/english/function-creep>

- Council of Europe. (n.d.). *Turkey*. Retrieved December 2019, from <https://www.coe.int/en/web/portal/turkey>
- Council Regulation (EC). 2008/615/JHA of 23 June 2008 on the stepping up of cross-border cooperation, particularly in combating terrorism and cross-border crime [2008] OJ L 210/1 Art 2.
- Cutter, A. M. (2006). To Clear or To Convict? The Role of Genomics in Criminal Justice. *Genomics, Society and Policy*, 2(1), 1–15.
- Dahl, J. Y., & Rudinow, A. (2009). “It all happened so slowly” e On controlling function creep in forensic DNA databases. *International Journal of Law, Crime and Justice*, 37, 83–103. <https://doi.org/10.1016/j.ijlcrj.2009.04.002>
- DNA Exonerations in the United States*. (n.d.). Retrieved from The Innocence Project: <https://www.innocenceproject.org/dna-exonerations-in-the-united-states/>
- Elster, N. (2017, 6 December). *How Forensic DNA Evidence Can Lead to Wrongful Convictions*. Retrieved October 2020, from <https://daily.jstor.org/forensic-dna-evidence-can-lead-wrongful-convictions/> adresinden alındı
- Encyclopaedia Britannica. (2020, January 17). *O.J. Simpson trial*. Retrieved November 2020, from <https://www.britannica.com/event/O-J-Simpson-trial> adresinden alındı
- Enlargement*. (n.d.). Retrieved September 2019, from European Commission: <https://ec.europa.eu/environment/enlarg/candidates.htm>
- Erbaş, R. (2017). The Tension between Genome Privacy and Criminal Justice in the Wake of DNA Databases. 5(2), pp. 163-178. <https://doi.org/10.26650/JPLC360271>
- Etzioni, A. (2004). DNA Tests and Databases in Criminal Justice Individual Rights and the Common Good. In D. Lazer, *DNA and the Criminal Justice System: The Technology of Justice* (pp. 197-223). MIT Press.
- EUR-Lex . (n.d.). Retrieved September 2019, from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Ajl0005/>
- Gill, P. (2012). Misleading DNA Evidence: Reasons for Miscarriages of Justice. *International Commentary on Evidence*, 10(1). <https://doi.org/10.1515/ice-2014-0010>
- Gorgey, A. D. (1990). *The advent of dna databanks: Implications for information privacy* 16(3), 381-398. (Vol. 16). American Journal of Law & Medicine. <https://doi.org/10.1017/S0098858800008613>
- Home Office. (n.d.). *National DNA Database statistics, Q1 2019 to 2020*. Retrieved September 2019, from [\[\[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/818992/NDNAD\\_Website\\_statistics\\_Q1\\_19-20.ods](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/818992/NDNAD_Website_statistics_Q1_19-20.ods)
- James, R. (2009, June 19). *A Brief History of DNA Testing*. Retrieved from TIME: <http://content.time.com/time/nation/article/0,8599,1905706,00.html>

- Jeweris, C. (2020, October 28). *Cold case murder of Montana girl, five, is solved 46 years later after DNA evidence from the scene identified killer as a man who died in 2012*. Retrieved October 2020, from Daily Mail: <https://www.dailymail.co.uk/news/article-8888827/Cold-case-murder-Montana-girl-five-solved-46-years-later-new-DNA-evidence.html>
- Küzeci, E. (2010). *Kişisel Verilerin Korunması*. Ankara: Turhan Kitabevi.
- Kaye, D. H., Bieber, F. R., & Primorac, D. (2014). DNA as Evidence in the Courtroom. In D. Primorac, & M. Schanfield *Forensic DNA Applications An Interdisciplinary Perspective* (pp. 509-525). CRC Press.
- Koehler, J. J. (1993). Error and Exaggeration in the Presentation of DNA Evidence at Trial. *Jurimetrics Journal*, 34(1), 21-39.
- Küzeci, E. (2010). *Kişisel Verilerin Korunması*. Ankara: Turhan Kitabevi.
- Machado, H., & Granja, R. (2020). DNA Databases and Big Data. In H. Machado, & R. Granja, *Forensic Genetics in the Governance of Crime* (pp. 57-70). Singapore: Palgrave Macmillan. [https://doi.org/10.1007/978-981-15-2429-5\\_5](https://doi.org/10.1007/978-981-15-2429-5_5)
- Machado, H., & Granja, R. (2020). DNA Technologies in Criminal Investigation and Courts. In H. Machado, & R. Granja, *Forensic Genetics in the Governance of Crime* (pp. 45-56). Singapore: Palgrave Macmillan. [https://doi.org/10.1007/978-981-15-2429-5\\_4](https://doi.org/10.1007/978-981-15-2429-5_4)
- Marx, G. T. (1998, April 20). *DNA 'Fingerprints' May One Day Be Our National ID Card*. Retrieved from <https://web.mit.edu/gtmarx/www/dna.html> adresinden alındı
- McDonald, H. (2020, October 27). *Police hope DNA from helmets will solve 1982 Troubles murder case*. Retrieved October 2020, from The Guardian: <https://www.theguardian.com/uk-news/2020/oct/27/police-hope-dna-from-helmets-will-solve-1982-troubles-case> adresinden alındı
- McDonald, H. (2020, October 27). *Police hope DNA from helmets will solve 1982 Troubles murder case*. Retrieved from The Guardian: <https://www.theguardian.com/uk-news/2020/oct/27/police-hope-dna-from-helmets-will-solve-1982-troubles-case> adresinden alındı
- Rice, A. (2009). Brave New Circuit: Creeping Towards DNA Database Dystopia in U.S. v. Weikert. *Roger Williams University Law Review*, 14(3), 691-728.
- S and Marper v. The United Kingdom, 30562/04 and 30566/04 (ECHR December 4, 2008).
- Santos, F., Machado, H., & Silva, S. (2013). Forensic DNA databases in European countries: is size linked to performance? *Life Sciences, Society and Policy*, 9, 1-13. <https://doi.org/10.1186/2195-7819-9-12>
- Silverstein, J. (2013). *The Dark Side of DNA Evidence*. Retrieved October 2020, from The Nation: <https://www.thenation.com/article/archive/dark-side-dna-evidence/>

- The Royal Swedish Academy of Sciences. (2020, October 7). *The Nobel Prize in Chemistry 2020*. Retrieved from <https://www.nobelprize.org/uploads/2020/10/press-chemistryprize2020.pdf>
- Thompson, W. C. (1996). DNA Evidence in the O.J. Simpson Trial. *University of Colorado Law Review*, 67.
- Thompson, W. C. (2013). Forensic DNA Evidence: The Myth of Infallibility. In S. Krimsky, & J. Gruber, *Genetic Explanations: Sense and Nonsense* (pp. 227-347). Harvard University Press. <https://doi.org/10.4159/harvard.9780674067769.c19>
- Tokgöz, H. B. (2020). Cezalandırmanın Amacı ve Bu Bağlamda Ütopiyalar Üzerine Bir Değerlendirme. *Dokuz Eylül Üniversitesi Hukuk Fakültesi Dergisi*, 22(1), 431-467. <https://doi.org/10.33717/deuhfd.704815>
- Tracy, P. E., & Morgan, V. (2000). Big Brother and His Science Kit: DNA Databases for 21st Century Crime Control. *Journal of Criminal Law and Criminology*, 635-690. <https://doi.org/10.2307/1144232>
- Tyler, T. R. (2006). Viewing CSI and the Threshold of Guilt: Managing Truth and Justice in Reality and Fiction. *The Yale Law Journal*, 115(5), 1050-1085. <https://doi.org/10.2307/20455645>
- Uğurlubay, G. A. (2017). Almanya, İsviçre ve Avusturya Hukuku Bağlamında Türk Ceza Muhakemesi Hukukunda Adli DNA Analizleri. *Journal of Penal Law and Criminology*, 5(2), 29-87.
- Uygun, B. B. (2017). Databases and Criminal Procedures in Switzerland and Turkey with Regard to European Council's Standards. *Journal of Penal Law and Criminology*, 5(2), 89-106. <https://doi.org/10.26650/JPLC360265>
- Williams, R., & Johnson, P. (2004). Circuits of Surveillance. *Surveill Soc.*, 2(1), 1-14. <https://doi.org/10.24908/ss.v2i1.3324>
- Yargıtay 2 CD, Date: 06.03.2019, E. 2017/475, K. 2019/4351.

Received: September 6<sup>th</sup> 2021

Accepted: November 23<sup>rd</sup> 2021

