CONFLICT RESOLUTION IN VIRTUAL LOCATIONS

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Abstract

The growing use of telematic ways of communication and of the new developments of Artificial Intelligence, brought along new ways of doing business, now in an electronic format, and requiring a new legal approach. Thus, there is an obvious need for legal changes and adaptations, not only concerning a new approach of traditional legal institutes, but also concerning a need for new developments in procedural means.

Transactions are now undertaken in fractions of seconds, through the telematic networks, requiring more efficient ways for solving conflicts; on the other hand, the fact that we must now consider commercial transactions totally undertaken within an electronic environment ("online transactions") leads to an obligation of rethinking the ways of solving disputes, that will inevitably arise from electronic commerce. It is an important change already taking place, pointing out to various ways of alternative dispute resolution and, among all these ways, letting us already perceive different possibilities of using the new technologies in order to reach faster and more efficient ways (still also "fair") of solving commercial disputes. It is a whole new evolution towards a growing use not only alternative dispute resolution, but also, towards the so-called on-line dispute resolution.

Keywords

Computers and Society; Citizen Access; Legal IS; Online Relationships; Dispute Resolution Intelligent Support Systems.

INTRODUCTION

On-line activities, on-line contracting, will necessarily lead to on-line disputes, requiring new ways of solving conflicts. New ways of dispute resolution are thus appearing, so that the parties do not need neither to travel nor to meet in courtrooms or in front of arbitrators or mediators. Different forms or methods of alternative dispute resolution for electronic environments have been pointed out by legal doctrine. Thus being, we can now speak of Online Dispute Resolution (ODR) as any method of dispute resolution in which wholly or partially an open or closed network is used as a virtual location to solve a dispute (Katsh & Rifkin, 2001).

A relevant issue, in a first moment, will be to inquire in what way (and to what point) traditional mechanisms such as negotiation (Raifa, 2002), mediation (Brown & Marriott, 1999) or arbitration (Bennett, 2002) can be transplanted or adapted to the new telematic environments, taking advantage of all the resources made available by the newest information and communication technologies. But it will also be of the utmost importance to stretch our analysis to the point of foreseeing a real technologically advanced possibility, inquiring whether or not we can take advantage, for online dispute resolution, of the new developments

in the area of Artificial Intelligence, facing this knowledge in two different perspectives: on one hand, as a tool of undeniable interest in order to help the parties and the decision makers to obtain the best possible results in solving commercial disputes, and on the other hand, considering a new way of autonomous dispute resolution through the use of autonomous and intelligent software, supported by a knowledge base and decision capabilities.

It must also be considered alternatives for dispute resolution arising from Artificial Intelligence models and techniques (e.g. Argumentation, Games Theory, Heuristics, Intelligent Agents, Group Decision Systems) (Peruginelli & Chiti, 2002; Lodder & Thiessen, 2003).

Among the possible methods for ODR, it must be referred the distinction between automated negotiation – specially the "blind bidding" procedure, by which both parties send confidential offers or proposals to the informatics system, being up to the system to detect and to declare whether or not the case gets settled – and assisted negotiation ("assisted" meaning here just providing communication facilities, trust marks, certification programs for the parties to use in their negotiation). A distinction must also be made between assisted negotiation and mediation, being the former based on technological tools, while the latter is based not only in technology (the parties and the mediator having access to different electronic communication tools, such as email, chat – with possibilities of private conversations - messenger, videoconferencing) but mainly on the intervention of a third neutral (mediator) intending to help parties to reach an agreement. If the third party appears to be a neutral party empowered to make a binding decision, through an enforceable award, as a form of privatised justice, then we must speak of arbitration (although, in theory, we might think of two possible different forms of arbitration, considering the possibilities of awarding a really binding and enforceable decision or just a contract like decision (binding only like a contract)).

In online dispute resolution it must be considered not just the parties themselves and eventual third parties (mediator, arbitrator) but of course there will be a significant focus on what Ethan Katsh and Janet Rifkin (2001) call "The fourth party", that is to say the technological elements involved. An important element of this "fourth party" will of course be the emergence of expert systems and intelligent software agents with capabilities for helping the parties and the mediator / arbitrator in reaching a fair solution. And as Arno Lodder (2006) already refers, it must be considered, as well, a "fifth party", that is to say the service providers, those who provide and deliver the technological elements. All this turning ODR in a quite new and somewhat complex (but eventually quite fast, cheap and advantageous) way of interaction and of solving conflicts.

Having in consideration all these experiences and the benefits of the technologies (but also its drawbacks), it must be analysed the main characteristics of the different ODR methods, the different types of communication used, the different types of interaction emerging from them, the advantages and disadvantages of the use of ODR. But it must also be foreseen the future trends for its development, the use of interactive, automated or intelligent technologies, the use of expert-systems, knowledge based systems and decision support systems, and the use of artificial intelligence, specially agents.

TECHNOLOGIES

Let us start by exposing some of the main technologies used in ODR. We will not be looking at any hardware in particular since all the hardware required is regular hardware that we use in our day-to-day: computers, networking hardware, telephones, webcams, among others. Although communication technologies are of main importance they will also not be mentioned here as they comprise technologies that are nowadays used and known by everyone: telephone, fax, video conference, E-mail, internet, forums, mailing lists, among

others. We will instead pay special attention to three software technologies that have an important and promising role in ODR processes.

Multi-agent Systems

Multi-agent Systems (MAS) emerged from the combination of Artificial Intelligence with distributed computational models, generating a new paradigm: distributed artificial intelligence (Wooldrige, 2002). There are several valid definitions for a multi-agent system so we will try to define a multi-agent system from the ODR point of view. A Multi-agent System is a group of entities (may be software or hardware) which will "feel" the circumstances they are in and make intelligent decisions in order to achieve some common goal (like proposing a solution for the parties in dispute) based on knowledge from every agent in the system. For an agent to be considered so, it must show some basic abilities: autonomy, reactivity, pro-activity and sociability which means agents must operate on their own, read their environment and react accordingly, they must show initiative and take their own actions and be able to relate to other agents in order to achieve their goals. Additionally, an agent may show characteristics such as mobility, learning, veracity, emotions, among others. In ODR characteristics like veracity are very important and the emotions-based agents are also being researched as one possible path for second generation ODR systems as the ability for understanding the feelings of the parties towards each topic of the dispute is essential.

In this paradigm, with simple agents or modules each one responsible for some part of the environment, the global objective is achieved through the cooperation of the agents (Olson et. al, 2001). They are able to make their simple individual decisions completely independently and we see the result of these decisions as a global intelligent behaviour. This paradigm rapidly started to play a major role in the design of any intelligent system. A lot of research has also been done in the field of argumentation with agent technologies (Rawhan et.al, 2004; Novais et. al, 2005). In argumentation, agents debate, defend their beliefs and try to convince the other agents into believing the same they do. In ODR this is especially useful as argumentation and debate may be important to parts in dispute resolution processes.

Agents may also implement negotiation techniques (Brito et. al, 2003). In MAS, negotiation refers to the modelling of Human negotiation techniques so they can be used for conflict resolution between agents. This type of agents is very used in auctions and eCommerce. In this specific case of dispute resolution, agents may represent the parties in a negotiated process and try themselves to negotiate and get to an outcome and suggest that outcome to the respective parties and this way trying to achieve a resolution for the dispute. MAS technology is suited for many different fields and specially suited for implementing distributed ODR systems mainly because agents may mimic social interactions between humans.

Decision Support Systems

With the constant growth of the information present in decision processes the need for tools that could provide support has also grown. Indeed, the new economy, along with increased competition in today's complex business environments, takes the companies to seek complementarities in order to increase their competitiveness and reduce risks (Bonczek et. al, 1981). In this scenario, planning takes a major role in a company life. However, effective planning depends on the generation and analysis of ideas (innovative or not) and, for this reason, the idea generation and management processes become a crucial tool in present days. The tools used may range from simple systems for compiling useful information from raw data to other more complexes that make suggestions on the best strategy to use or the fairest outcome.

Decision support systems may be used in virtually any knowledge based environment (Turban, 1993) and ODR is not an exception. More complex processes may involve much information that can become hard to deal with the parties and above all by the mediator. They can also be useful when the parties are not at ease with certain kind of information or there is too much information that can be summarized for a better understanding. Regardless their application area, these systems are known for improving the personal efficiency, fastening the problem resolution, increasing organizational control and facilitating interpersonal communication.

Expert Systems

Expert systems are software that try to replicate the skills of a human expert in a determinate field of expertise (Jackson, 1990). This is one of the fields of investigation of Artificial Intelligence. It is expected that an expert system is able to deal with information relating to the specific problem domain, analyze it and produce knowledge and then take actions and decisions based on that knowledge. It is also expected that these actions and decisions resemble the ones that the human would do.

Expert systems can be found in the fields of accounting, medicine, process control, financial service, production or human resources just to name a few. Examples of expert systems can be found in insurance companies which are replacing human experts by software ones. They are also commonly found in banks to decide whether a client asking for a loan should or should not receive it. In one hand companies started to replace human experts by software in order to save money but, in other hand, because it is nowadays impracticable to do this kind of decision based only on humans due to the current increase amount of cases to evaluate and the increasing amount information associated to each one.

Before these expert systems are ready to be used they must be trained (Hayes-Roth, 1983). This may be done using information from past cases and respective decisions provided by human experts. They can also learn while they are used in which case generally a human makes adjustments according to the input, expected output and actual output.

ADR

Abraham Lincoln once said "Discourage litigation, persuade your neighbour to compromise where you can. Point out to them how the nominal winner is often the loser... in expenses and waste of time". This is the sentence that probably better describes the need for an alternative to traditional courts and the appearing of ADR (Brown &Marriott, 1999). With its evolution, ADR has become very used and adopted by both the legal system and the parties involved as the first step for trying to solve a dispute. In some countries, parties are even encouraged or required to try some kind of mediation before advancing into a court.

There are three main types of ADR: negotiation, mediation and arbitration. The objective of each type is the same, although each one has its way of achieving it. They aim to put the parties into contact and get into a common agreement without having to recur to litigation thus saving money and time.

Negotiation

Negotiation is a collaborative and informal process by which the parties communicate and, without any external influence, try to achieve an outcome that can satisfy both. Negotiation is widely used in very different areas such as legal proceedings, personal situations like divorces or parental disputes or hostage situations just to name a few. Negotiation is however a non-

binding process which means that the parties do not have to accept the outcome. There are many ways of organizing the several negotiation techniques. According to Walton & McKersie (1991), negotiation can be classified as distributive or integrative.

In distributive negotiation, one looks at the problem as something that can be divided and distributed by the parties in an attempt to maximize their satisfaction. In integrative negotiation, the problem is expected to have more solutions than the ones visible at first sight. A good example of distributive negotiation can be a divorce process in which the parties sit down to divide the assets. There are a fixed number of items each one with a given value and they will be divided according to concepts like justice or equality. Another well known process of distributive negotiation is the one that goes on between Unions and the managers of companies. In this relation, there are a few scarce resources like wages, daily hours of work and other working conditions. In this process Unions defend the interests of the workers thus trying to maximize the income and working conditions. In the other hand, managers try to maximize the profit of the company. The common point is that the company needs the workers and the workers need the job so it is around that point that the negotiations will take its course. In this type of negotiation, what one part wins, the other looses, i.e., if the workers earn a higher wage, the company will lose that money thus decreasing the profit. In game theory, this situation is known as a zero-sum game. Two important concepts here are the ones of utility and resistance (Bellucci et al., 2004). Utility denotes the value that a given item being negotiated has to a party while resistance denotes the willingness of a party to change the utility of an item. A good negotiator usually tries to convince the other party that certain items do not have the value that they are given. The negotiator will succeed if the opponent has a low resistance in that item and if he does, it will be easier for the negotiator to win that item or he will at least have better conditions for the rest of the negotiation process (Jennings et al., 2001). Accordingly, utility functions can be formalized that help to understand how each party values the items being distributed and possible outcomes and evolution of the negotiation process (Zeleznikow & Bellucci, 2003).

In integrative negotiation, the parties try to bring to the table as much interests as possible so that there are more items and more valuable with which to negotiate. When the parties are increasing the value of what they put in the table, they take into account their interests which include the needs, fears, concerns, and desires. This type of negotiation is also known as interest-based as the parties try to combine their interests and find common points in which both interests are satisfied. By doing so, more satisfactory outcomes are achieved by both parties. This makes integrative negotiation processes more desirable than distributive ones. A good example for illustrating this difference is the following one. Two old ladies have a dispute because of an orange. They both want the last orange that is in the fruiter. If they resolve the dispute using the distributive approach they will split the orange in two equal parts and each one will get half of what they wanted. If, in other hand, they use the integrative approach, each one will state what they want, listen to what the other part wants and try to reach a common point that would satisfy both. In this case, one of the ladies wanted to eat the orange while the other just wanted the peel for making a tea. By doing so, each one gets what they wanted and the outcome is optimum. An important concept in this field is the one of Pareto efficiency (Fudenberg & Tirole, 1983). In this case, the solution obtained with the integrative approach would have been a Pareto efficient solution as no better solution could have been made. This process eventually leads to what is known in game theory as a win-win game, i.e., all the parties are better at the end of the negotiation process than when it started. Although these two approaches when analyzed this way may be understood as opposite, they may be used together as introduced by (Lax & Sebenius, 1986). In fact, even in an integrative approach the items have eventually to be split up. The joint use of these two approaches has however the advantage of creating a relationship of trust between the parts when they are

expanding the values so that when they get to the phase of splitting the items, everyone knows the interests and fears of the others which makes it easier to divide in a fair way and reach a common agreement.

Mediation

Mediation refers to a form of alternative dispute resolution in which the parties in dispute are guided by a 3rd neutral and independent entity which tries to orient the process to an outcome that may satisfy both the parties. In this approach, like in negotiation, the parties decide about the outcome instead of it being imposed by another entity like in litigation, but with the assistance of the neutral part. This neutral part is chosen by both the parties and has no authority for deciding on the outcome of the dispute but only for guide and assist them throughout it. This should be done by maintaining the parties focused on the subject of the dispute and by facilitating all the interaction and communication between them. The mediators are hence very important as their skills and aptitudes may represent the success or failure of the dispute resolution process (Hammond, 2003).
A mediator must therefore be able to communicate and to be understood by both the parties, giving clear instructions to each one. He should provide strategic advices in the correct time with the objective of easing the process without forgetting to maintain its neutrality. For this purpose it is important that the mediator shows different perspectives, recognizes the expectations and frustrations of the parties and react to it, is able of calming down the parties when the discussion gets more exalted and at all time support and encourage them to reach a satisfactory outcome. For all this a mediator must have above all good communication skills so that ideas are correctly passed to the parties. A mediator should not be a cold outsider that simply examines facts and decides upon them since being able of reading the parties feelings about the subjects may be a very important skill for really understanding how important each subject is for the parties (Langer, 2005).
The mediation process, from the mediator perspective, generally has three phases and starts with the claimant presenting a claim to which the respondent answers. The first step for the mediator is to establish contact with both the parties and bring them into reality. In this phase, the mediator must introduce the parties if they do not know each other and expose how the process will take place. After this, the mediator must get to know the problem and understand it in the form of the objects in dispute, the claim and the expectations of each part. It is very important in this phase for the mediator to talk very closely with each part so that the characteristics of the problem and the disputants are correctly understood. In the last phase of the process the mediator must know the rules of the process and define a strategy for reaching the goal based on the observations done in the previous phase. If the mediator understood well the singularities of the problem and the disputants, the strategy should work otherwise, the mediator may adapt its strategy during the process if the goal is not being achieved (Hammond , 2003). It is therefore important that the mediator has the sensibility needed for perceiving how the process is being interpreted by each part in order to make adjustments to the strategy, if needed.
Mediation tools are often preferred by the clients for many reasons. One of the more important one has to do with the price and time consumed during a mediation process when compared with regular litigation processes. Although some mediators will demand a fee, the process will be certainly more money-saving than going into a court and it will also be faster, which translates into advantages for both the parties. The fact that the mediator can be chosen by the parties instead of being appointed also gives them some confidence on the entity chosen and may act as a first concordance point that may start to create a relationship of trust between the parties. Mediation may also offer more privacy than regular courts as it is a

private process that involves only the two disputants and the mediator, leaving out elements like journalists, diminishing the exposure. This way, what happens during the case remains strictly confidential as the only ones that need two know are the three main elements. Furthermore, mediation often reaches better results for the disputants than the results obtained in litigations. This happens because in mediation the parties take an active role in the definition of the outcome while in court a jury decides on the outcome which generally would not satisfy both or even any of the parties. Unlike negotiation, when two parties seek mediation as dispute resolution they are often more willing to achieve a solution. The simple fact of agreeing in a common mediator and giving him authority for conducting the process is a sign of good will and determination in achieving a solution for the common problem. Disputants in this situation usually are more willing to work together than against each other. Hence, mediation is a tool often used in a variety of cases ranging from a mother trying to calm down two brothers that are fighting over a car to conflicts between countries (Zartman, 2007). One of the most recent and known examples is the one of U.S. mediating the Israeli-Palestinian conflict in the Middle East with the objective of achieving a long lasting cease fire (Feste, 1991). It is also important to say that mediation, as well as negotiation is a non-binding process, i.e., the parties do not have to legally accept the outcome.

Arbitration

In arbitration the two parties also use the help of a 3rd independent and neutral entity for solving a dispute but, contrary to mediation, this entity has no active role on helping the parties throughout the process. In this approach the neutral part, the arbitrator, simply hears the parts and, based on the facts presented, takes a decision without influencing the parts during their presentations. The outcome of the process in arbitration is also singular as it may be binding or non-binding (Kohler, 2003). If in a determinate case the outcome is non-binding, arbitration is similar to mediation except for the role of the 3rd party. However, if the decision of the arbitrator is binding, all the parties will have to accept it like they would if it was a court.

As the decision of the 3rd party may be definitive, its role is here even more important than in mediation. Its task can be compared to the tasks of a jury or a judge in a common litigation process in a court. Nevertheless, disputants find some advantages in using this approach. Like with other ADR tools, the costs and the time spent can be significantly smaller than in courts. One factor that definitively contributes to the smaller time spent has to do with the growing number of arbitration services providers. Confidentially may also be granted as these services providers are usually private. In a few words, arbitration may be a low cost trial.

However there are also disadvantages (Moses, 2008). One of the most known is that sometimes people, when buying an item or signing a job contract, do not know that the only way of solving an eventual dispute is through a binding arbitration process without the possibility to go into court, thus being a serious threat to the rights. Situations like these are mostly caused by people not reading the small prints in contracts and terms of agreement. This case is even worst when the persons have to pay for the arbitration service they are "forced" to use. Contrary to courts, the right to an attorney is not always granted so sometimes persons that cannot afford one end up without any legal representative. Another negative point is that there are not many ways for an appeal so that it may not be easy to overturn an erroneous decision, contrary to courts.

ODR

With the moving on to a global society based on computers, new needs appeared in the fields of alternative dispute resolution. This new reality raises some questions and certainly increases the possibilities for any of the parties involved in a dispute resolution process. Technologies can in one hand be used as a simple tool for ODR. In this approach, ODR is much like ADR except the parts are not in contact personally but instead through a mean of communication. We can think on each of the disputants in a different part of the globe, an eventual 3rd one with mediator or arbitrator role in another location, all of them communicating via IM or video conference. Technologies here have no active role, they act only as a facilitator for the process.

In another approach, technologies can be used as a 4th participant that assists the 3rd part or even one of the parties (Rifkin, 2001; Sourdin, 2005). Although still not having here an active role, these tools can assist the parties in taking the right decisions or planning the right strategy. In this field the most important technology are the expert systems. They can provide the parties with knowledge about past cases and their outcomes, about the law or about other aspects. Technologies here can even consist of support decision systems that have the autonomy for guiding or even representing the parts throughout the process. These two types of ODR systems are called 1st and 2nd generation ODR systems, respectively.

Why ODR

ODR is a relatively new approach to dispute resolution since the technologies it builds in are also recent. It has however met a fast growth in its use due to its advantages (Schultz, 2001). ODR tools are generally easy to use. Most of the times, clients interact with intuitive interfaces that hide all the complexity of the laws and formalities behind these processes. This increases the willingness of the parties to solve their disputes online as they feel that it is a more transparent and controlled process. As these systems are available 24/24 the parties can submit documents and evidence and use the services at any time, from any place. By having the possibility to communicate synchronously and asynchronously, these tools can be used by parties to communicate even when the time zones are very different what certainly makes the whole process easier (Katsch & Rifkin, 2001). Evidently, these tools, by being available online, make it possible for the parties to communicate with each other and with the 3rd part from any part of the world. This reduces the costs with transportation and accommodation. Regarding costs, these tools are generally cheaper and faster than common litigation since they are based on cheap and available technologies and avoid all the costs associated to courts (Schultz, 2002).

Another important characteristic is that by being behind an interface instead of being in front of a judge, the environment is less intimidating (Schultz, 2001). In these conditions people tend to be less afraid of talking and being true. At the same time, because the parts are not in contact personally, they tend to be more focused on the subject that on the opponent, more focused on the facts than on the sorrows. There are some extreme cases in which the parts even refuse to sit together at the same table so this is the only possible way of trying to solve the dispute, avoiding any fight or violence. When persons are not in the presence of others that might have a suppressor or inhibitor effect (such as the relations in the cases of domestic violence) they also tend to speak more freely and without the fear of the consequences. Using these tools the parties tend to reflect more and take wiser decisions than when the meetings are personal. This is due to the fact that the parties have more time to think about what they are going to do or say than if they were in the presence of the interlocutors. This is even truer when asynchronous communication mechanisms like forums or E-mail are being used. It is also easier for all the parties to manage and have access the information of the case

since everything is available online all the time. The creation of formal documents is also easier since there may be digital assistants that help the parties through the process or that even create the documents automatically. All the communications are also stored so they can be later analyzed and can even act as evidence for later phases.

Summarizing, ODR tools can be a more accessible, fast, economic and transparent way of solving disputes. However, some points that are considered as advantages may also be disadvantages (Goodman, 2003). If in some cases moving from a paper based process to an online one brings it closer to people, in others that does not happen, namely to population slices that do not have access or that do not have the proper training for using the tools, leading to inequalities. Training can be provided in these cases but the time spent to do it could delay the cases. If it is true that in most of the developed countries technologies used by ODR are cheap and available, in developing countries that is not necessary true and might lead to higher costs than in developed countries. This may also be an inequality and make inhibit some parts to go on or even start the dispute resolution process. In some cases, storing the information online means that there is more security but sometimes it means the opposite. If one part has access to the login information of the other it becomes very easy to access and change confidential information of the other part, it gets even easier than entering into a court and trying to access the paperwork. This raises the problems of online identity: when we communicate with someone online, how can we be sure that it is really with that person that we are talking? How do we know that someone did not steal the login information and is now using it instead?

Another major disadvantage has to do with the online communications. If in one hand one does not feel as intimidated by not speaking in front of a jury or an opponent and may speak truer, it also becomes easier to lie online since there is not the intimidating presence of a judge or an entity with a higher authority. One maybe even more important issue is the one of the body language. Mehrabian (1980) states that most of the meaning that we derive from a face-to-face conversation comes from other aspects than the words spoken, namely the tone of voice, the loudness, the facial expressions and body gestures. Evidently that all this important information in a conversation is lost if technologies like IM, E-mail, forums or others similar are being used. The best approach to follow here would be to use more recent technologies like video conference or TelePresence that are the most similar to a face-to-face conversation. Important here is more how things are said instead of what is said.

Although these disadvantages, ODR has been growing in its users. It is not expected that any of the parties in a dispute resolution process is replaced by intelligent agents in a near future but these tools should be more and more used and its integration will eventually lead to that reality.

How ODR works

An ODR process starts when one of the parties contacts an ODR provider with the intention of starting an online dispute resolution process (Lodder & Zeleznikow, 2005; Peruginelli & Chiti, 2002). This litigant must in this phase provide information about the other or other litigants. The system must therefore contact all the intervenient putting them into contact and determine if they are willing to participate on the dispute resolution process. If all the parties agree, the system moves into the next phase where it tries to gather as much information about the problem as possible.

In this phase, the parties are asked about all the details of the dispute, including eventual monetary values. It is very important in this phase that the system understands how each part feels about each subject and to understand what are the expectations of each one. This is probably the hardest phase for a totally autonomous ODR provider, i.e., without human

intervention. This phase is easier and more efficiently conduced, at this moment, by a Human expert that can more easily understand the emotions of the persons towards each subject covered. The parties are also asked for documents that can act as evidence or facts to the case being solved.

Having done this the system may enter into the 3rd phase where the data collected in the previous phase is analyzed. This is the central phase of the ODR process since it determines the outcome based on previous known cases and their outcomes. The presence of the Human is in this phase also important. However, there are already many implementations of Case-based reasoning models that look into a knowledge base of previous cases and autonomously decide the probable outcome of a case with given characteristics. However, as this is the most important and determinant phase of the process, there is a lot of reluctance in entrusting it to computer systems (Kolodner, 1993).

In the last phase the decision taken is presented to the parties. In this phase the effectiveness of the algorithms and strategies used is studied in terms of the success or failure of the ODR process. This information can later be used for improving the strategies and algorithms for future use. If the process succeeded to satisfy both parties, the case is closed and they should do what they agreed on. If the decision is binding, the parties should do the same even if they do not agree on the outcome. There may still be however the chance to an appeal and the resolution of the dispute in a normal court.

First Generation ODR

First generation ODR systems describe the systems that nowadays are more or less implemented. The main idea of first generation ODR systems is that the Human remains the central piece in the planning and decision making process (Peruginelli & Chiti, 2002). Because of that, human mediators are carefully chosen according to their skills, aptitudes and previous cases that they participated in since they will have a determinant role in the process. Electronic tools are evidently used but are seen as no more than tools, without any autonomy or major role. Their only purpose is to assist the parties and make the management of the information and the communications between them easier. In this first generation the main technologies used are instant messaging, forums, video and phone calls, video conference, mailing lists and more recently VideoPresence. Agent technologies and other autonomous systems may be used but have no active role and no autonomy. These systems are common nowadays and are usually supported by a web page. They represent a first necessary step before a more autonomous role of intelligent systems (Lodder & Zeleznikow, 2005).

The evolution towards second generation ODR systems has been slow because in one hand of the difficulty of implementing into software agents the complex cognitive processes that a Human mediator has and, in other hand, because of the reluctance we humans have against letting computer systems deciding our us. This might even be the main barrier to this evolution as one would be more prone to disagree with an unfavourable outcome if it was decided by a computer system instead of being decided by an expert Human. Due to this, the second generation of ODR systems seems yet a bit far to reach.

Second Generation ODR

The second generation of ODR systems is essentially defined by a more active role of technology (Peruginelli & Chiti, 2002; Lodder & Thiessen, 2003). It is not used for the mere role of putting the parties into contact and making access to information easier. It goes beyond that and is used for idea generation, planning, strategy definition and decision making processes. Humans have here a secondary role whether they are one of the parties in dispute

or they are the neutral. They will be represented by intelligent agents that will have the legal authority and the autonomy for representing the wills and desires of the humans. These agents will try to behave and pursue the same objectives that the humans they represent would. The technologies used in this new generation of ODR systems will comprise not only the communication technologies used nowadays but also many of the AI subfields like neural networks, intelligent agents, case-based reasoning, logical deduction, methods for uncertain reasoning and learning methods.

Although the path to this second generation of ODR is traced and the technologies needed are already more or less known and explored, there is still a long way for reaching it, most likely because of our reluctance to be replaced by computer systems and the consequences of it. It is expected that ODR tools slowly move towards this new generation giving small but solid steps bringing it closer to reality.

Categories of ODR systems

ODR systems can be categorized according to the way they assist the parts in a dispute resolution process (Thiessen & Zeleznikow, 2004):

- Information systems – these kinds of system simply provide information that can be used by the parties to solve the dispute. This information may comprise the laws of a given country towards the subject in dispute, information about all the parties, about the status of the process, among other.
- Blind Bidding – the systems included in this category aim at the automation of simple purely monetary questions. This may include cases such as divorces without children, failed buy or sell operations, among others. The parties make bids without the knowledge of the other part and the system is responsible for deciding when a possible agreement point has been reached.
- Document management – these systems include facilitators working online or offline with parties, providing services for the creation and management of contracts and other structured documents. The clients of these systems tend to be entities with some difficulty in creating documents that need to meet a specific standard or structure.
- Automated Negotiation – These systems rely on advanced optimization algorithms that try to find the optimum solution for complex problems. These systems generally work by asking the user their preferences about the items in dispute, i.e., a quantification of how much they want each item. They can be used in a variety of different cases, ranging from divorces on which people need to agree on who gets what, to unions and managements trying to agree on wages and working conditions for the workers of a given company.
- Customized Systems – these systems are custom systems built for specific purposes or requisites. Some processes have very particular characteristics that are not fit by any system so that specific systems have to be developed.
- Virtual Mediation Rooms – these systems are very similar to traditional mediation except that the meetings take place in virtual rooms using tools such as instant messaging or email. The mediator will try to work out a favourable outcome without meeting the parties, just by means of the communication technologies.
- Arbitration Systems – these systems are equivalent to traditional arbitration services except for the fact that they are provided online. In this approach, human arbitrators work from any point of the world solving cases with the help of communication technologies like E-mail, telephone or instant messaging.

ODR PROJECTS/SITES

In this section we will look at a number of sites of ODR providers for consumers currently available and research projects that through small steps try to improve the current ODR systems, approaching them to what is expected of the second generation systems.

ODR Systems for consumers

- **ADNDRC** – the Asian Domain Name Dispute Resolution Centre is a joint undertaking by the China International Economic and Trade Arbitration Commission (CIETAC), the Hong Kong International Arbitration Centre (HKIAC) and the Korean Internet Address Dispute Resolution Committee (KIDRC) that is credited by the ICANN as a dispute resolution provider.
  http://www.adndrc.org
- **Electronic Courthouse** – this is an American dispute resolution service provider created in 2000 which offers services of mediation, arbitration and evaluation of cases. Evaluation is used when the parties are not aware of the laws and are simply looking for some legal framework, being therefore a non-binding and merely informative process. Customers of this service include employees, unions, professional associations, individuals, sole proprietors, governments, public agencies, businesses and enterprises.
  http://www.electroniccourthouse.com
- **eucon** - Europäisches Institut für Conflict Management e.V., (European Institute for Conflict Management) headquartered in Munich is a non-profit organisation and was formed in October 2006. This company provides mediation services that may be used by customers such as institutions, professional organizations, law firms and corporate business. The eucon site also offers a comprehensive explanation about mediation and its advantages, including a film intended to provide a practical case study showing the advantages of mediation and illustrating how a case proceeds.
  http://www.eucon-institute.com
- **HKIAC** – Hong Kong International Arbitration Centre was established in 1985 to assist disputing parties to solve their disputes. Besides arbitration, parties can chose alternative ways such as negotiation, conciliation, mediation and finally litigation. The company also has a free service for providing information about the alternative dispute resolution methods. The Centre maintains a growing information Services Centre of books and publications which are available for reference to interested members of the public.
  http://www.hkiac.org
- **ICC** – the International Chamber of Commerce is a global business organization whose activities cover a broad spectrum, ranging from arbitration and dispute resolution for open trade and the market economy system, business self-regulation, fighting corruption or combating commercial crime. The arbitration services provided are on increase use, having received cases at a rate of more than 500 a year since 1999.
  http://www.iccwbo.org
- **The Mediation Room** – this company provides a virtual mediation space for parties trying to solve their disputes. Users of TheMediationRoom.com software include The Ministry of Justice (UK), The National Institutes of Health (USA), The Law Council of Australia (Australia), The National Mediation Board (USA), The Commonwealth Telecommunications Organisation, The European Consumer Centres and eBay/PayPal

(Europe and Australia). Each of these entities has very different disputes but the software, by being very dynamic, may be used by all of them.
http://mediation.orcawebsites.com

- **ODRWorld** – the lemma of this company is that "justice is paramount and should be available to all". It therefore provides ODR services for solving any type of dispute, ranging from simple and trivial to higher value ones. Disputes can be solved online and offline through assisted negotiation, mediation and arbitration. ODRWorld focuses on disputes that emerge from the global online activities and defends that these disputes should be solved online. The site includes tools such as a case message board and an online chat.
http://www.odrworld.com

- **Smartsettle** – Smartsettle is an online negotiation system (eNegotiation) that can be described as a generic tool for decision-makers with conflicting objectives that wish to reach a formal agreement. This platform can be used to solve problems relating to family, insurance, real estate, labor-management, contract negotiations, among others. In the site it is possible to find a few simulations that explain and show how the platform works. The Smartsettle suit is organized into SmartsettleOne which deals with simple and single-issue disputes, and the SmartsettleInfinity which deals with complex and multivariate cases.
http://www.smartsettle.com

ODR research projects

In this section we will be looking at a few research projects that are being developed at the moment. Most of the projects analyzed here are maintained by universities and other institutions and focus on particular questions and not on the whole of the problem since only this way can progresses be made.

- **Geneva Law School** - Geneva University has a Research Team on Online Dispute Resolution, Arbitration, and Information Technology. One of the projects developed in this group did research on the fields of Online Dispute Resolution on a first stage and on IT on a second phase. This project was financed by the Swiss National Science Foundation and ended in December 2005. This research group continues to do research on these topics mainly driven by the executive director Dr. Thomas Schultz who did his academic career in the fields of ODR. The results can be seen in many published articles and books such as (Schultz et. al 2001; Schultz, 2006).
http://www.mids.ch/school/university.html

- **Lauterpacht Centre** - The Centre is part of the Faculty of Law in the University of Cambridge and one of the Faculty's specialist law centres. The Centre is the scholarly home of international law at Cambridge University. International law is a major aspect of the Law Faculty's teaching programme at undergraduate, LLM and research level. The Centre's objectives are to promote the development of international law through research and publication, to serve as a forum for the discussion of current events and issues in international law and to provide an intellectual home in Cambridge for scholars of international law from around the world to pursue their research in a stimulating and congenial atmosphere.
http://www.lcil.cam.ac.uk

- **MeRC** - The mission of the McMaster eBusiness Research Centre is to provide leadership and infrastructure support for eBusiness research to academic and industry partners. To accomplish this, MeRC focuses on three main activities: Research, Education and Outreach. There is currently a large number of research projects being

held at MeRC that cover a wide range of disciplines, among them are mobile commerce, identity theft, online trust or online negotiation (Hassanein, 2004; Sproule & Archer 2006; Wang et. al 2004). In these projects better and more secure ways of doing online transactions are investigated as well as the dispute resolution methods to apply when these fail. This research project is based in Ontario, Canada at MacMaster University.
http://www.merc-mcmaster.ca

- **Victoria University** – the Victoria University's Faculty of Law develops research in the areas of business and law with special focus on ODR procedures, namely in the work of Prof. John Zeleznikow who is responsible for the Family_Winner project (Zeleznikow & Bellucci, 2003). Some key areas of research include developing software tools to support negotiated decision making, building ethical standards into corporate governance, assessing the economic impacts of climate change, studying the impact of WorkChoices legislation on Victorian workers or analysing the social impact of tourism.
http://www.businessandlaw.vu.edu.au/index.asp

- **National Center for Technology and Dispute Resolution** – this center is located at the University of Massachusetts at Amherst and provides an interdisciplinary approach to the study of law and society. Research efforts of faculty have included the impact of new information technologies on law, alternative dispute resolution, law and multinational corporations, law and popular culture, law and education, law and indigenous peoples, the legal profession, and law and education (Katsh, 1995, 1999). The Department organizes a clinical project in conjunction with the Massachusetts Fair Housing Center (MFHC) and it also sponsors the National Center for Technology and Dispute Resolution. One of the main figures behind ODR investigation in this university is professor Ethan Katsh who besides being professor of legal studies in this university is also Director of the National Center for Technology and Dispute Resolution.
http://www.odr.info

- **Minho University** - the CCTC (Computer Science and Technology Center) research centre develops research in the areas of Computer Science and the Law with special focus on ODR procedures, namely in with TIARAC (Telematics and Artificial Intelligence in Alternative Conflict Resolution) research project. The key areas of research include the consideration of possibilities for solving disputes through telematics, having in consideration both Portuguese and European legal frameworks and also considering alternatives for dispute resolution arising from Artificial Intelligence models and techniques, applied to civil and labour Law.
http://cctc.di.uminho.pt/

FUTURE OF ODR

The future of ODR is somehow uncertain. The path to follow is clear and the desirable behaviour of future ODR systems is already defined: second generation ODR (Peruginelli & Chiti, 2002). The question however is more if we really want that this generation to become a reality. This is the same to say: do we want that software agents play a major role, deciding on our lives and on the outcome of our disputes? Should they be granted a more important role than mere electronic tools that make our life easier? Should they be given authority similar to the one of a judge in a court?

All these questions are evidently very problematic and controversy. One of the main questions is about how much can we trust on the decisions of automated software agents. Evidently, one

can state that the degree of confidence that one may have on software agents is proportional to the confidence of the developer that wrote those agents. That may be truth until a certain point. But, when we are talking about intelligent agents that may develop its own behaviours, its own will, how can we control them? How can we be sure that they do not develop unwanted behaviours? Human mediators may also develop unwanted behaviours but, although this may sound strange, it is more acceptable for us if a human takes a wrong or unfair decision than if it is a computer doing so. In the case that a computer shows this behaviour, the damaged parts would without any doubt appeal with more conviction than if it happened with a human mediator. This happens because we respect more the human than the computer, which is natural, but may be a barrier for the acceptation of these systems.

It is indeed a very big step to give an agent autonomy and legal representation powers so that it may replace us in disputes. Agents will have autonomy for deciding about the best strategies to use, will be able of changing strategies by analyzing previous cases, will consult expert systems in order to collect knowledge and will take their own decisions (Jennings et.al., 2001). As problematic as representing us is an agent acting as the 3rd part since in some cases, it may decide on the outcome of the parties which gives him the major role on the process.

The case that won't be so problematic is on autonomous agents with mediator roles. The mediator does not have a preponderant role on the process, it acts merely as an intermediary and facilitator, therefore having no power on the decision of the outcome. Agents may make its way into ODR processes by automating mediation. The first tasks may be to arrange dates for conversations and to ask for documents and managing, moving then to higher level tasks like mediating conversations and generating ideas and strategies for solving the disputes. Having succeeded here, agents may start to have more and more important roles being even trusted to arbitrate cases.

CONCLUSION

The use of telematics in electronic commerce will inevitably lead to conflicts arising in virtual locations and new tools for dispute resolution will be required. The use of such tools will certainly have parties being faced with new challenges, some clear advantages but also some disadvantages. The ways of solving disputes online will necessarily become different from what happens in traditional dispute resolution. Even the so-called power imbalances may become very different "from what they would be if the parties were interacting offline" (Rifkin, 2001).

Some clear advantages and disadvantages may easily be pointed out: cost savings and convenience, on one side, but also impersonality and potential inaccessibility on the other (Goodman, 2003). Face to face contact, the spoken words, voice tone and body language will tend to be replaced by written words and computer screen dimensions. Speed and ease of communication may be a clear advantage, although online messages can also become easily ambiguous or misinterpreted. Of course, time and money can be a relevant factor in the moment of choosing ODR specially in order to solve disputes between parties geographically located very far away from each other. But difficulties related to accessing technologies or even software disparities must be considered.

An interesting advantage, specially in online mediation, is the possibility of private meetings and caucusing, at the same time with both parties. Interestingly, parties will tend to feel calmer, more confident, less intimidated in online dispute resolution (Hammond, 2003). The use not only of synchronous but also asynchronous communication will offer parties alternatives leading to a reduction of impulsive replies, although paradoxically it may also be stated the appearance of an electronic distance on the parties . And all the parties involved in

online dispute will have to be confronted with the need to interact with a very special and different kind of partner: the technological elements will always have to be considered (Katsch & Rifkin, 2001).

Acknowledgements

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