

DNA Collection: A Comparative Analysis of Legal Profiles

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ABSTRACT: This paper aims to differentiate between the legal norms related to genetic data exchange and the technical-scientific norms applied during biological sample collection and analysis. While legal norms are resistant to legislative harmonization, technical-scientific norms are conducive to universalization. The study will survey the sources within the European Union, which are diverse and occasionally disorganized. These sources address the sharing of genetic data during police and judicial cooperation among member states, serving different objectives. The DNA Database allows judicial authorities and police to search and exchange DNA profiles with international databases in accordance with the Prüm Treaty and "Prüm Decisions" (European Union Council Framework Decisions 2008/615/JHA and 2008/616/JHA) to combat terrorism and cross-border crime through international police cooperation.

KEYWORDS: DNA collection, DNA databases, PrümTreaty, privacy

Introduction

In many legal systems, not only in Europe, one can find norms concerning the examinations to be carried out on a person's body for evidentiary purposes. From the experiences of some of these, it is possible to note how different legal systems have addressed the problem of the coercivity of retrievals, establishing, for example, the susceptibility of the suspect to the obligation to undergo a bodily retrieval depending on the type of crime being prosecuted or the type of retrieval to be performed (Symeonidou-Kastanidou 2011). The difference in approach between common-law and civil-law countries is also important, where the former require the consent of the subject for DNA collection, the latter, in the vast majority (Italy is an exception, it permits the enforcement of the collection), allow the levy to be compulsorily enforced. Therefore, it seems appropriate to provide a quick overview in this regard.

Comparative legal profiles: France, Denmark, Sweden, and Norway, Italy, US and UK

The issue of DNA collection in France has been a contentious topic for years, with calls to expand current policies and procedures strengthening since the late 1990s. The French government is currently deliberating legislation that would allow for more extensive DNA evidence collection from individuals linked to criminal activities.

The French administration is currently examining a potential legislation that would permit the utilization of DNA examination for individuals implicated or suspected of committing major transgressions. Furthermore, they are exploring the feasibility of assembling genetic proof from convicted lawbreakers with documented records of specific violations (Vailly and Bouagga 2019) This process entails the gathering of blood or saliva samples from persons that will eventually be integrated into a comprehensive database utilized by law enforcement agencies for scrutinizing criminal activities.

The suggested legislation has encountered resistance from civil liberties organizations and privacy proponents. Their apprehension revolves around the possible inappropriate usage of genetic information by law enforcement agencies. The maintenance and distribution of this data also present a considerable risk to privacy and security. The implementation of this law may also result in prejudiced treatment or other forms of discrimination based on genetic data.

The expansion of DNA collection in France has significant benefits, but it raises concerns about the protection of civil liberties for all individuals. The ongoing debate about these proposed changes leaves uncertainty about their implications for France and its citizens. The compatibility of this proposed expansion with international human rights standards is in question (Róisín 2022, 6,15)

Collecting and storing genetic data from individuals suspected of a crime can be viewed as a violation of privacy, raising concerns about discrimination based on genetic information. However, proposed legislation in France includes specific safeguards; written consent is mandatory before DNA sampling, and strict limitations exist on how data can be shared with other countries. The secure storage of information is also required to protect individuals' privacy. At present, it remains unclear how this ongoing debate will ultimately be resolved in France, but these safeguards can mitigate concerns about privacy and discrimination.

The expansion of DNA collection in France demands deep scrutiny of its impact on civil liberties, human rights, and global standards. Although this measure can bolster public safety, achieving an all-encompassing solution must involve weighing the potential benefits against ethical, legal, social and even economic consequences. This approach can safeguard individual rights whilst enhancing security and ensuring that stakeholders are aware of their obligations and privileges.

Denmark, Sweden, and Norway have a rich history of utilizing DNA collection for tracing family lineage since the Viking era. Today, it benefits medical research on hereditary ailments and helps to identify criminal suspects and organ donors. This genomic data provides insightful knowledge into the transmission of diseases and movement of populations over time (Martin 2005)

Thus, DNA collection is an indispensable resource for medical research and criminal investigations in Denmark, Sweden, and Norway. As technology advances, the potential utility of DNA analysis may solve several mysteries concerning population movements and genetic diseases. In brief, DNA collection in these countries is an influential tool that holds invaluable promise for future applications.

The adoption of DNA collection in Italy has skyrocketed in recent years as a result of technological advancements and an increased emphasis on its use in criminal justice. The adherence to globally standardized protocols is crucial in maintaining the scientific and legal validity of crime scene investigations (Montagna 2012).

The Prüm Treaty, a cooperative agreement among seven European Union states aimed at combating terrorism, cross-border crime, and illegal migration by promoting the exchange of information, has been ratified by Italian law No. 85/2009. This law establishes guidelines for the Italian National Forensic DNA Database and modifies the Code of Penal Procedure to regulate the collection of DNA profiles and their impact on personal freedom. This law underwent changes in 2017 to enable data storage from those accused or suspected of a crime, as well as those released without charges. Individuals may also choose to give their DNA profile to the government voluntarily, bolstering law enforcement's access to critical data.

Despite concerns regarding civil rights and security breaches, DNA collection has become a widely accepted part of the Italian criminal justice system. The application of forensic DNA technology has proven incredibly fruitful in identifying unknown suspects linked to crime scenes, locating missing persons, and offering vital evidence for criminal investigations. It is likely that DNA collection will continue to expand in popularity as more nations begin to understand its value in criminal justice and adopt the technology in similar ways. Legislation in the United States mandates the collection of DNA from individuals found guilty of specific severe offences. The U.S. Supreme Court has ascertained that this practice is lawful and does not infringe upon the Fourth Amendment's prohibition of unreasonable searches and seizures if it corresponds to law enforcement and crime prevention objectives essential to the state (For details see “Maryland v. King US SUPREME COURT”)

The UK's Human Tissue Act of 2004 mandates the solicitation of informed consent from individuals before sample collection. Furthermore, compliance with the individual privacy protections outlined in the European Convention on Human Rights is required for nations seeking membership or recognition in the European Union.

DNA collection for criminal investigations has become increasingly commonplace in the US, with police officers gathering samples from those under arrest and the FBI maintaining a database of over 13 million profiles (Aziza 2019). In contrast, the UK generally limits sample collection to those arrested for serious crimes.

Although the United States and the United Kingdom employ varying methods and levels of involvement, both nations have achieved notable triumphs using DNA analysis in the realm of criminal inquiries. Impressively, in just one year - 2017 - the United States utilized DNA evidence to successfully solve over 15,000 criminal cases. Similarly, the UK has identified and prosecuted numerous suspects thanks to the application of forensic science to their investigations.

Governments around the world have implemented DNA collection laws aimed at enhancing public safety while also upholding individual rights. Though the specifics of implementation may differ across countries, the need to balance these competing interests is universally acknowledged and prioritized.

The United Kingdom has a history of DNA collection, having gathered samples from its population for over two decades through the National DNA Database (NDNAD) initiative since 1995 (For details, please consult the *National DNA Database Strategy Board Biennial Report 2018–2020*) This collection aimed to provide law enforcement with data to combat crime. Today, the NDNAD holds profiles of over 5.6 million individuals.

A comparative analysis of DNA collection practices across countries illustrates the efficacy of the UK's approach. A 2019 study conducted in Europe reveals that the UK stands out among the EU member states for its successful employment of DNA matching in crime prevention and detection. This study also demonstrates that the rate at which DNA matches lead to arrests in the UK is nearly twice as high, in per capita terms, as other countries included in the analysis. As DNA collection and storage practices contribute significantly to the UK's law enforcement success, there is strong rationale for continuing and improving these practices to ensure public safety. While there have been concerns raised by civil rights groups, the presented evidence underscores the ongoing importance of this effective tool in law enforcement.

The Prüm Treaty and Decision 2008/615/GAI

The Prüm Treaty and its incorporation into the EU legislative framework follow the guidelines set by the Hague Program and prioritize information exchange based on the principle of available information. This principle fosters cooperation between law enforcement agencies by enabling the sharing of data held by individual States.

The Prüm Treaty and the Decision 2008/615/GAI introduce three novel features. Firstly, each state party is obligated to establish and maintain centralized national archives that collect DNA profiles. Secondly, member states have the right to request genetic data collection even before exchanging information (Art. 7). Lastly, the use of automated procedures and online access by national contact points of the member states facilitates consultation and comparison. These advancements enhance cross-border cooperation and facilitate effective law enforcement efforts.

To fully comprehend transnational research and evidence formation, it is essential to refer to the conceptual framework. Specifically, collecting transnational genetic data requires an analysis articulated in two directions. One direction entails the transmission of available genetic data between states through a binary system consisting of accessing national databases

online and transferring genetic data to the state that requests it. The other direction involves the retrieval of unavailable genetic data through transnational means.

The Prüm Treaty has paved the way towards establishing a region where information can move freely while still maintaining the standards for safeguarding collected data. The value of the Treaty extends beyond its ability to permit information to circulate within a single network of databases that domestic authorities of member countries can easily access. It indirectly promotes the harmonization of individual states' internal systems through commitments made by contracting countries at the global level.

The process of accessing genetic data through online databases involves both consultation and comparison. The sharing of information is facilitated by automated access to certain categories of information available online, contained in DNA databases. This first phase of consultation allows the requesting authority to access only an anonymous consultation index and a reference number to verify the presence of the genetic data in the database.

National contact points form a network through which exchanges take place, but it is unclear from the Treaty if requests made to these points must come solely from law enforcement or also from the judicial authority. Two interpretations are possible, a restrictive one and an extensive one, with the latter being preferable for preliminary investigations.

If the consultation or comparison produces a positive result, the requesting party receives communication of an anonymous DNA profile index corresponding to the transmitted one. This opens the second phase of the procedure, which results in the transmission of information tied to the index data to the requesting authority. The Treaty only requires an explicit request from the interested authority as a procedural requirement, referring to internal regulations and judicial assistance conventions regulating relations between EU countries for all other aspects. Failing such a request or an express reasoned refusal, the internal authority would be duty-bound to comply with the request.

Transnational DNA Sampling

Article 7 of the Treaty and Prüm Decision provides mutual assistance between states when it comes to collecting biological material from individuals. If an authority in one state requires a DNA profile from a person in another state for a criminal investigation, they can request it through a mandate issued by the competent authority in their own jurisdiction. The requested state must then collect the genetic material, analyze the DNA, and transmit the results to the requesting state, all in accordance with their own laws.

However, there are two critical issues with this type of data exchange. First, it raises questions about the obligation to contribute genetic data to a database. Once a DNA profile has been collected and transmitted, it could remain in the database of the requested state and potentially be used by other countries in the future. The decision of whether or not to store this data falls within the purview of each individual country's internal legislation regarding database management.

Secondly, due to the lack of harmonized regulations on biological specimen collection and genetic data processing, the methods used by the requested state may be insufficient in terms of protecting the fundamental rights of the individual and ensuring analytical data reliability. This lack of standardization could result in inconsistent quantities and qualities of data being circulated between countries, affecting criteria for subject selection, data entry into databases, identification of crimes for which genetic data collection is permitted, and data retention periods.

Although there is a need for regulatory harmonization, in its absence, the minimum condition for protecting fundamental rights is to adhere to the guarantees established by the European Convention on Human Rights and the Nice Charter, as interpreted by the European

Court of Justice. The principle of proportionality, a cornerstone of European law, becomes a balance between the goals of criminal investigation and the inviolable rights of the individual in this context.

The emergence of new forms of cooperation through DNA profiling has led to the need for adequate protection of personal data that is at risk from information sharing. The Prüm agreements and Decision 615 of 2008 address this issue by requiring that individual states ensure a level of protection at least equivalent to that of established conventions and recommendations. Additionally, these agreements establish specific rules and guarantees for those whose data is being processed. Overall, principles and rules governing the treatment of personal and genetic data emphasize legality, proportionality, limited processing purposes, accuracy and data updating responsibilities, safeguards for data subjects, and the establishment of national supervisory authorities.

Genetic investigations and the right to privacy. DNA databases

A not insignificant problem pertaining to DNA testing (but generally encompassing more broadly all genetic investigations, whether conducted for research or forensic purposes) concerns the protection of the person's privacy, since this test provides access to genetic information, i.e., knowledge of the individual's hereditary traits, not strictly necessary for identification, which is the purpose of the test (Song 2013, 10-89). There are conflicting perspectives and queries surrounding the appropriate utilization of genetic testing outcomes. Furthermore, determining which individuals are entitled to access this information, the duration of its retention for investigative purposes, and its potential destruction upon conclusion of the proceedings are all pertinent issues. Additionally, identifying the party responsible for managing this data while guaranteeing the confidentiality of the concerned individual demands consideration.

Genetic tests allow, as seen, to touch upon more confidential aspects of the individual and, also, of his family, for example, giving information about the reproductive capacity and health of the offspring, revealing a certain predisposition to certain diseases, etc. It must be avoided that on or as a result of a genetic test carried out for the purpose of ascertaining facts pertaining to the trial, information is collected or used that is not indispensable for the purpose of ascertaining the truth (Aziza 2019). The information obtained from genetic examinations conducted on an individual is different from any other information, in that the genetic makeup is defined and unalterable throughout a person's lifetime. The research on the human genome and the resulting applications open up vast prospects for progress in improving the health of individuals and of humankind as a whole but emphasizing that such research should fully respect human dignity, freedom and human rights, as well as the prohibition of all forms of discrimination based on genetic characteristics [...] (*apud Universal Declaration on the Human Genome and Human Rights*, 1997).

In this perspective, the information (by way of genetic counseling) that the person concerned must receive before undergoing a genetic test plays an important and necessary role. Indeed, these, compared to other tests, are characterized by their predictive aptitude, meaning they provide information relevant to the prediction of diseases destined to occur in the future. For these reasons, data communication must be carried out in such a way as to ensure the confidentiality and privacy of the collected information.

There is a danger that this confidential and intimate information, if known by the person on whom the DNA test was performed, could lead to anxiety and depression and/or compromise the right not to know, not to know, for example, that he or she carries a disease, or is predisposed to it, hitherto ignored parental ties, etc., or at the limit lead to discrimination on the basis of genetic heritage. Even the *European Convention on Human Rights and Biomedicine* (1997) recognizes, in Article 10, the protection of an individual's private life concerning any personal health information is a fundamental right. This includes the

entitlement to access any data collected regarding one's health. Despite this entitlement, the preference of individuals who opt not to receive such information must be respected and upheld. And, in Article 11, discrimination based on one's genetic background is strictly prohibited. Regardless of an individual's genetic heritage, it is imperative that they are treated with fairness and respect. This mandate aims to promote equality and prevent discrimination based on inherent traits beyond one's control.

In fact, in the absence of certain rules, DNA analysis presents the danger of intrusions into the intimate and inviolable sphere of the individual's personality. This danger is being fueled more today by the establishment of DNA databases raising issues of ethics, privacy, and freedom of the individual. Scheduling the "genetic code" of every human being at birth would make it possible to have on file the genetic data of the entire population, and if necessary, the available data could be compared with the results obtained from traces found, for example, at the scene of crimes.

DNA databases, which, moreover, are already operating in many European states and the US, have the aim and purpose of creating an electronic archive similar to that which already exists for fingerprints (AFIS) to make it easier for investigators to search for criminals, starting with archiving the DNA profile of the prison population and those accused or suspected of particularly serious crimes. The benefits and help that the database can provide should not, however, make us forget the problems and cautions that inevitably follow. In the European context, as early as 1995, England was the first to have a DNA database, and in May 2002, it contained more than 1,500,000 DNA profiles; in 1998, Austria, Germany and the Netherlands also had their own DNA database; Finland and Norway established a national database in 1999 (Martin, Schmitter, and Schneider 2001); in 2001 Switzerland and Denmark also established a database (Schneider and Martin 2001) and in 2003 the databases of Hungary and Latvia were activated.

The significance of DNA databases in the United States is profound. It has fundamentally transformed criminal investigation methods and bestowed investigators with a potent tool to identify suspects and clear the wrongly accused (For additional information see CODIS DNA Databases). The National DNA Index System (NDIS) is an FBI-managed database that enables law enforcement agencies across the nation to compare, exchange, and access DNA analysis results. NDIS facilitates the collection of DNA evidence from crime scenes and laboratories, compares it with a nationwide repository of profiles, and cross-references crimes. The end product is the closure of previously unsolved cases. Besides, NDIS is instrumental in exonerating the unjustly convicted and providing comfort to victims through reassurance (For additional information see National DNA Index System). The use of DNA databases equips law enforcement with the capability to apprehend serial offenders and identify unidentified human remains, offering conclusive responses to families who have been enduring uncertainty for years. In short, DNA databases are essential instruments in identifying lawbreakers, absolving innocent individuals from false accusations, and providing comfort and closure to victims and their families, indispensably contributing to the pursuit of justice. Thus, the United States must prioritize investing in and enlarging the employment of DNA databases for the sake of public safety and preserving civil liberties. This essential measure marks an important step towards a safer and more egalitarian society.

A comprehensive national database provides numerous advantages, particularly its ability to compare records from various laboratories (Dedrickson 2018). With over two hundred laboratory agreements in place, the Federal Bureau of Investigation (FBI) can assess their records to compare them against NDIS profiles, which leads to broader coverage than if each laboratory had a separate database. This extensive coverage saves both time and ensures accuracy by identifying offenders and conducting investigations swiftly, resulting in higher conviction rates while exonerating innocent individuals faster. Furthermore, sharing records between labs bolsters accuracy and reduces errors. By ensuring that every laboratory follows

the same standards of analysis, investigators can trust that results will be consistent and reliable across all facilities.

To fully realize the potential of DNA databases, it is necessary that law enforcement agencies have access to the most advanced technology and equipment. This includes personnel training, maintaining up-to-date databases, and accessing multiple lab records. The government must continue to invest in groundbreaking technologies that support law enforcement agencies in obtaining the best possible results in the shortest possible time, thus leading to increased convictions and exonerations of the falsely accused.

To summarize, DNA databases hold immeasurable value in aiding law enforcement and the judicial system. It is crucial for the United States to not only uphold the maintenance of these databases but to also broaden their implementation. Such efforts will ensure prompt justice for crime victims, while simultaneously providing enhanced public safety and civil liberty protections for all citizens.

The use of DNA databases has increased significantly in both the UK and Europe in aiding criminal investigations. These databases house genetic material acquired from individuals, allowing for comparisons to be made against potential suspect DNA profiles. The National DNA Database (NDNAD) in the UK and the European Network of Forensic Science Institutes (ENFSI) are responsible for facilitating the implementation of the European level DNA database. These databases have been crucial in the resolution of numerous criminal cases, with law enforcement authorities being able to easily identify potential suspects by comparing their DNA profiles to pre-existing records. Moreover, DNA analysis has proven instrumental in the exoneration of individuals who were wrongly convicted.

The principle of proportionality is indispensable in maintaining the efficiency of DNA databases. It dictates that any access to an individual's private genetic information must be necessary and in proportion to law enforcement's objectives. This principle is enshrined in the UK's Police and Criminal Evidence Act (PACE) and has been recognized by the European Court of Human Rights as a critical consideration in the use of DNA databases. Retention and collection of genetic data must have a clear law enforcement purpose and not extend beyond what is necessary to achieve this aim.

DNA databases have proved crucial in solving criminal investigations and exonerating individuals wrongly convicted of crimes in the UK and Europe. Hence, it is crucial to adhere to the principle of proportionality to enable the effective use of these databases without infringing on an individual's right to privacy.

The successful utilization of DNA databases in the UK and Europe provides examples of adroit yet responsible use. It is imperative that other countries follow suit to realize the benefits of these databases worldwide.

Italy currently lacks a national DNA database due to Constitutional Court ruling No. 238 of 1996. This decision declared Article 224 paragraph 2 of the Criminal Procedure Code unconstitutional, as it allowed judges to order measures that affected the personal freedom of suspects outside of those already established by law. The court called upon the Legislature to carefully evaluate and determine specific cases and ways in which personal freedom could be legitimately restricted. Until the Legislature intervenes, it is impossible to execute expert operations that involve acquiring biological samples for DNA extraction. Consent from the person involved is required for any such measures.

In Italy, the ethical implications of DNA databases have raised several concerns, including the accuracy of such evidence and privacy issues. Therefore, the Italian laws mandate individuals to provide explicit consent to have their DNA information added to the database. Moreover, any information collected must be secure and used solely for criminal justice or medical research. Additionally, the application of DNA databases in detecting individuals is strictly regulated and limited to specific cases. Therefore, while these

repositories may support law enforcement and medical studies, preserving individuals' privacy and data accuracy is essential.

Fingerprinting stands as a widely used method for law enforcement to identify criminal suspects among other forms of biometrics. The Police and Criminal Evidence Act (PACE) of 1984 outlines the authorities given to officers to obtain fingerprints from the suspects. This may be necessary for investigation purposes or as a means of confirming the suspect's true identity. PACE also highlights the conditions under which fingerprints may be obtained from someone who has been arrested but not yet charged with any crime. In this case, the police must have adequate grounds to believe that obtaining fingerprints or biometric information would be beneficial in the investigations. These fingerprints must be obtained through procedures laid down by PACE, and in case of failure to comply, an officer may face disciplinary action.

Furthermore, to conform with the law, police officers may take DNA backups in addition to the fingerprints. They must, however, obtain consent from the suspect before the fingerprints and DNA backups are taken. If a suspect declines to provide their DNA or fingerprints, an officer may solicit a sample from a relation of the suspect who has already been identified. Regardless, the police officer ought to inform the suspects of their rights under PACE and the likelihood of being prosecuted if they decline to comply.

The Police and Criminal Evidence Act (PACE) establishes clear directives on the destruction of DNA and fingerprint records. Once an investigation is over, any backups of a suspect's biometric data must be eliminated, unless there is a court order permitting it to be kept. The Police and Criminal Evidence Act (PACE) provides comprehensive guidelines for handling biometric information collected by law enforcement agencies. These guidelines carefully delineate the procedures for collecting DNA and fingerprint samples from suspects and emphasize the importance of destroying any evidence that is no longer needed, particularly any evidence collected without consent. This balance between protecting individuals' privacy and enabling law enforcement to use biometric information in their investigations is a vital aspect of PACE's approach.

Conclusions

Supporting the usefulness and, at the same time, the special attention that jurisdictions will have to pay in establishing DNA databases is also a resolution of the Council of the European Union of June 9, 1997, which calls on member states to provide themselves with national DNA databases and to adopt criteria for standardizing DNA techniques in order to exchange DNA analysis results at the European level. This, in view of the important contribution the exchange can make to criminal investigations.

The same resolution points out that "Whereas DNA investigation may involve not only technical, legal and political but also ethical aspects which need to be given appropriate consideration in the further development of cooperation activities;" (For details see Council Resolution of 9 June 1997 on the exchange of DNA analysis results)

To explore the collection and exchange of genetic data in the European Union, it is essential to differentiate between two distinct levels. The regulation governing the collection stage is left to the individual member states, with the EU legislature limited to intervening when the legality and proportionality of collecting biological samples for DNA analysis are at stake. On the other hand, European lawmakers have impacted the exchange stage significantly, utilizing both police and judicial cooperation tools in criminal matters.

As indicated by measures applied to date in the EU, genetic data exchange can occur through two modes: centralized information collection systems- as seen with Europol and Eurojust- or simplified exchange through direct access to national databases in connection with each other. The latter method is stated in the 2006/960/GAI and 2008/615/GAI

framework decisions, which can be associated with mutual recognition measures for acquiring genetic data for probative use. While the first exchange approach generates independent information collection systems separate from their national databases, requiring central management, the second approach requires sharing.

Across the entire territory of the European Union, each member state's knowledge resources can be accessed through simplified procedures or direct querying of national databases, without the need to previously transfer data to a centralized system. However, there are concerns with both of these methods of information exchange. In the absence of harmonized regulations regarding the collection of biological samples and treatment of DNA profiles, and due to the continued relevance of national legislations, heterogeneous data circulates throughout the EU in terms of both quantity and quality. The data provided by each member state do not correspond to uniform selection criteria, neither for the individuals indexed nor for the offenses for which the data collection is permitted, and even the retention times vary significantly. Reciprocity, an implicit precondition for any form of exchange, presupposes data availability on crime categories and individuals identified according to common criteria, in order to avoid member states contributing to police and judicial cooperation in considerably different ways.

Therefore, it is desirable for the European legislator to aim for harmonization in this area, whose legitimacy is well-founded, especially in the new institutional framework introduced by the Lisbon Treaty. This Treaty foresees that "where necessary to facilitate [...] police and judicial cooperation in criminal matters having a cross-border dimension, the European Parliament and the Council may establish minimum rules by means of directives, on the basis of the ordinary legislative procedure [...]" (Art. 82, Par. 2).

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