

Study on Digital Transformation and Algorithmic Law

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Abstract

The article studies the interaction between digital transformation and the legal field, analyzing the impact of digital technologies on legislation and legal practice. After outlining the basics of digital transformation, it examines how technological evolution affects the rule of law and the legal implications of digital transformation, with a focus on data protection and privacy in the digital age. Emerging legal tools such as smart contracts and blockchain technology present challenges and opportunities. Access to justice in the digital age is analyzed, noting the influence of technology on legal processes and online dispute resolution platforms. The paper also addresses the impact of digital transformation on legal education and the ethical issues associated with the use of technology in legal practice. In conclusion, the paper emphasizes the importance of adapting the legal system and educational practices to the changes generated by the digital transformation.

Keywords: digital transformation, blockchain, emerging legal instruments, algorithmic law.

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1. Introduction. Digital transformation and the law

Digital transformation represents the adoption of digital technologies in all areas of society and the economy, including law. Digital transformation in the legal field involves the use of information technologies to streamline and improve legal processes, the provision of legal services and access to justice. The digital transformation of the legal field materializes through:

- the use of AI and automation to process legal documents, to analyze jurisprudence and to assist in the drafting of contracts;²

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² Liane Colonna, Stanley Greenstein, *Law in the Era of Artificial Intelligence*, *Nordic Yearbook of*

- moving from paper documents to electronic documents and using document management platforms to efficiently store, organize and access legal information;
- development of online platforms that offer legal services, facilitating access to legal services and legal assistance;
- increasing the importance of cyber security in the legal field, given the large amount of sensitive and confidential information;
- the use of blockchain technology to increase the security, transparency and verifiability of legal aspects such as transactions and intellectual property;³
- the development of online justice systems (e-justice) to facilitate access to the courts and to make judicial processes more efficient;⁴
- improving data protection practices and complying with privacy regulations such as the General Data Protection Regulation (GDPR);
- adapting the legal curriculum to include notions of technology and digital skills necessary for modern legal practice.

Digital transformation in the field of law brings significant benefits, such as increased efficiency, reduced costs and improved access to justice, but is accompanied by challenges related to data security, privacy protection and the adaptation of legal professionals to new technologies.

1.1. The relationship between digital technology and individual autonomy

Digital technology provides more control over decisions in various fields such as health, finance and education. With the implementation of digital technology, the amount of personal data collected and stored also increases, with requirements to protect privacy.

At the same time, digital technology personalizes services according to individual preferences. Personalized recommendations for online shopping contribute to increasing autonomy in making consumer decisions. On the other hand, excessive dependence on technology brings risks regarding autonomy. People become vulnerable to manipulation or lose essential skills due to over-automation.

Guaranteeing digital rights, such as freedom of expression online, is essential to maintaining individual autonomy in the digital age. Appropriate legislation and regulations must protect these rights. Certain digital technologies such as monitoring and surveillance systems raise concerns about invasion of privacy

Law and Informatics 2020–2021, <https://irilaw.org/wp-content/uploads/2022/02/law-in-the-era-of-artificial-intelligence.pdf>, p. 6.

³ Primavera De Filippi, Aaron Wright, *Blockchain and the Law: The Rule of Code*, Harvard University Press, 2018, p. 74.

⁴ Richard Susskind, Daniel Susskind, *The Future of the Professions: How Technology Will Transform the Work of Human Experts*, Oxford University Press, 2016, p. 112.

and loss of individual autonomy.⁵

Regulations on the use of these technologies are essential to balance the benefits and risks.

In essence, digital technology contributes to increasing individual autonomy, but it is important to strike a balance between the benefits brought by technology and the protection of fundamental values such as privacy, freedom and human dignity.

1.2. The relationship between digital technology and protection against wrongful injury

Digital technologies such as surveillance cameras, mobile phones and online platforms can be used to monitor abusive behavior and report incidents. This helps prevent abuses and bring those responsible to justice. Blockchain technology is used to create secure and transparent systems for registering and verifying individual rights. This can provide greater protection against infringements and unfair manipulations. Digital technologies facilitate access to online legal services, providing affordable and convenient legal support for those in need of protection against wrongful injury. AI-based algorithms analyze data sets to detect and highlight patterns of discrimination and injustice in various fields, including the legal system, enabling preventive interventions.

1.3. The relationship between digital technology and the fair resolution of disputes

Digital technology plays a significant role in improving the dispute resolution process and promoting a fair approach. The relevant aspects of the relationship between digital technology and fair dispute resolution are:

- the existence of specialized digital platforms that facilitate online mediation of disputes. They connect the involved parties and mediators in the virtual environment, for conflict resolution;
- digital technology implements online arbitration systems, where arbitrators analyze evidence and arguments in digital format and issue decisions without the need for physical meetings. There are also digital platforms that offer online dispute resolution services;
- blockchain technology facilitates the creation and implementation of smart contracts;⁶
- the use of predictive analytics and AI algorithms helps to anticipate potential disputes and identify effective solutions before they become major problems.

⁵ Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*, PublicAffairs, 2019, p. 78.

⁶ Primavera De Filippi, Aaron Wright, *op. cit.*, p. 75.

2. Law and ePerson

The concept of "ePerson" is not a currently established term, but there are several possible interpretations or connections between the law and such an entity. EPerson refers to the "electronic person" or how digital technology and law interact regarding digital identity or digital entities. The law must address issues related to digital identity, including ways to protect personal data online, digital authentication and identity management in the digital space. The concept of "ePerson" is associated with persons who have a significant presence in the online environment and whose identities are managed and validated electronically. In the context of ePersons, data protection becomes crucial. Legislation such as GDPR (General Data Protection Regulation) sets out rights and obligations regarding the collection, storage and processing of personal data online. The law must regulate electronic contracts and how they are validated in the digital environment. This includes things like electronic signatures and online consent. In a digital world, digital entities, be the natural or legal persons, are involved in various activities. Legislation needs to address the legal responsibility of these entities for their actions online. The law must provide effective tools to combat cybercrime and protect ePersons from illegal online activities such as identity theft and cybercrime. Where ePersons interact with automated systems or decision-making algorithms, the law must regulate issues such as transparency, accountability and potential biases.

3. The law through the algorithm

The concept of "law by algorithm" or "algorithmic laws" refers to the use of algorithmic technology and AI to influence or even make decisions in the legal and legislative process. Algorithm law materializes in the use of algorithms and AI for decision-making within the legal system, such as sentencing, parole, or even judicial decisions, which involves analyzing data to identify patterns and trends in decision-making.⁷

One controversial area is the use of algorithms to predict potential criminal activity and direct police resources to specific areas or individuals. This raises questions about discrimination and ethics in law enforcement. AI is used to analyze legislative proposals, suggest changes or even draft laws. This speeds up the legislative process, but also raises questions about transparency and representativeness. Algorithms are used to analyze massive data sets in legal processes to support arguments and decisions. They are useful in identifying precedents or patterns in jurisprudence.⁸

⁷ Dana Remus, Frank S. Levy, *Can Robots Be Lawyers? Computers, Lawyers, and the Practice of Law*, (November 27, 2016). Available at SSRN: <https://ssrn.com/abstract=2701092> or <http://dx.doi.org/10.2139/ssrn.2701092>.

⁸ Michael A. Livermore, Daniel N. Rockmore, *Law as Data: Computation, Text, and the Future of*

Technology is also used to automate repetitive legal processes, such as managing documents, researching case law or even drafting contracts.

There are concerns and criticisms associated with the concept of "law by algorithm". Algorithms reflect pre-existing biases in the data they are trained with, leading to discriminatory decisions. Algorithms are often complicated, which makes it difficult to understand how they make decisions. The use of algorithms in the legal process involves the collection and processing of massive amounts of data, which raises concerns about its privacy and security.

3.1. Digitization and customized solutions in law

Digitization in the field of law brings with it a number of opportunities for the implementation of customized solutions that improve legal services and access to justice. Digital technology automates the process of drafting legal documents, quickly generating contracts, legal documents or other documents tailored to the specific needs and circumstances of clients. There are online platforms that offer personalized legal advice, where users receive legal advice based on the information they provide. These digital solutions facilitate access to legal services for a large number of people. Digitization supports the process of mediation and conciliation, giving the parties involved the opportunity to participate in online mediation sessions and find customized solutions to resolve disputes. Lawyers and law offices benefit from digital solutions for the efficient management of legal cases. These systems provide personalized information about a case's status, deadlines and other relevant details. Using predictive analytics helps legal professionals anticipate client needs and provide personalized advice. Client profiling based on historical data helps provide legal solutions tailored to individual needs.

Digital technology is used to provide personalized legal training tailored to each individual's needs and level of knowledge. This includes online training mode and resources adapted to the specifics of each user.

Mobile app development provides quick access to personalized legal information, legislative news and other resources supports personalized legal education and legal awareness.

4. The "digital judge" and "digital instants"

The concept of "digital judge" and "digital courts" refers to the use of digital technology and artificial intelligence in the legal system to streamline and improve judicial processes. It includes the use of automated algorithms and systems for case management, evidence analysis and even judicial decision-making:

- analysis of evidence through algorithms - in simple or routine cases,

algorithms are used for rapid analysis of evidence, identification of precedents and providing recommendations for decisions;

- online conciliation platforms - digital technology facilitate the online mediation process, in which mediators and involved parties interact through digital platforms, helping to find quick and effective solutions;

- case management systems - technology is used to automate administrative processes within the courts, including document management, scheduling hearings and tracking deadlines;

- predictive analytics algorithms are used to predict the outcome of a case based on available information and judicial precedents;

- AI technology is used to extract and analyze information from jurisprudence and to provide judges with decision-making support;

- online platforms facilitate the arbitration process, offering the involved parties an efficient way to resolve disputes without resorting to traditional courts;

- in the context of digital courts, ensuring the security and confidentiality of data is crucial to maintain trust in the judicial system;

- the use of digital technology contributes to the democratization of access to justice, facilitating the participation and understanding of judicial processes for all citizens.⁹

5. Private providers of dispute resolution services

There are several private dispute resolution providers that offer online platforms and specialized services to help resolve disputes outside of traditional courts. These providers use digital technology and various approaches to facilitate the process of mediation, arbitration or negotiation between parties:

1. *Online Dispute Resolution (ODR) Platforms:*

- Modria (by Tyler Technologies)¹⁰ provides online dispute resolution solutions using ODR technologies to facilitate mediation and negotiation in various fields, including e-commerce, financial services and others.

- CyberSettle¹¹ specializes in insurance, CyberSettle provides an ODR platform for the effective resolution of insurance claims disputes.

2. *Online Arbitration:*

- the American Arbitration Association (AAA)¹² provides online arbitration services, including a digital platform for arbitration case management and dispute resolution.

⁹ Dana Remus, Frank S. Levy, *op. cit.*, p. 8 et seq.

¹⁰ <https://www.tylertech.com/products/online-dispute-resolution>, consulted on 1 March 2024.

¹¹ https://tracxn.com/d/companies/cybersettle/_K1zZahePHHGPFJmqXTPMTEJnFcaQqq-MglbHsIpYE, consulted on 1 March 2024.

¹² <https://www.adr.org/ContactUs>, consulted on 1 March 2024.

- JAMS¹³ also offers online arbitration services, allowing parties to resolve their disputes without going to court.

3. *Online Mediation:*

- Mediate.com¹⁴ is a platform that connects parties with online mediators and provides dispute resolution resources.

- Quarrel is an online mediation platform that addresses a wide range of cases, including conflicts within organizations.

4. *General Dispute Resolution Platforms:*

- FairClaims¹⁵ offers a digital platform that facilitates the online resolution of small disputes, including those related to rents, e-commerce and services.

- Rechtwijzer is a European platform that provides dispute resolution services for various types of cases, including divorce and neighbor disputes.

6. **The algorithmic conciliator**

The term "algorithmic conciliator" refers to the use of algorithms and technology to facilitate the process of conciliation or mediation between disputing parties. These algorithms can be used to help find efficient and fair solutions in conflict resolution.

Here are some specific characteristics of an "algorithmic conciliator":

- algorithms can analyze objective information and relevant data to assess the situation and suggest possible solutions. This analysis can provide a neutral perspective on the dispute;

- based on the data provided and the specific parameters, the algorithmic conciliator can make automatic recommendations regarding possible solutions or the direction in which the conciliation process could go;

- an algorithmic conciliator can provide transparency on how it makes decisions and can explain the reasoning behind its recommendations, which can contribute to the confidence of the parties involved in the conciliation process;

- algorithms can process information quickly and handle large volumes of data, which can lead to faster resolution of disputes compared to traditional mediation processes;

- algorithmic conciliators can be designed to adapt and learn from new information provided during the process, thus improving the ability to provide more accurate solutions as disputes evolve;

- it is essential that the platform or system using an algorithmic conciliator is built with strict security measures to protect the confidentiality of the information involved in the dispute.

¹³ <https://www.jamsadr.com/>, consulted on 1 March 2024.

¹⁴ <https://mediate.com/>, consulted on 1 March 2024.

¹⁵ <https://mediation.fairclaims.com/>, consulted on 1 March 2024.

7. The algorithmic mediator

The term "algorithmic mediator" refers to the use of algorithms and technology to facilitate the mediation process between disputing parties. Algorithmic mediation involves the use of algorithms to analyze information, suggest solutions, or facilitate communication between parties.

Thus, algorithms analyze objective information and data provided by parties to assess the situation and propose solutions. This analysis can help gain a neutral perspective on the dispute.

Based on available data and predefined settings, the algorithmic mediator provides automatic recommendations on possible solutions or the most appropriate steps to resolve the dispute.

An algorithmic mediator can facilitate communication between the parties, helping to maintain a balanced tone and encourage constructive dialogue.

They can process information quickly and handle large volumes of data, which can lead to faster resolution of disputes compared to traditional mediation processes.

Algorithmic mediators are designed to adapt and learn from new information provided throughout the process, improving the ability to provide more accurate solutions as the dispute evolves.

Protecting the privacy and security of information is crucial in algorithmic averaging, and therefore strict measures are required to prevent unauthorized access to data.

Despite the intervention of algorithms, human verification or intervention may be required in the mediation process to handle sensitive issues or to resolve conflicts that may require more complex approaches.

8. Responsibility for autonomous systems

Liability for autonomous systems, such as autonomous cars, robots, autonomous AI systems, and others, is a complex and debated issue in ethics, law, and technology.¹⁶ As these systems are capable of making decisions and acting independently, crucial questions arise as to who bears responsibility in the event of unintended consequences or accidents.¹⁷

In many jurisdictions, the primary responsibility falls on the developers and manufacturers of these systems. They are expected to implement security measures and ensure that their systems comply with applicable standards and regulations.¹⁸

¹⁶ Patrick Lin, Keith Abney, George A. Bekey, *Robot Ethics: The Ethical and Social Implications of Robotics*, MIT Press, 2012, p. 211 et seq.

¹⁷ Sheila Jasanoff, *The Ethics of Invention: Technology and the Human Future*, W. W. Norton & Company, 2016, p. 85 et seq.

¹⁸ Ryan Calo, A. Michael Froomkin, Ian Kerr, *Robot Law*, Edward Elgar, 2016, p. 315 et seq.

If an operator or user interacts with an autonomous system and there is possible human intervention, they may also be held liable under certain circumstances.

In some jurisdictions, specific regulations are being developed to define the legal responsibilities associated with autonomous systems. These regulations may impose safety, testing and liability insurance requirements.

In certain cases, it may be necessary to obtain specific insurance policies to cover possible damages caused by autonomous systems. This can help shift financial liability in the event of accidents.

Beyond the legal aspects, there is an ethical dimension to responsibility. Developers and operators are often encouraged to adopt ethical practices and prioritize safety and the common good in the development and use of autonomous systems.¹⁹

In some cases, government authorities are involved in defining the rules and accountability for autonomous systems, having a significant role in regulating and overseeing their use.

9. Conclusions

The conclusions can be summarized as follows:

a) the impact of digital transformation in the field of law:

- digital transformation makes legal processes more efficient, reduces costs and improves access to justice;
- AI, automation, blockchain and e-justice are reconfiguring traditional legal practices;
- vulnerabilities associated with data security, privacy protection and adaptation of professionals to new technologies.

b) the relationship between digital technology and individual autonomy:

- digital technology contributes to increasing individual autonomy, but excess dependence can bring risks and vulnerabilities;
- protecting digital rights, such as freedom of expression online, is essential for maintaining individual autonomy;
- appropriate regulations are needed to manage the use of technologies that may affect the autonomy and privacy of the individual.

c) the relationship between digital technology and protection against wrongful injury:

- digital technologies such as surveillance cameras and AI-based analytics help monitor and report abuse;

¹⁹ Melanie Mitchell, *Artificial Intelligence: A Guide for Thinking Humans*, Farrar, Straus and Giroux, 2019, p. 140 et seq.

- the use of blockchain technology and predictive analytics supports protection against discrimination and injustice;
- access to online legal services and dispute resolution solutions facilitates protection against unfair harm.

d) the relationship between digital technology and fair dispute resolution:

- digital platforms facilitate online mediation and arbitration, streamlining the dispute resolution process;
- digital technology, including predictive analytics and the use of blockchain, contributes to the anticipation and prevention of disputes;
- adapting technology to dispute resolution processes improves access to justice and the efficiency of judicial processes.

e) ePerson and the impact in the legal field:

- the concept of "ePerson" reveals the need for regulation regarding digital identity, data protection and legal responsibility in the online environment;
- protecting individual rights in the digital context, such as electronic signatures and online consent, becomes essential;
- legislation must take into account the responsibility of digital entities and address the challenges of cybercrime.

f) personalized solutions in law through digitization:

- digitization in law involves the implementation of customized solutions, such as the rapid generation of legal documents and online legal advice;
- client profiling and predictive analytics improve personalized legal services and anticipate client needs;
- personalized legal education and quick access to legal information through mobile apps supports legal awareness and understanding.

g) the digital judge and the digital courts:

- the use of digital technology in courts brings benefits such as rapid analysis of evidence, efficient case management and democratization of access to justice;
- data security and confidentiality are essential in the implementation of digital courts;
- the use of technology in online arbitration and mediation contributes to the quick and efficient resolution of disputes.

h) private dispute resolution service providers:

- online dispute resolution platforms offered by private providers, such as Modria, CyberSettle and others, bring efficient and specialized options for dispute resolution, and online arbitration and mediation offered by organizations such as AAA and JAMS support dispute resolution without involving traditional courts.

- specialized applications such as FairClaims and Rechtwijzer provide solutions for various types of cases and contribute to access to justice.

i) conciliator and algorithmic mediator:

- algorithmic conciliators and mediators can bring efficiency and objectivity to conciliation and mediation processes, and
- privacy protection and data security are essential in the implementation of these algorithms.
- the need for a balance between the intervention of algorithms and human intervention for the management of sensitive aspects and the resolution of complex conflicts.

j) recommendations for the future:

- the continuation of research and the development of technologies to support the digital transformation of legal systems.
- collaboration between legal professionals and technology experts to develop sustainable and ethical solutions.
- updating and adapting regulations and legislation to keep pace with technological developments and to ensure adequate protection of individual rights.
- continuing education for legal professionals and technology developers to improve mutual understanding and promote the responsible use of technology in law.

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