

Methods for Law and ICT: An Approach for the Development of Smart Cities

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Abstract. The paper summarizes the methods followed over thirty years (1984–2014) in the study of the subject “Law and information and communication technology (ICT)”. From the beginning the emphasis was placed on that the most appropriate approach is to put into action an interdisciplinary activity aimed at solving specific-real problems. The same methodology was used to develop juridical proposals able to integrate the use of the innovation brought by ICTs, as “electronic commerce or government”, in daily life. The paper concludes showing that the methodology is appropriate to participate in the creation and development of technological innovations such as the construction of services for “Smart Cities”.

Keywords: Law and information and communication technologies, Methods, Interdisciplinarity, Smart Cities.

1 Introduction

Occasionally it is worth remembering. It is not enough to cater to the context, the requirements and the significance of the daily problems to solve them. The memory also tends to give sense, perspective, to any problem that is immediately stranger. That is why we will express here methods, styles of work and researches that have allowed providing solutions to problems that are involved in relation to the topics “Law and information and communication technology (ICT)”. This is made in order to find in these procedures, insights that can serve other people to solve these problems in the coming years.

The specific problem we want to solve for now and the near future is the legal regulation of the consequences of the introduction of so-called Smart Cities from the time of the design of the services that will constitute the infrastructure of those Cities. A project, in which the author of this paper is involved, intends to help to solve these kinds of problems with an adequate approach. The project is entitled City 2.020,¹ and

¹ The Project Ciudad2020 is the INNPRONTA Project IPT-20111006, funded by the Spanish Centre for Industrial Technological Development, the University of Zaragoza participates in the project as advisor of the Atos Research @ Innovation (ATI) Division of the firm Atos. The link of the Project is located in: <http://www.innprontaciudad2020.es/> (consulted on March 5, 2014).

it is the basis for building technical solutions, programs and services for citizens who will live in an hypothetical intelligent city of the year 2.020. The well-intentioned forecasts say, for example, that these kinds of services or programs will ensure that the environment is preserved, that driving on roads and cities will be easier and less dangerous as today, and that administrative services provided to citizens by means of ICT will make their daily lives more comfortable [1, 2].

For these purposes it is interesting to present here several solutions. These may serve also in order to improve the lives of citizens and promote their participation in political institutions in response to democratic principles, problems resulting from the relationship established between ICT and Law in the last thirty years (1984-2014), attending to the experiences of the research groups in which we have participated, and the basic characteristics of the social context in which these have been developed. This is that we propose to do in this paper, highlighting features and notes of significant research carried out at that time.

That is why this paper is focused, first, on presenting research that has been busy building information systems that allow the storage and retrieval of legal texts, making specific systems accessible to the largest possible part of citizens.

The second part of the paper is on the legal approach developed with the emergence and expansion of the Internet, the communications technologies, with their advantages and disadvantages. The objective of the research was the providing of policies and technical proposals to ensure a smooth implementation of technological resources. This is presented through the exhibition of the implementation of electronic trade and government services developed in compliance with the principles and norms of the rule of law.

From the past experiences it has proposed a legal approach to build Smart Cities, being this increasingly target horizon accepted as research, development and innovation activity in services or systems. The objective is to promote a widespread use of ICT for the majority of citizens through the use of technological devices such as mobile phones or similar (tablets, for example). This is the third part of the paper.

Finally, the conclusion comes.

2 Thesaurus

In the second half of the eighties of the twentieth century, when it came to exploring the possibilities offered by ICT in the juridical area, initiated its application to the management of the administration of justice in courts and tribunals [3], it seemed appropriate to address the topic Law - ICT as research's object. The choice of the research was twofold: firstly to allow to study some consequences of the introduction of ICT in legal activities, in this case of a judicial nature, on the other to generate interest in the subject to future lawyers. The idea was to consider the relevance of theories advocated conducting legal studies from the characteristics of the language of the rules, as a formal expression of Laws passed in Parliament by the elected representatives of the citizens.

Existed at that time also a doctrine that believed that mathematic theories and ICT techniques could assist the automatic generation of rules to particular cases [4, 5].

The establishing of collections, conveniently studied and refined, of expressive words on legal problems, as compiled dictionaries or thesauri, was the first phase of the research, for the subsequent generation of standards.

This was even more feasible if it happened, as we wanted to do with the investigations undertaken, which specific aspects of legal-philosophical discussion of the moment were considered, as it was the case with the possibilities offered by several variants of offered theories of law. Especially the studies coming from the theory of legal argument, that considered the different characteristics of the activities on interpretation and enforcement of the rule of law, made by juridical professionals [6, 7].

To this end, together with several professors from Mathematics (Algebra and Statistics), and another of the dogmatic subjects that are explained in the Faculties of Law since the nineteenth century (specifically Civil Law, Criminal Law and Administrative Law), we began (from the Philosophy of Law) to conduct interdisciplinary research related to the most profitable results of ICT at that time: its ability to store and retrieve legal documents [8], and to represent this knowledge using logic programming languages. It was the birth of the research group at the University of Zaragoza named after (from 2003) “Data protection and electronic signature”.²

With this, it became clear that the aim of the research was beyond recovery documentation. The Group wanted to use also the possibilities offered by programs called “expert systems” to access and retrieve legal documents of local interest.

This research was called the building of a “smart legal thesaurus” [9].

The consequences of these activities were excellent in regards to the construction of legal databases, comprising legislation, jurisprudence and doctrine onto a subject of special interest in the Autonomous Community, as the historical and current Law of Aragon. It was a new “channel” of knowledge.³

Different was the result of investigations regarding the construction of expert systems, which facilitate citizens and specialists access to specific legal texts relating to the exercise of their own rights authorized by the Law. These systems were built, but they could not move from the prototype stage, being expressed as programming languages in the artificial intelligence style [10]. These programs responded through dialogues to possible questions regarding what are some of the specific rules, other than the Spanish general, at the age of majority in the autonomous community of Aragon.

Later, another research was developed whose object was to represent not so much the content as the rules of procedural character in a court or tribunal for a certain issue [11]. The use of this model increased the efficiency of the research, but it still could prove not useful in the general absence of resources and interest to go to the “industrial” test of the same, as then we needed.

The conclusion reached in these investigations was referring to that his approach was preliminary, technologically speaking, as it barely existed, at least in Spain, interest in the application thereof. At that time the storing of legal documentation on digi-

² <http://www.lefis.org/pdf/e/> (consulted on March 5, 2014).

³ See the channel in: http://www.unizar.es/derecho/standum_est_chartae/ (consulted on March 5, 2014).

tal media for companies and public institutions began. It was noted that at the time was not possible to obtain practical results, or programs coming from such research applications.

It is important to say that, however, it was indeed obtained as a result of these investigations, detailed studies and approaches to the expression of the characteristics of the activity named access to legal texts, and other professional activities of jurists [12]. It was obtained also the redefinition of the concept of law, coming to define this as a communicative activity [13].

The relevance of this line of research, reflected in several projects, seen from today, found especially in demonstrating the need of interdisciplinary research. It was because the object of study has so many facets that it was impossible to consider all of them from either another area in isolation. Another conclusion referred to the legal field only was related also to interdisciplinarity. While it was necessary in these investigations lawyers who knew the “dogmatic” field considered from an academic perspective, it also became necessary the participation of lawyers that know how to put the law in action, this is practical jurists expert in the resolution of legal conflicts. Consistent with the above was also required the participation of a philosophy of law that was aware of the general characteristics of scientific/technical thinking, legal philosophy (that deals with the three-dimensional aspect of the law: integration of values, rules and facts) [14] and the basic principles and applications of the “dogmatic” arguments carried out by the Science of Law.

3 Digital Signature

The development of telecommunications and its integration with information systems enabled the Internet and the developing of their applications, especially systems that allowed the email and the large-scale carrying of electronic commerce. This was from the second half of the nineties.

Indeed, as the Internet became operational, beginning to put into action the real-time communications through the use of ICT, to initially be able to send and receive messages via email, or buy products from suppliers of goods and services via the Internet (which soon was called e-commerce), the research group considered as objects of their activities these:

1. The further development of proposals to assist juridical activities using information retrieval systems, supported by the most sophisticated telecommunications in relation to specific domains [15], and

2. The development of proposals to ensure the rights of specific individuals to communicate their thoughts and decisions freely at the time of transmitting and receiving information using resources that made possible more and better recovery of legal information, as adapted to the specific needs of identified users. These were the work aimed at ensuring the management of the identification of senders and receivers of messages, and the preservation of the integrity of the message content through the use of electronic signatures [16].

The investigations were carried out since the second half of the nineties, while taking place the emergence of the innovations.

The innovation in research on the development of retrieval systems of legal documentation, oriented in the outlined direction: organization of the management of public institutions (this will be nominated more late “electronic Government”), was influenced by the fact that in Spain the free access to this documentation for all citizens occurred by initiative of the public institutions responsible for creating them. This took place gradually since the second half of the nineties. In other countries, there were no such initiatives. This did not bring to Spain the need of the establishment of research centers with the function to make public, unofficially, legal texts by using ICTs.

The emergence of these research centers is easily understood in other countries as expressed below.

According to the principles of the State of Law the texts of the Law are publicly available once representatives of the citizens develop them. If they were only accessible by the use of systems of legal documentation retrieval and their owners were companies whose services were to be paid by users, this activity could not satisfy the principles of free access to legal texts. Therefore, the research centers in other countries catered to break this dynamic marketing dissemination, promoting their advertising through the establishment of “unofficial” documentary collections open to access them by all citizens “on line”.⁴

In contrast, in Spain, since 1995, legislative and administrative regulations have been made accessible through official channels to anyone, free-form, by Internet. Since then, the Official Gazette (“Boletín Oficial del Estado”), the official organ of publication of state regulations, is available to the public. The same applies practically with respect to, regulations promulgated by the Autonomous Communities.

These initiatives are formally generalized from January 1, 2004.

In regard to the court documents, the General Council of the Judiciary established in 1996 the Judicial Documentation Centre responsible entity to make public the decisions of the Supreme Court, the High Courts of Justice of the Autonomous Communities and other judicial entities.⁵

The results were, as it has been said, that the research group focused their work rather than on the construction of generic recovery systems as legal documentation, in the building of support systems to legal decisions made by concrete institutions, or by the administration, the courts and legal practitioners using new ICT systems such as email and the Internet, whose use began to spread throughout the period considered (second half of the nineties) [17].

The strategy allowed the study to look at organizational and functional changes that these uses claimed of different organizations and legal agents. That is why from the early years of this decade, the group focused on what was started at that time earning him the expression e-government. It had as consequence the study of the expansion of the use of the techniques of governance, or effectiveness, with respect to the juridical activities of public administrations [18].

⁴ This is the movement “law via the Internet”. The last conference is located in: <http://www.jerseylvi2013.org/>

⁵ See: <http://www.poderjudicial.es/cgpj/es/Temas/Documentacion-Judicial> (consulted on March 5, 2014).

It was the time of the enactment of European Directives and state Laws, focusing on the regulation of “electronic signature”, the construction of public key infrastructures and regulation of services of the information society, which allowed to make a reality that legislation.⁶

A few later (more precisely: from 1997 to 2000) began the work of the group jointly with notaries, registries of property, clerks of the courts and lawyers on the features that should give confidence to the use of ICT and Internet. The group proposed the construction of institutions or systems of certification authorities (CAs) of public key, dedicated to promote the trust in the use of ICT attending to the rule of law.⁷

At this time the group has formed CAs and PKIs jointly with notaries,⁸ which formed the basis for the establishment of unofficial institutions of certification administered by the research group.

In the judiciary, along with attorneys and judges, the group gave the first steps in the construction of a system that allows the secure telematics transmission of documents from the offices of the attorneys to the courts.⁹

These activities had the character of Research + Development + innovation. In most of the activities companies participated. The content dealt with standards, assessments, knowledge of technologies and their social and economic implications, and deep knowledge of the legal system and its application, once all of them collaborated in the formation of provisions that would later be issued by the relevant entities.

4 Smart Cities

4.1 Introduction: Smart Cities and Services.

At the begin of the second decade of the two thousand: from two thousand eleven, the

⁶ Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (‘Directive on electronic commerce’) and the Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (‘Directive on privacy and electronic communications’).

⁷ The most significant project was called AEQUITAS: “The admission as evidence in trials of criminal character of digitally signed electronic products”. It was supported by the European Union. The final report (1998) is located in: <http://cordis.europa.eu/infosec/src/study11.htm> (consulted on March 5, 2014).

⁸ The activities implemented jointly with the Spanish notary was at the origin of the Notarial Certification Agency: <http://www.ancert.com> (consulted on March 5, 2014).

⁹ These activities were the precedent of the implantation of the LexNet system, which is a platform for secure exchange of information between the courts and a wide variety of legal practitioners in their daily work, that need to exchange legal documents (notices, letters and demands). See: <https://www.administraciondejusticia.gob.es> (consulted on March 5, 2014).

research group “Data protection and electronic signature” works in providing legal advice to the design of a platform that aims to provide services to the citizens that will live in the so-called “Smart Cities”.

The platform is the content of the industrial project of I + D + i , entitled City 2.020. It is an Innpronta project. The project aims to achieve by the building of services to citizens, progress in the areas of energy efficiency, Future Internet, Internet of things, human behavior, environmental sustainability and mobility and transport. The project estimates that the design and implementation of these services will build the city of the future, a city that will satisfy the characteristics of sustainability, intelligence and efficiency. The project itself says that conceives, designs and implements a new paradigm of sustainable and efficient city, supported on three key areas: Energy, Transport and Environmental Control.¹⁰

What kind of services are being developed in the City 2020 project? There are several examples that are either in operation or initially. They will be in use in a short time. We speak later on some of them. We indicate before the existence and characteristics of the existent “infrastructure” that enable their development.

An infrastructure is constituted by the increasingly large information that is accessible in “standard Internet format”, or because the users publish them: this is the case of communications made through social networks like Twitter, or because, with regard to public information of all kinds, governments are standing in its openness in a respectful way (more or less) with current legislation, making it accessible to all who want to use it.¹¹ The latter has been increased by the expansion of the acceptance of the political principle of transparency in the activities of the government, therefore prescribed, for example, by Spanish Law 19/2013 of 9 December, and the obligation that the Governments have to give general access of the information stored and treated in their daily lives, in an adequate way to the content of the advertised information.

The services. It is for this that it should develop services that detect, depending on what the temperature inside and outside of a home is, for example, the time when the heating or cooling must be it off automatically, and from knowledge habits of the owners or tenants of the house have to respect and forecasts made by meteorologists on changing temperatures and can even make autonomous decisions. The same goes for lighting homes and public roads or streets. In both cases the use of services, thereby saving energy, seek the goal of the City 2020 project.¹²

It likewise development services provided through the use of traffic lights and other traffic signs or appropriate sensors, designed to control the traffic density, open to the movement of emergency services or transportation route vehicles engaged in distribution of goods. These systems have developed also simulations based on historical events of what happened in a specific period of time, allowing the forecasting by “smart” statistics on what might happen at one time or another.

¹⁰ See: <http://www.innprontaciudad2020.es/> (consulted on March 5, 2014).

¹¹ See the heterogeneity of the information that have been published in: <http://datos.gob.es/datos/> (consulted on March 5, 2014).

¹² The services created by the City 2020 project can be found in: <http://www.innprontaciudad2020.es/index.php/es/documentacion-ficheros-relativos-al-proyecto/4-entregables> (consulted on March 5, 2014).

There are computer programs capable of indicating whether or not seats exist in a parking while making forecasts of occupancy for the future, allowing citizens to book by a certain date and time.

There are designs of services providing information on the existence or not of bicycles in a station for the storage and collection of these vehicles, as well as existing services near a particular station restaurant, food shops, shopping centers, museums...

Other services / programs offered cultural agendas tailored to the tastes of users. Other programs / services built travel routes or sightseeing in cities as a concrete response to the tastes, interests and age of the user...

These examples are proof on the building of services and programs that assist citizens. The organizations that may use these programs are called Smart Cities.

4.2 Legal Solutions: Generalities.

What indications should be done from a legal perspective to the design of these services?

Of course the first one is that they ought be built respecting the rights of citizens enshrined in the Constitution and all the rules that make up the ordered treatment, which are highly developed at present given the progressive implementation of the use of ICTs in daily life. This implies to require that juridical elements must be present in the design of services or, briefly, that the content of democratic order must be respected. This is a requirement to fulfill at the time of design, if we consider that the foreseen facilities advice of future relevant social changes that will affect to the acquired rights of those who already realize the activities that the new services will make in the future.

This means that if we look, for example, that the services or programs in construction must have information captured by sensors as, for example, changes occurring in nature, their use must be allowed by those who are holders of the sensors and make the required analysis and interpretation of the sensed data to build information. The owners of the sensors and performing interpretations of the data must take responsibility for the quality of information and the consequences of unforeseeable effects of the programs that process this information.

If the information relates to activities of daily living, ie to personal identification and information of life of citizens, their use must be voluntarily accepted by the citizens. It is preferable that the use of personal data from the smart services becomes transformed them into anonymous format in order to preserve as far as possible the right of every citizen to the privacy of their personal life recognized by the Constitution. The implementation of the prescribed safety measures as the anonymisation are recognized as part of the law in this area. Thus, the best is that all information is treated in the form of patterns of individual behavior of the service users. These may be made available to whoever, and be generated by other users / citizens who acquire the services. Responsibility likewise be bound to companies that create or maintain services.

Another thing. No one can escape the social significance of services / applications are being designed and put into practice in order to achieve the ultimate goal of the implementation of the Smart City. As it has been expressed the objective of the development of the "smart services" is the transforming of the service delivery done so

far by companies, organizations and individual persons having professional expertise, in the provision of other services developed and delivered automatically from the data sensed by automata or previously experienced by the same users or others [19].

The question to be resolved is how it should be designed programs / services / automata / “artifacts” of smart cities in order to be able to meet with them the needs for which are made while preserving the rights and duties of everyone involved in the process of design, supply, acquisition and use of these services / programs that are guaranteed by the regulation for democratic legal systems?

To answer this we must consider that there are three elements necessary to elaborate programs:

1. Building databases or designing programs.
2. Communication between users and databases.
3. The requirements of the regulations for the construction and use of programs /services.

There are in the next sections some of the characteristics of these elements, considering in particular those relating to legal regulation.

4.3 The Design of the Programs and the Value of Communications

Sensors and open data provide information needed for building applications or services. Citizens with their behavior may also be considered sensors: the “citizen sensor” by providing exemplary personal information and the use of exemplary model of service behavior, which is reflected in the databases. The citizens are, of course, service users also.

A model means that the information generated by users using the services stored in anonymised form as to be able to use it for a future request for services of a similar nature made by the same user or with other features, will or interest similar to those of who generated the service / program.

The use of media or communication channels, under appropriate security, it is essential in the case of the supply of services in parts intelligent cities. This is because applications and services are designed considering that access to systems occurs through the use of Smartphones, tablets or personal computers. It is expected that users of these services are not legal entities: public organizations or companies, but citizens.

Companies are usually service providers.

Public administrations are suppliers of open data.

The latter can also be recipients of the services themselves or, especially, the information generated by the use of smart services providers whose data are open. With both administrations can manage activities more effective and offer democratic public services for which they are responsible, as they are required to meet the demands and needs of users citizens thereof, balanced spending and public funds, following guidelines of good governance that are required from the Spanish reform of art. 135 of the Constitution in 2011. With this information, in addition, public authorities can make forecasts for the organization of the provision of open data for specific periods and agreements.

4.4 The Regulation

When we talk about the legal regulation of the systems / programs for the Smart Cities the paradox is that we talk about something unknown, because there is no legal regulation on Intelligent Cities outside the legislation that enhances the performance of research and development on the same, or interest agreements on the same question agreed between administrative organizations, municipalities fundamentally, who propose the design of programs and services for citizens on account of their general obligation to support the public R & D and its ability to create jobs.¹³

Therefore the question arises: how to go forward with the legal aspects?

The truth is that it is not easy to do something in this respect by the positivist theories of law, those who merely do an exegesis of the law using these theories or the dogmatic science of law. According to their rules and principles, if there are no laws the jurist can not make legal considerations. The general policy for these theories is that the commentaries on the laws can be made only by the legislative power with new laws. He makes the laws. This is not the problem with other legal theories as the communicative study of the Law. This theory studies juridical activities and their accommodation or not to the norms, principles and values of a democratic society [20, 21].

From this latter perspective, which is what we have in mind here, it is necessary to make statements about the rules which must be addressed in the design and implementation of programs / smart services, given the relevant character and important social function of this kind or foreseen services and the legal / evaluative requirements that they need to meet even when we are talking now of a phenomenon generally limited to R + D + i . We must also say that this legal perspective must be made at this time of design because otherwise the services / systems could not be used in the future due to the manifest illegality in which would incur those who will design and utilize in the event that systems generate defective services.¹⁴

The proposal, also, is not new: as it was mentioned in the third section of this paper, the implementation of electronic commerce and government also required the prior establishment of legal rules allowed the operation of the programs / systems in accordance with the rules and principles of the legal systems in order to overcome the limitations encountered in the use of technology. There are more arguments of legal character also. There are new rules of direct application for the construction of new services for Smart Cities. This is the case with the regulations on reuse of public information. It is the same with the requirements of transparency to the functioning of public institutions. Another case is the regulation on the access to public information. The same has relation to the requirements for compliance with the rules of good government. All these rules pay attention to the problems identified by the setting in the activities of the technological innovations that involves the construction of intelligent services.

¹³ This is the case of “smartcity” the Spanish network of Smart Cities. See the website at: <http://www.redciudadesinteligentes.es/> (consulted on March 5, 2014).

¹⁴ The basic juridical requirements in the City 2020 project are located in: <http://www.innprontaciudad2020.es/index.php/es/documentacion-ficheros-relativos-al-proyecto/white-papers/28-proteccion-de-datos-personales> (consulted March 5, 2014).

To add to this, it is the obvious consideration that the regulations to which we must also address the design of services for smart cities is the existing norms to regulate the functioning of society and ICT from some time (the seventies in the twentieth century): data protection, security measures, electronic signature, electronic access of citizens to public services, preservation of intellectual and industrial property and general measures of law provided for the preservation and attribution of responsibility.

4.5 The Preparation of Juridical Proposals According to Democratic Principles

The legal / juridical principles and rules of law are not sufficiently satisfied when political institutions as Cities form associations in order to boost the “intelligent cities movement” or the European Union itself, when established and updated Directives on the reuse of information from public Administrations, confined to expand the possibilities of economic growth which the construction of “services / programs for the Smart Cities” let. This kind of initiatives considers that this development is able to create wealth or, especially, jobs. No doubt: this is “an” obligation of their function, but they are not “all” their obligations to citizens. We refer us here to public institutions in the State of Law. They are responsible for promoting all kinds of democratic activities, ie, in our case, the performance of new designs or programs due to thereby ensure compliance with several rules of law, as we detail below, but it is not only due to satisfaction on job creation.

This is because it must be remembered that a democratic political system and the institutions that comprise it, is not only justified by job creation but it is because it addresses [22]:

(1). The guarantee and promotion of three mechanisms, today early fundamental legal, recognized in the constitutions and made reality in the daily life of the countries where the same work,

(2). The fulfillment of a prerequisite for the exercise of mechanisms and principles: the access to information, and

(3). The adoption as policy action of the governance.

The last (3) has real relevance because, as we will see, governance is one of the main philosophies or policies to be followed in the implementation of democratic principles and the design of R + D + i projects about services / Smart programs. The reason is relevant, specially, when there are no rules governing directly the phenomenon. The governance principles / caution must be observed in the construction and operation of automated services because they cannot solve themselves all the complexity that happens in reality in the field of application of smart services. This lack of regulation is another justification for focusing more legal proposals in relation to the existing regulations. We speak on this in the next section.

4.6 Governance

The foregoing consideration does not prevent the recognition of a recent common political practice: the exercise of the democratic powers of the authorities through what is called governance. Governance is defined by the dictionary as “Art or the manner of governing that has as objective the achievement of sustainable economic,

social and institutional development, promoting a healthy balance between the state, civil society and the market economy.”

This means recognizing the expansion in the public sphere, as own uses or practices of the rulers (including the expression to all public officials into action the three political powers), the principles, techniques, or uses of government's own field of the business rules. This is the same as saying: the setting in motion of the efficiency and market rules as a criterion of preference or concomitant with the activities and juridical criteria of the public administration in the State of Law.

This style of action or policy does not preclude the statements established in the preceding paragraphs, it is the fact that the respective power must be exercised in consistent form with the implementation of the principles inherent to the put in practice of the rule of Law, summarizing the action of democracy, by legal mandate, governs the actions of public authorities also in the knowledge society [23, 24]. This is also predicated on the field considered in this paper: prevention with respect to the making of usual activities with aid of automatic / intelligent services programs. Here, as we see below, it is run in a manner similar to what happens with the complex application of Law by lawyers / judges as it is generally recognized. This is the same as saying that in the design of smart programs, thinking about putting them into reality, it is necessary the realization of the weighting mechanism, the self-governance, rather than the “automatic” or logical application of subsumption.

It should be recalled, in summary form, for these purposes, the basic message sent by some scholars, philosophers of law, with respect to judicial decisions, the application of law, or, in general, the law practice from the early twentieth century [25].

Since that time, just since the beginning of the obligation of the German judges to implement the German Civil Code under its responsibility in all cases that citizens pose them, it emerged as critical considerations on the idea that the application of law by judges was reduced to the immediate execution of the subsumption of the particular case in the Law, as presumed the liberal principles and Codes. Ehrlich, along with writers and judges that joined the Movement of Free Law, showed that the process of implementation of the law could not be reduced to the subsumption, once the irremediable loopholes make that the most of judgments are “free” creations of the same judges, in order not to incur the corresponding responsibility not to take decisions in cases submitted to them by legal imperative, whose assumptions and solutions not coincide with the prescriptions of the Law [26].

From these considerations emerged throughout the twentieth century to the present multiple reflections directed to complete the process of judicial application of law with other explanations.

Some of the proposed solutions were: knowledge of conceptions and social convictions (proposal by Ehrlich through sociology: the living law), consideration that the judicial process and legal reasoning are integrated by topics or common places that help to [27] the application of the Law, the establishment of regulatory systems to the application made by the use of logic counting on the construction of the normative pyramid rationally that extends the legal field [28], the proposal that the study of the Laws is made from the “pre-understanding” of their content [29,30,31]), the study of the judicial application of the Law in response to the broad scope and content of the arguments that occurs in the juridical process [32,33], consideration of the agreement of the juridical activities with the social legitimacy: the consensus, which are aimed by

the Laws and the state organization as a whole (all the three branches or powers) in the democratic societies [34], the consideration that all human activities are carried out in response to a knowledge of reality produced in the maintained contact with reality by “autopoietic procedures” [35], and not only by intellectual development of scientific proposals...

These and other proposals were occupied, in short, to put emphasis on the circumstances of the judicial application, in order to explain them and give more complex understanding than those provided by the subsumption or formal discourse, that are centered on legal texts solutions. The governance principles help also to review the trust in the automation of services, and produce and suggest that these programs / services / systems / devices are constructed in a way that respects the rules and legal principles existing at the moment that we can say here that are synthetically expressed in these: the protection of personal data, the regulation on transparency and open data use, the warranty liability for the proposed services to users and the compliance with administrative requirements in the case of the provision of “Smart” juridical services.

5 Conclusion

From the above summary presentation of several experiences / projects of research occurred over thirty years, we can say to anyone interested in conducting research on Law and ICT field, that no such activities can be reduced to be an exegetical or analytical study of specific rules, or the collection and processing of information on the effectiveness of the rules of the Law, for example. Nor can they be to present the characteristics of technological development and innovations or damages resulting from the use or misuse of ICT devices. The occupation in this area requires, above all, to have enough to make joint efforts with professionals who have been trained in different skills to which they are subject to the law school training preparation. As has been indicated is the participation in the R + D + i, larger or smaller, in any case intended for solving real problems, which lets to take perspective and substantiate arguments about problems implied by the relationship between Law and ICTs.

Interdisciplinarity is therefore another requirement. Well understood interdisciplinarity, i.e. conscious use of a language to handle cultural tools such as the resources that social science standards let, and not from its own particular language of experts in a particular area of knowledge. The necessary degree of interdisciplinarity is necessary to talk with different training specialists, experts in the use of the usual tools of the social sciences.

These practices and usages must not lose, perhaps this is the most important conclusion, the perspective that the researchers are working out social and legal problems in a broad sense: Law and consensus, Values, Justice, Efficiency, Governance... and not on normative issues only.

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