

APPROACHING TECHNOLOGY AS A MATERIAL SOURCE OF LAW

Andrea KAJCSA*

ABSTRACT: *Present times are, without any doubt, of great transitions and of extremely rapid changes of social, economic, human and legal values. These changes appear at local, regional, national but especially global level, in all fields of concern for a human community, at both collective and individual level. These having been accepted, law represents an interesting field to study the phenomenon of change for it has links to all other social areas. By material „source of law” the doctrine of law understands the extra-legal ensemble that founds the construction and configuration of law in actu, comprising the natural and social existence conditions of the human macro-community. The differentiation process of social subsystems, due to the on-going rapid present pace of changes, forces the legal system to react to these rapid developments. However, law is a rather rigid and comparatively slow structure reported to the flexibility and speediness of other social subsystems, for example the scientific one or the economic one. We try to highlight, in our paper, how much technology, as one of the more recent material legal sources, influences law.*

KEYWORDS: *material source of law, technology, change, social subsystem.*

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The law is an ancient institution for the collective consideration of matters of concern. In many ways, the law is more similar in function and processes to Hammurabi's code than, for example, the modern nuclear family, the market economy or the nation-state to their historic counterparts (Silbey, 2008). For the few thousands of years that law has existed for, its *raison d'être* has been to try and resolve whatever sort of disputes and controversies voluntarily or coercively were brought to it. Although science can also be traced back for thousands of years, it has become recognizable as science, rather than a matter of everyday life, only in the last several centuries. While modern positive law is born, in Berkowitz's opinion, of the attempt to fit law to science, science is by no means a steady or dominant motif in modern legal institutions or scholarship (Berkowitz, 2005). However, science plays another role, in the existence and shape of law, as one of its extra-legal sources, perhaps today the most overwhelming one of them all.

*Teaching assistant, PhD., Faculty of Economy and Law, University of Medicine, Pharmacy, Sciences and Technology, Tg-Mures, ROMANIA.

By „source of law” the doctrine of law understands the extra-legal ensemble that founds the construction and configuration of law *in actu*, comprising the natural and social existence conditions of the human macro-community as well as the exteriorization forms of the legal provisions content. The material sources of law, the one that concerns us in our investigation, references to all of the causal/historical influences that explain the existence of a certain particular legal provision, at a certain time and place. Explaining law necessarily entails the identification and explanation of what conditions the particular differences in its conceptual unity, together with an accurate appreciation of their influences on its content. A correct and complete understanding of the material sources of law can ensure the just and fair evaluation of the report set between what is imposed to the legislator for regulation and its free choice and creative regulatory result, the way through which the legislator guides itself after the material sources of law in the process of elaborating an efficient, realistic legislation that is complied with.

In our paper, we try to identify the role science and technology play as extra-legal factors that influence law. Situations unimaginable a few decades ago are now of the mundane because of science and put law in impossible situations, making it answer questions such as: must the overflow of embryos produced in the *in vitro* fertilization process be destroyed? Must they be conserved? If yes, to what end? Can they be used in the cosmetic industry? All problems brought on the legal stage by science! As one author stated many years ago, the law of fashion is a law of life and the crest of the wave of human interest is always moving (Holmes, 1899). But the ways in which science determines a rejuvenation of law are numerous and complex, as we will try to show in the following paragraphs, and each of these ways could be subject to an entirely independent research.

Certainly, the role of science as material source of law is complex and intertwined with many aspects of everyday life. Law has no choice but to intervene and regulate issues such as: genetic insertion as method of selection and interbreeding of agriculture products, human genetic manipulation, medically assisted human reproduction and the revise of the rules governing the establishment of filiations (for a child can have up to 5 parents), sampling and transplant of human tissue and organs, signing of a contract in a complete electronic environment without the parties of the contract or their representatives ever meeting, usage of electronic methods as communication method etc.

Presently, the accelerate technologic development has lead to the generalization of computerization and a significant change of trade patterns by making accessible electronic services for all user types, followed by the appropriate adaptation of legal provisions that regulate this field. The legislator from 15 or 20 years ago definitely could not have foreseen the extraordinary evolution in this domain and adapt legal regulations at that time to the present scientific conquests. However, this burden falls into the hands of the modern legislator that is obliged by the new types of social relations that have appeared to elaborate legal provisions that can keep up with technology. Neither the Civil Code nor the Civil procedure Code, relatively recently entered into force, have not bypassed this assignment, thus showing the preoccupation of the legislator towards regulating the new

situations that have emerged due to the development of computerized technique¹. A good example of this previous statement is article 268 of the civil procedure code, provision that allows the possibility of the electronic signature to be used, stating that this type of signature is valid only if reproduced in the conditions established by the law. The “law” the civil procedure code refers to is Law no. 455/2001 regarding the electronic signature. Article 5 of this law provides that the document in electronic form that has an extended electronic signature embodied or attached or logically associated to it, based on an unsuspended or unrevoked qualified certificate and generated with the aid of a secure device that creates electronic signatures is assimilated, regarding its conditions and effects, with a document under private signature. It is not difficult to notice that law no. 455/2001 gives new valences to the legal notion of “signature”. If traditionally, from a legal point of view, the term signature referred to the calligraphic signature, that is a graphic of the person the document emanates from, a series or line of literal signs that usually signify the name of the person in question (Deleanu, 2010), the electronic signature according to the law that regulates it, refers to “data in electronic form, that are attached or logically associated with other data in electronic form and that is meant to be a method of identification”, while the extended electronic signature represents that electronic signature that fulfils the following conditions: it is uniquely tied to its holder, it ensured the identification of its holder, it is created by means controlled exclusively by its holder and it is tied to data in electronic form to which it reports itself in such a manner that any ulterior alteration of these is identifiable². A classic legal concept has therefore been revised in its meaning as a consequence of the possibilities offered by science. The civil procedure code also provides that the document on a digitalized support or the documents in electronic form are admissible as evidence in court in the same conditions as documents on paper support. So it is only natural for the scholarly legal doctrine (Boroi, 2016) to notice that since digitalized documents occupy proportionally a more important and significant part in the daily reality, the new code had no choice but to expressly regulate them. These normative acts, of great importance in the overall legal construct, are not however the only ones that are proof that the legislator cannot overlook the need of elaborating new legal provisions to cover the social relations now possible due to technology.

The very alphabet and language of law undergoes significant alterations. Scientific breakthroughs have determined fundamental alterations of the very way certain legal terms, not so long ago considered well established meaning-wise, are defined. For example, a new field of regulation that law is compelled to deal with is the sampling and transplant of human tissues, cells and organs. In this context, relatively new and made possible by science, the law defines death and the moment a person is considered dead in an entirely new manner as compared a few years ago. Law no. 95/2006 on the reform in the field of health regulates the sampling of organs, tissues and cells both from live donors and deceased donors. In article 147, Law no. 95/2006 sets the conditions that must be met

¹ Article 154 of the civil procedure code provides for email as a new, modern means of insuring the communication of procedural acts. Similarly, article 148 of the civil procedure code indicated that the party can indicate, in its introductory petition, its email address.

² Article 4 of Law no. 455/2001 regarding electronic signature.

in order for the sampling of organs, tissues and cells both from a deceased donor to be legal and in this article the law distinguished between two types of deceased donors! One type of deceased donor is the one without cardiac activity (a person that has its cardio-respiratory systems stopped, irreversibly and without the possibility of resuscitation) while the second type of deceased donor is that with cardiac activity (a person that has all brain functions stopped irreversibly). A different type of death from that traditionally used in the legal system - brain death, is in other words consecrated. Here is an example of a reality made possible by the scientific conquests that law had to regulate and consequently take into consideration a much more nuanced definition than the one considered traditional. Furthermore, terms such as service of the computerized society, domain with the meaning of an area of a computerized system, distance accessed payment instruments, print attached to an electronic document, electronic archive, storage environment, terminal and the list can continue for many pages, become usual in the text of legal provisions. The very process that law undergoes now in becoming very technical, by incorporating a continuously increasing number of technical and scientific norms within the legal provisions, represents proof of the powerful influence science exercises upon the content of the law.

The information technology is of particular interest given that law is based on information and a great part of law is information (Katsh, 1995). Computers and the internet, perhaps the greatest achievements of science that impact every single and simple aspect of our daily lives, have become in a matter of few years truly indispensable for carrying out our lives in the parameters considered now implicit, ordinary, impacting the way business is done, communication made and information handled. The radical and extremely rapid evolution of this technology, besides the undisputed advantages and benefits brought to administration, the business environment, the law and the scientific research, raises a series of social, economic and legal issues. The rapid evolution of this domain has outmatched the evolution of legislation in the field and many states have offsets between these two areas. The legislation in Romania dedicated to the internet and all related issues (electronic commerce, electronic signature, private life, and criminality) is relatively recent, compared to the life span of legislation traditionally. The Romanian legislator found itself in the situation of being outmatched by the new technology and scientific breakthroughs, by the extremely rapid evolution of these and in a short period of time had to elaborate new legal provisions that would give legal value and legal solutions to all the social relations and situations that appeared. The legislation covers topics such as: electronic commerce, protection of consumers in contracts signed at distance, electronic signature, legal regime of electronic public notary activity, archiving documents in electronic form, commercial operations made through electronic means, electronic payments, online publicity, private life, personal data protection, electronic passports, electronic communications, informatics criminality and many more.

The interaction between science and environment, both extra legal sources of law, is interesting to analyze as well. In the research of this material source of law we can easily find strong ties between the natural environment and its pollution caused by industry and the modern scientific developments. As well as we can find the same connections the other way around between the modern scientific conquests and finding some panacea for environmental pollution. It is certain that pollution is amplified with the increase of technical progress. In this context, the legislator has intervened in the fields of industry,

agriculture, transportation, one by one, with legal provisions meant to control the behaviour of persons in order to control these activities and reduce the polluting effects by setting some restrictions, interdictions, minimum and maximum levels, norms that attract, in case of non-compliance, legal sanctions.

The action of natural elements is without fail correlated with a social interest and the legal consequences that the law ties to them are present only to the degree that this is imposed by a social, even survivalist interest. Science combines with the environmental factor in multiple possible combinations: natural resources are known and exploitation techniques need to be innovated, new aspects are revealed concerning the exploitation of natural resources, new pollution possibilities come along, certain new natural resources are discovered due to technological inventions etc. Science can act as a revealing agent. For example, if hydraulic fracturing had not been discovered by scientists, the problem of shale gas exploitation would not have appeared, neither in Romania nor in other states where such deposits can be found. Therefore, as a result of this new method of exploiting nature, law had to intervene and set the exact conditions and limitations within which this technical method could be used, the legislator having the difficult task of balancing certain very different interests. But just the same, science can be a healing agent, finding new technologies that can reduce or minimize harm done to the environment.

The reality of a greater emancipation of the individual from its natural environment can make us think about a possible decline of the natural theories proposed in the scholarly literature. The increase in the control man exercises over nature leads to a decrease of the impact of the natural elements. This however does not mean that the natural environment loses its attribute of material source of law. On the contrary, the transformation of the natural environment in order to ensure the material reproduction of humanity by applying more and more sophisticated technologies to social institutions lead to the apparition of a secondary human nature.

In the field of contracts, as shown in the scholarly legal literature (Gărăiman, 2006), the electronic contract does not differ, from the perspective of its definition, by its classic counterpart. More so, in another opinion expressed in the legal doctrine (Bercea, 2006), the traditional type of commerce, based on documents, has created a model commercial contract and, in correlation, a mentality of the parties and of the legislator concerning this issue so the principle of functional equivalence acknowledges the need, at least for an initial phase, of the electronic form contract to correspond to the exigencies of traditional commerce. The legislative innovations in this area, or the legislative interventions on the existing legislation, do not aim to reconfigure the principles that are the foundations of the traditional mechanisms and legal institutions but rather to adapt traditional institutions to the technological novelties. The same opinion can be found in the European doctrine (Piatti, 2006), where it has been stated that the fact that the dematerialization of trade strongly influenced the legal principles of intellectual property is today a truism. No one really disputes anymore, not even among the community of lawyers of the intangible things, that electronic commerce requires a reinterpretation of the classic rules which have hitherto governed the intellectual properties. It is therefore even more paradoxical to notice that it is on the occasion of an umpteenth dematerialization, of trade in this case, that other intangible values - industrial, literary or artistic ones - are destabilized, as if the quantitative adding of an ultimate dematerialisation had this surprising effect of making

an attempt at the very nature of the whole edifice: the drop of water that makes the vase overflow, but in the same time altering its content. Unique consequence. (Piatti, 2006)

The most authentic expression of the contemporary technological and scientific revolution is however represented by the discoveries made in the field of DNA and genetics. Whenever dealing with a scientific discovery, the first step is to evaluate its moral consequences for the human and only after the next step follows, that of legally regulating these moral recommendations (Scripcaru, 2008). The influence the development of science in the field of DNA has upon law manifests at the level of international law, European law and of our national law. The extraordinary development from the last years of the bio-technical industry could lead to the materialization of the idea according to which that time has come when humanity will have to give up the legal fiction that the body and the person cannot be dissociated and will have to admit, as a consequence, the duality person/subject and body/object (Oppetit, 1999). The Romanian legislator as well as the French one (Oppetit, 1999) have had to legally intervene and expressly provide that the human body cannot be violated, cannot be subject to any act of commerce and cannot be subject to certification or trademark registration.

It is of the utmost importance, given these circumstances, that the modern biomedical technologies are not allowed to objective the human or to harm in any way the right to private life. In this context, the entering into force of the General Data Protection Regulation ([EU 2016/679](#)) is a huge step forward. So then the role of law is to rather ensure that breakthroughs in science are properly applied to social relations and certainly not to reject or hinder in any way science.

It has been stated in the scholarly literature that bioethics represents, in the present context, a link between science and human rights and entails two important facets: respecting the human as a whole (human that today is fragmented into embryos, transplant organs and tissues etc.) and avoiding any abuses on man's freedom of expression (Scripcaru, 2008). In this plan of genetic conquests, science influences law rather by dictating prohibitive regulations through the legal provisions. As such, the civil Code, in its articles 62-68, forbids the intervention on genetic characters, the examination of genetic characters done for any other purposes than research or medical ones, the medical intervention or sampling of cells, tissues and human organs from persons alive without having the express and explicit consent of the donor. Article 61 of the civil Code refers exactly to the relation between science and the interests of the human being, providing that the interest and well-being of man must prevail over the unique interest of society and science. In other words, the legislator has shown itself perfectly aware of the scientific developments in the field of medicine, and not only, and has accepted the possibility that, in the light of these new possibilities, the physical integrity of man might be placed in danger and thus these new provisions had to be inserted in the text of the civil code. In the mentioned articles, the civil Code forbids the practice of eugenics (discipline that studies the practical application of heredity biology for the purpose of enhancing the genes of an individual), it forbids giving a pecuniary nature to body parts and the interventions upon genetic characteristics and the examination of genetic characteristics are allowed only in certain strict conditions. All these prohibitive acts inserted in the text of the civil Code, doubled in force by the provisions of the Criminal Code that regulate certain crimes related to those previously stated, would have been unimaginable at the 1864 moment, when the previous Civil code of Romania was adopted.

We have to underline that the preoccupations of the Romanian legislators are however of inspiration, and a part of the provisions of the civil code are inspired by the European Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine (Convention on Human Rights and Biomedicine) adopted in 1997 and introduced in the Romanian legislation by Law no. 17/2001 that ratified it, and by the Additional protocol to this Convention with regard to the Application of Biology and Medicine, on the Prohibition of Cloning Human Beings, signed at Paris in 1998. And this proves that science is a material source of law not only nationally but also at European level.

The most simple and basic definition of law tells us that it is nothing else than a rule that tells us what is allowed, what is forbidden, what we are obliged to do and consequently law organizes our behaviour in accordance with the general interests of society. What that desired behaviour should be or what are the general interests of the society in a given moment is outlined, we consider, by the interaction of the different extra legal sources of law, of which science has in present the strongest impact. It sends impulses to law and contours its substance. What law is today is a result of the game of interaction between the different extra-legal foundations or real sources of law. As any other system, Law reacts to the conditions external to it and therefore we find the explanation for how Law today is not the same as Law a century ago and, we dare assuming, will not be the same with the Law a century from now.

It is obvious that the existence of humans is carried out within a frame created by the specificities of the natural and social environment. This mixture, unique for every community presents almost infinite variables although minimal and difficult to notice, impregnates its unique character upon the legal provisions in force. However, it is also true that under the strong influence of the globalization phenomenon there is a strong tendency to unify and blend the existence conditions otherwise specific to each nation and region. We believe that while perhaps other extra-legal sources of law such as demography, environment, and religion create the differentiations between this legal system and that legal system, science brings them close, and brings more universal legal solutions for the problems it has created.

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