
| RESEARCH ARTICLE

The Adequacy of Global Legal Norms on Legal Issues Related to Digitalization and Artificial Intelligence

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| ABSTRACT

This research aims to examine the sufficiency of global legal norms on legal norms in the field of digitalization and artificial intelligence. Descriptive scanning model, content analysis methods and semiotic analysis methods were used in the research. In this context, in the research, studies on global law and artificial intelligence were analyzed and their results were evaluated. It was then analyzed with SWOT analysis in terms of artificial intelligence, global law and digitalization. According to the results obtained from the literature review and semiotic analysis, digitalization and globalization are in a two-way relationship as two important concepts that trigger each other and are primarily affected by artificial intelligence applications. Although artificial intelligence applications positively affect the digitalization process in terms of their legal effects, they also bring with them some drawbacks in judicial matters and global jurisdiction. In particular, the fact that the exact framework of the artificial intelligence issue is not yet known, that it is open to external interventions, that a global legal system has not yet been formed, and the differences between international law and regional legal systems can be listed as the most important problems in the legal applications of artificial intelligence. As a result, globalization brings developments that will necessitate important and radical changes in the field of law, as in all areas of life. Therefore, although the law has a much faster and more effective working environment than in the past, it is also open to manipulation. Current global legal norms are inadequate regarding both digitalization and artificial intelligence. In the legal field, on the one hand, cumbersome and bureaucratic legal systems must be abandoned, and on the other hand, more dynamic, more modern and faster legal systems must be adopted.

| KEYWORDS

Artificial intelligence, global law, globalization, digitalization

| ARTICLE INFORMATION

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1. Introduction

With the penetration of technology into every aspect of daily life and the transition to the information society, especially smartphones, legal norms have become increasingly questionable. In a legal sense, especially when individuals from different parts of the world see, compare and criticize legal practices on different subjects, this has caused many legal norms from past to present to change and reshape (Bederman, 2008; Halliday and Osinsky, 2006; Shapiro, 1993). At this point, the most important concepts that come to the fore are digitalization and globalization.

Globalization, in its literal sense, refers to a structure in which people in many different regions and places around the world are becoming more similar to each other, more common points are brought to the fore, and differences are gradually decreasing. The main reason why the concept is called globalization is that the world is global and social movements are shaped in accordance with this structure (Steger et al, 2023; Yilmaz and Turanlı, 2022; Eriksen, 2018; Beck, 2018). Technological advances have increased not only communication opportunities, but also transportation opportunities and the means of interaction between different cultures, especially travel. As a result, cultural interactions have become increasingly intense and as a result of the interactions

between individuals, social life and cultures have begun to show more and more similarities (Robertson and White, 2007; Appadurai, 2001). Although differences between countries and regions did not cause serious problems in the past in legal processes, globalization in law has become an increasingly important issue today, as a result of constant information sharing and the increasing visibility of different legal practices in different parts of the world. Therefore, unlike the classical legal literature, globalization has increasingly become the main focus of legal studies in new field studies and theoretical applications.

Although individuals interacting only in digital environments causes cultural interactions, this alone may not be sufficient. At least, there is no faster process than interaction (Raikhan et al, 2014). However, receiving products or services from other cultures, or interacting for business or various reasons increases cultural transitions and interactions. Therefore, globalization increases not only digital transformation and interaction, but also interaction between individuals and cultures in the real world.

There is no definitive and comprehensive definition of digitalization in general, but the common idea is that every concept that includes virtual environments and the digital world is considered digitalization. In fact, while digitalization had a broad enough meaning and concept to express almost all electronic systems and environments in the past. Nowadays, this concept has gradually been replaced by virtual environments, especially the internet (Schallmo and Tidd, 2021; Gobble, 2018; Brennen and Kreiss, 2016). In fact, in this regard, it is possible to state that digitalization has become an increasingly virtual concept along with global processes. Although there are not enough studies on digitalization in the legal sense today and there are very limited studies, digital applications, especially digital resources and judicial decisions, are increasingly coming to the fore in the field of law. In other words, although its place in legal processes and literature in a conceptual context has not yet been fully determined, the place of digitalization in legal processes is becoming much greater. Although there may be many reasons for this, one of the most important reasons may be described as the fact that digitalization has entered every area of life by facilitating certain processes and has found a place in that area in a pragmatic way.

While the processes of globalization and digitization are ongoing, artificial intelligence is relatively new phenomena that has appeared in recent years and rapidly established itself in daily life. Artificial intelligence, which literally refers to a virtual computer operating system or program produced by humans but trying to imitate the human mind, is actually a concept with a very old history, contrary to popular belief (Dornberger et al, 2018). It is possible to trace the origins of the first studies on artificial intelligence to universal Turing machines (Tavas et al, 2016; Graves et al, 2014; Copeland, 2002; Hopcroft, 1984). The basis of this system was the questions to be asked in a closed system or from behind a curtain, and the question of whether the person behind the curtain was a human or a machine. In fact, this system was, in a sense, a test of whether machines could think like humans (Wegner ve Goldin, 2003). Today, the spread of these studies through computers, the internet and virtual systems has brought about the inclusion of artificial intelligence in daily life, affecting all areas of life. Although there are some academic studies in the field of digitalization and globalization of law, there are not enough studies in which globalization and digitalization are put forward from the perspective of law and evaluated through artificial intelligence. Therefore, this research aims to examine and evaluate the adequacy of global legal norms regarding digitalization and artificial intelligence.

2. Globalization and Digitalization in Law

The interactions of people between different cultures and social structures and the increasing similarity of societies make it inevitable that legal norms and subjects will also become increasingly similar to each other. While in the past there were different legal rules and practices in different parts of the world and these were not very visible, today it is possible to instantly follow legal developments and changes all over the world and observe differences in legal norms and orders (Walker, 2015). At this point, it is possible to state that not only legislators but also societies as a whole are becoming more and more similar to each other in terms of legal norms.

It is necessary to see globalization in law as necessary not only as a result of societies interacting more, but also as a result of this interaction entering into a global public transformation in an increasingly conceptual manner. After the definition and taxation of global public goods, the concept of "global public" emerged in the literature and field practices and was accepted in a very short time (Deneulin and Townsend, 2007; Kaul et al, 1999). Global public awareness brings with it the term global law. In fact, it is possible to characterize the relationship between global public and global law as a situation in which the classical public and law relationship is in a broader perspective. However, although it is expanded in scope to the relationship between the global public and global law, when global law is mentioned, some normative changes come with it (Domingo, 2010). First of all, law is a science that consists of the cultural, social and practical values of the society in which it is located and takes its origin from there. Therefore, legal norms vary in different societies and cultures. On the other hand, in the relationship between global public and global law, public values must also be defined.

Another important explainer and additional concept of the concept of global law is digitalization. Digitalization technically refers to the flow of data and information in digital environments or digitally designed computer environments. However, today, in a

conceptual and theoretical sense, digitalization along with globalization represents a transformation of lifestyle and form (Schallmo and Tidd, 2021; Mentsiev et al, 2020). In this respect, digitalization refers not only to some functions of individuals' daily lives, but also to the environments in which they convey their feelings, thoughts and value norms. Therefore, digitalization also means a process of social and societal transformation.

As a result, when digitalization and globalization in law are considered as a whole, they represent a process of social and cultural transformation and change as well as social life. After digitalization, many variables, from daily life to habits, from lifestyle to social and cultural values, change shape and enter into a new structure. As a result of this transformation process, digitalization undertakes the task of creating an infrastructure for the concept of global law and value norms.

2.1. Concept of Artificial Intelligence and Applications of Artificial Intelligence in Law

Artificial intelligence, which is actually a computer program but acts like an organic living thing in a sense due to the task assigned to it, has become one of the most important turning points of the post-modern information society (Hunt, 2014; Whitby, 2009). Artificial intelligence applications, which have reached a significant number of followers and users in a very short time, have become one of the most influential applications, along with social media, since the development of the internet and its entry into our daily lives.

Artificial intelligence is basically a computer program or software that scans all databases and answers questions like a human. It is possible to state that the uncertainty in human decision-making processes is lower in artificial intelligence applications, since it is actually software and acts according to the given codes (Ertel, 2018; Kumar, 2013). However, this does not mean that artificial intelligence applications are under human control and safe, on the contrary, it reveals a potential that will bring about more dangerous consequences.

In artificial intelligence applications, software for different purposes collects all databases, internet and related information for the given purpose and processes a decision process accordingly (Jackson, 2019; Wang, 2019; Flasiński, 2016). At this point, although it is clear how and in what way the collected information will be evaluated and interpreted, in general terms, applications develop from an open-ended data set. Therefore, there are serious legal deficiencies in artificial intelligence applications, both in terms of the content and impact of legal applications and in determining the limitations, especially in the areas of artificial intelligence and freedom.

The relationship between law and artificial intelligence is not limited to the implementation and realization of legal concepts, but there are also studies and searches on the practical use of artificial intelligence in legal practices. Scanning past judicial decisions and obtaining relevant results, which in the past required a lot of time and effort, can now be done in a very short time with artificial intelligence applications. However, today, it is still not sufficient to reveal the exact content and scope of artificial intelligence within legal practices and legal regulations.

3. The Adequacy of Global Legal Norms on Digitalization and Artificial Intelligence

3.1. Methods

Descriptive scanning model, content analysis methods and semiotic analysis methods were used in the research. In this context, in the research, studies on global law and artificial intelligence were analyzed and their results were evaluated. It was then analyzed with SWOT analysis in terms of artificial intelligence, global law and digitalization. SWOT analysis, in its most general definition, is a method of analyzing a subject in the light of literature and qualitative/quantitative data and revealing the Strengths, Weaknesses, Opportunities and Threats of the subject. SWOT analysis, which is mostly evaluated and studied on qualitative data in the literature, provides the researcher with comprehensive and qualified information about the subject under investigation.

3.2. Collection of Data

In order to be used in the SWOT analysis in the research, studies on global legal norms, digitalization and artificial intelligence were analyzed from the indexes where the journals that went through the referee process, especially Web of Science, were scanned. The examined studies were then classified according to their subjects, indexes and methods, and the adequacy of global legal norms on artificial intelligence and digitalization was evaluated.

3.3. Data Analysis and Reliability

As in many scientific researches conducted in the field of law, in this research, content and semiotic analysis methods were used in the analysis of the data, and the obtained data were analyzed with qualitative methods. Although qualitative analysis involves the risk of the researcher's perspective and evaluations adding a subjective side to the subject, phenomenology analysis emphasizes the importance of using sources to minimize this systemic error. In this regard, in the research, phenomenology and semiotic methods were used together effectively and the results were evaluated.

4. Results

In the research, the indicators and themes obtained from the literature review were analyzed to evaluate the strengths, weaknesses, opportunities and threats of global legal norms, respectively, and are given in the following headings.

4.1 Strengths of Global Legal Norms on Digitalization and Artificial Intelligence

The main strength of global legal norms regarding digitalization and artificial intelligence is that international legal norms are aimed at the entire global public and are based on global public values. For this reason, global legal norms can bring much more effective and definitive solutions to the legal problems, differences of perspective, and problems in practice that may arise regarding artificial intelligence. Since global legal norms have a much more dynamic and effective structure than regional and local norms, they have a much more up-to-date structure than universal legal norms regarding artificial intelligence.

It is possible to list the strengths of global legal norms regarding digitalization and artificial intelligence, as shown in Table 1.

Table 1. The strengths in digitalization and artificial intelligence of global legal norms

| Strengths | Reference |
|---|--|
| Ability to do faster research on legal issues | Baker, 2018; Langbroek et al, 2017; Hanson, 2002 |
| More effective comparison of past topics | Surden, 2019; Baker, 2018 |
| More effective comparison of legal system differences | Chesterman, 2020; Contini, 2020 |
| Faster progress of judicial processes | Baker, 2018; Hanson, 2002 |
| Accelerating expert witness processes | Surden, 2019; Langbroek et al, 2017 |
| Increasing opportunities for compromise between parties | Contini, 2020; Langbroek et al, 2017 |

Unlike digital systems, artificial intelligence can perform comprehensive research, including combinations of words. Therefore, with the integration of artificial intelligence systems, faster research can be done on legal issues. This applies both to current cases and to academic research. More effective comparison of past subjects is also important both in academic terms and in terms of field practice. Again, a comparison of legal processes stands out among the strengths, as selectivity will be faster and more accurate by artificial intelligence.

In terms of speed, the possibilities of reconciliation will increase by compiling and interpreting case law, comparing and evaluating expert reports, and bringing together data more comprehensively and more accurately and quickly in deciding judicial processes. However, at this point, it will be necessary to pay attention to disinformation, as mentioned in the weaknesses and threats sections.

4.2 Weaknesses of Global Legal Norms Regarding Digitalization and Artificial Intelligence

According to the weaknesses of global legal norms regarding digitalization and artificial intelligence, it seems that cyber security and data security issues come to the fore. Although artificial intelligence systems reveal a faster and more advanced legal process in terms of global legal norms, it is possible to say that this will require legal processes to interact with more people and, therefore lead to more abuse situations. The weaknesses of global legal norms regarding digitalization and artificial intelligence are summarized in Table 2.

Table 2. Weaknesses in digitalization and artificial intelligence of global legal norms

| Weaknesses | References |
|---|--|
| Security vulnerabilities and inadequacy of cyber-security issues | Walters and Novak, 2021; Chesterman, 2020; Contini, 2020; Watney, 2020 |
| Lack of limits and sanctions on abuse | Chesterman, 2020; Evstratov and Guchenkov, 2020; Wendel, 2020 |
| Since it is a global system, the effect of system differences | Evstratov and Guchenkov, 2020; Chen and Burgess, 2019 |
| Lack of sufficient qualified workforce | Chesterman, 2020; Contini, 2020 |
| Low technological adaptation level of workforce qualifications in the legal field | Zia-ud-Din and Elhajaoui, 2023; Evstratov and Guchenkov, 2020 |
| Lack of adequate technical equipment and infrastructure | Chesterman, 2020; Contini, 2020 |

One of the most important weaknesses of artificial intelligence in terms of global legal norms is security vulnerabilities, especially cyber security. This situation can create an environment for both malicious use of legal processes and malicious use such as theft

or leakage of data. Although security studies and updates for this purpose are increasing day by day, there are serious and important deficiencies in this field today.

Another area of weakness in artificial intelligence applications in terms of global law is inadequacies. Differences between legal systems globally and the inadequacy of coordinated associations, the insufficiency of international law norms, the inadequacy of local legal norms in complying with them, legal field experts with insufficient technological level in the current situation and insufficient technical structure can be shown among the leading weaknesses.

4.3 Opportunities in Digitalization and Artificial Intelligence Regarding Global Legal Norms

Opportunities in digitalization and artificial intelligence regarding global legal norms can generally be described as opportunities arising from digital technologies and strengths. Digital technologies basically create a more transparent and accountable system where individuals come together on a global basis. The adequacy of global legal norms also offers some opportunities in this context. The opportunities in digitalization and artificial intelligence of global legal norms can be summarized in Table 3.

Table 3. Opportunities in digitalization and artificial intelligence of global legal norms

| Opportunities | References |
|--|---|
| The law appeals to more people and the sense of universal justice develops | Zametina et al, 2020; Risse, 2019 |
| Strengthening the basic functions of law and its mission to defend the governed against the administrative power | Goudge, 2021; Walters and Novak, 2021; Michaels, 2019 |
| Making daily practical applications faster and easier | Goudge, 2021; Walters and Novak, 2021 |
| Preventing situations that may be subject to legal processes with transparency and tracking systems | Chesterman, 2020; Contini, 2020 |
| More academic studies and field applications can be included in legal matters | Goudge, 2021; Risse, 2019 |
| More integration of law into society, with legal decisions being evaluated by more different eyes | Goudge, 2021; Chesterman, 2020; Contini, 2020 |

In general, considering the opportunities in digitalization and artificial intelligence related to global legal norms, it is possible to state that the role of bringing together and melting in a pot on a global scale, which is actually the most important feature of artificial intelligence, may come to the fore as an opportunity in the future. Since artificial intelligence makes evaluations and data transactions on all global data as an infrastructure, differences from legal applications to judicial decisions will emerge, and more and more work can be done to eliminate these differences globally. In fact, it is possible to argue that if the problems regarding threats and weaknesses do not come to the fore and the necessary precautions are taken in these areas, the law will be more integrated with the society and will spread more.

4.4 Threats to Global Legal Norms Regarding Digitalization and Artificial Intelligence

Threats regarding digitalization and artificial intelligence related to global legal norms may be security issues, especially cyber security, which are mentioned in the weak aspects, and in addition, social outrages and reactions that may arise from the differences between legal norms. Failure to manage these reactions adequately may cause some basic social problems. Threats to global legal norms regarding digitalization and artificial intelligence are summarized in Table 4.

Table 4. Threats in digitalization and artificial intelligence of global legal norms

| Threats | References |
|--|--|
| Social malicious use of security vulnerabilities | Goudge, 2021; Zametina et al, 2020 |
| Formation of economic cartel or monopoly powers in the control and provision of security systems | Chesterman, 2020; Contini, 2020 |
| Negative effects of legal vulnerabilities in storing and preserving data | Evstratov and Guchenkov, 2020; Risse, 2019 |
| Social and social problems that may develop due to greater differences in legal order | Contini, 2020; Zametina et al, 2020 |
| Intentional distortion and manipulation of artificial intelligence algorithms | Chesterman, 2020; Contini, 2020 |
| Invalidating artificial intelligence applications with invalid or deliberately distorted content | Goudge, 2021; Chen and Burgess, 2019 |

In general, the main threat to the adequacy of global legal norms in artificial intelligence applications is the malicious use of the security vulnerabilities of this system. If security is not ensured, legal processes and systems are accessible in full detail, but this also leaves them in the hands of malicious individuals or groups. Therefore, cyber security is again one of the most important threats to the system. Cyber security is not only a threat if it is not provided, but if it is provided, it may be monopolized by those who provide it. Therefore, there is a need for solutions in which more actors come together and take part in cyber security issues. Another important point about threats is that due to the universal compilation, presentation and sharing of data, the differences in legal systems between different countries or different regions may lead to conscious manipulations, social uprisings and malicious use.

5. Discussion and Conclusion

In this study, global legal norms, regulations and practices are evaluated within the framework of artificial intelligence and digitalization. In this context, based on literature studies, a SWOT analysis was conducted and the results were discussed.

According to the results obtained from the literature review and semiotic analysis, digitalization and globalization are in a two-way relationship as two important concepts that trigger each other and are primarily affected by artificial intelligence applications. According to the basic mechanism expressed in studies on globalization and digitalization, digital technologies increase communication and transportation opportunities and individuals who interact more increasingly begin to have similar characteristics to each other. This situation brings about the phenomenon of globalization. As globalization increases, global and multinational companies are entering the process of creating markets in more and more areas, and as a result, digitalization and globalization affect each other bidirectionally. While artificial intelligence provides a new inference through all the data that emerges after globalization and digitalization, it affects both concepts closely and deeply.

Another important concept that globalization brings is the concept of global public. Global public is the approach that asserts that there should be integrity regarding basic human rights and personal freedoms between the governed and the government all over the world. The global public has brought forward the issues of global regulations and the compatibility of legal systems with each other. In this process, many international institutions and organizations have sought a system that is valid all over the world, especially human rights, and that protects the balance between the powerful and the weak more effectively. In this search, artificial intelligence, digitalization and the basic norms of the information society have an important role, and their weight in legal processes is increasing day by day.

In this process, artificial intelligence can make significant contributions to revealing and eliminating the deficiencies of legal norms and regulations and creating a new and larger legal system globally. In this context, when we look at the legal effects of artificial intelligence applications, although they positively affect the digitalization process, they also bring with them some drawbacks in judicial matters and global jurisdiction. In particular, the fact that the exact framework of the artificial intelligence issue is not yet known, that it is open to external interventions, that a global legal system has not yet been formed, and the differences between international law and regional legal systems can be listed as the most important problems in the legal applications of artificial intelligence. Although all these problems actually allow legal processes and global legal norms to use negative and malicious legal norms and possible abuses in developments related to artificial intelligence, they may have an important role in a successful and stronger legal system in the long run.

As a result, globalization brings developments that will necessitate important and radical changes in the field of law, as in all areas of life. Therefore, although the law has a much faster and more effective working environment than in the past, it is also open to manipulation. Current global legal norms are inadequate regarding both digitalization and artificial intelligence. In the legal field, on the one hand, cumbersome and bureaucratic legal systems must be abandoned, and on the other hand, more dynamic, more modern and faster legal systems must be adopted. For this reason, it would be beneficial for law to have a more interdisciplinary structure and to contribute to the field by working together with international fields such as public administration, trade and social studies, especially digital technologies.

5.1 Limitations of the Study

The most important limitation of the research is that both practice and literature data on global legal norms are limited. Although the number and degree of legal regulations in the international arena are increasing day by day, access to the global legal system or international legal regulations is still quite limited in many parts of the world. In addition, the advancements that occur day by day cause literature studies to fall behind and be insufficient compared to field applications. Therefore, the scarcity of resources and data sharing for the relevant field is the most important limitation of the research.

Another limitation of the research is that developments related to artificial intelligence progress without any order or boundaries, and therefore, information on artificial intelligence applications remains limited in social and cultural terms, as well as in legal

processes. This limitation applies not only to this research, but to every study done or to be done on artificial intelligence. The field of law can be described as the field with the most deficiencies or limitations in this regard.

5.2 Contributions of the Research to the Field

The most important contribution of the research to the field is that it is a pioneer in the field due to the lack of sufficient studies on global legal norms and their association with artificial intelligence. The research is planned to be a resource for further research and to serve as a guide for field applications, with a pragmatic structure both in terms of literature and field applications.

Another important contribution of the research to the field is that the research is a multidisciplinary study and analyses law as a common stakeholder in a matter that concerns many fields. In this way, the research subject has a multidisciplinary structure, focusing on the fields of law, public administration, security, and technology.

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