

Introduction

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The significant expansion of digital technologies over recent years has rendered them ubiquitous. They have been integrated into numerous domains throughout society, and the justice sector is no exception. This incorporation of modern technologies into the justice system has led to the emergence of a new and innovative field referred to as cyberjustice. This term encompasses both the integration of information and communication technologies into judicial and extrajudicial dispute resolution processes and the digital networking of all stakeholders involved in judicial cases. Conceived in this manner, the primary aim of cyberjustice is to use modern technologies to aid in the administration of justice such as to allow for the conceptualization of a more efficient method of achieving justice for litigants, thus ultimately reducing the abounding access to justice issues with which the legal system is plagued.

In this light, we will begin by (1) presenting the *Towards Cyberjustice* project, which was created in the hopes of achieving this very purpose and upon which this book is based. We will then proceed by (2) outlining the main research perspectives that underlie the research conducted in association with this project. Finally, we will conclude by (3) offering insight on what lies ahead in terms of the development of cyberjustice.

Towards Cyberjustice: A Multidisciplinary Research Project

In an effort to advance toward achieving this goal, the Cyberjustice Laboratory, supported by a multidisciplinary group of 36 international researchers and funded by the Social Sciences and Humanities Research Council, launched a 7-year research project in 2011: *Towards Cyberjustice*.¹ The project's main hypothesis was that information and communication technologies could significantly contribute to improving traditional legal processes as well as entirely modifying the conventional structure of trials. In this light, the research conducted was aimed at identifying and developing concrete solutions that could optimize traditional legal processes and ultimately enhance the administration of justice as a whole, such that efficiency would be increased, costs and delays would be reduced, and mechanisms would be simplified.

While many attempts have been made toward achieving this goal throughout the legal world, as will be discussed in more detail below, the project's novelty and success lies in two unique factors. To begin with, it conducts socio-legal studies regarding both the impacts of technology on law and the identification of rituals and practices that hinder the networking of the justice system. Additionally, through techno-legal studies funded mainly by the *Canadian Foundation for Innovation*, it simultaneously develops open-source software solutions that are adapted to judicial and extrajudicial contexts and can be tailored to the varying needs of each individual justice system. This cross-fertilization of socio-legal and techno-legal studies not only allows for the development of technological tools tailored to the justice system, but also makes it possible to substantially re-examine the judicial process in a manner that is primarily designed to improve access to justice.

These various studies that emerged from the *Towards Cyberjustice* project were conducted by an elaborate team of international researchers from twenty universities worldwide, separated into three working groups, each of which was dedicated to examining a differing and particular aspect of the research in question. The first working group, whose research will be discussed in further detail in the first part of this collection, considered (a) the digitalization of justice and its interaction with the values inherent in the justice system. The second working group, whose aim was

to identify (b) the limits of digitalization, will be examined in the second part of the collection through an in-depth analysis of both courtroom interactions and self-empowerment. Finally, the third working group was dedicated to (c) identifying new procedural models, which will be considered in detail in the third and final part of the collection.

Digitalization of Justice

The objective of the first working group was to identify the manner in which the digitalization of justice can increase the efficiency of the legal system and facilitate access to judicial processes. The main hypothesis and departure point was therefore that access to justice could be improved by implementing concrete technological tools such as electronic filing, electronic case-management systems as well as the management of a paperless system, and finally, technological courtroom management, which includes the use of videoconferencing for remote testimony.

In this vein, and as discussed in more depth in the first two chapters of the first part, penned by Renaud Beauchard and Giampiero Lupo, respectively, the various technologies used for cyberjustice purposes throughout several jurisdictions worldwide, as well as the manner in which they are used by all the stakeholders involved, were researched and reported. By making an inventory of the cyberjustice initiatives that had already been conducted by other actors in the legal world, it was possible for this working group to assess the impact that technology has had on both trials and interactions between parties. By placing a heavy focus on the conditions under which technology was introduced into these justice systems, this in turn made it possible to develop technological solutions that were perfectly tailored to the needs of the legal system. These solutions were further improved upon by consulting with all the stakeholders involved. By providing these individuals with an active role in the technological modernization of the justice system, it was possible to ensure that the technologies developed for their benefit truly target their needs, such that they will ultimately use them. Essentially, therein lies the key: technologies allowing for the digitalization of justice already exist in abundance, but it is their adoption by the relevant stakeholders that has remained elusive.

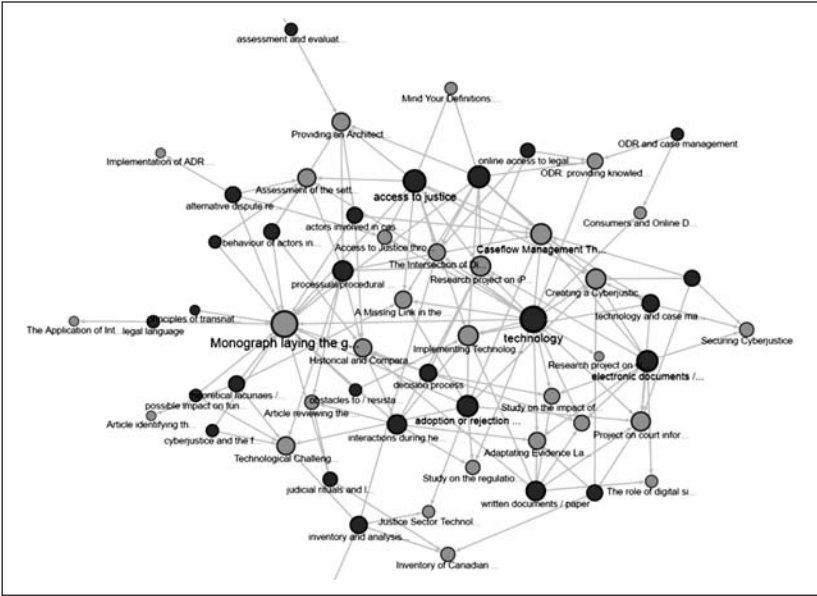


Figure 1: Network map connecting keywords to cyberjustice projects.

Source: <http://mapping.cyberjustice.ca>.

The ultimate adoption of said technologies by the stakeholders involved, however, is not the only concept upon which the digitalization of justice may be conceived. As Jane Bailey so eloquently puts it in her introduction to the first part of this collection, “technological innovation in the justice sector should not simply be technology for technology’s sake. Instead, it is essential to understand how a technology may facilitate or affect the fundamental values underlying the justice system, values that are essential to access to justice as well.” To this effect, two such values, namely the right to information about court proceedings and the right to privacy, are therefore examined by Graham Reynolds and Nicolas Vermeys, respectively, in the final two chapters of the first part. As such, the first component of this collection and the research conducted by the first working group provide a very well-rounded view, not only of all that is involved in the digitalization of court proceedings, but also as regards the consideration that must be paid to crucial fundamental rights when attempting to make such a significant transition.

Limits of Digitalization

The second working group focused on identifying the constraints and limits that may prevent the digitalization of justice, such as the traditions, practices and rituals of the judiciary. Beginning as early as the late 1990s, numerous large-scale digitalization of justice initiatives have been launched. Unfortunately, however, these attempts have often failed² as a result of their top-down approach, involving a complete overhaul of the system through the implementation of modern technologies characterized by high initial investments in technology and excessive ambition.

What has led to the lack of success of such initiatives is the level of complexity of the newly developed systems,³ which the main stakeholders are often not willing to learn in a timely fashion and demonstrate an outright resistance to adopt.⁴ Research has illustrated that this opposition tends to stem from psychological, social, cultural and political factors, representing the main limits to the modernization and computerization of justice. The second working group therefore recognized that it was only by studying and understanding the impact of these various elements on the stakeholders, through their interpersonal interactions within the hearing room, that it would be possible to surpass the barriers with which the digitalization of justice has been confronted and ultimately offer technological solutions regarding the legal system that would truly respond to the needs of all the stakeholders involved.

In this vein, the second working group adopted an innovative approach through which they worked in close collaboration with both state actors and professional organizations, such as ministries of justice and bar associations, in order to re-think the judicial process in a manner that would welcome the integration of information technologies while ultimately improving access to justice. By involving the different stakeholders and partners from the very beginning of the process, and by requesting their active participation at every step of technological implementation, it was possible to ensure that their needs were both adequately assessed and met in the most optimal of manners.

The adoption of this approach not only anchored the development process in the needs of all the stakeholders in question, but their involvement at every step of the way has also served to empower

litigants such that they will exhibit less resistance to technological changes in the judicial process, and will ultimately welcome legal reforms. This perspective is examined at length in the second part of the collection, entitled Courtroom Interactions and Self-Empowerment, by “prob[ing] the reality and consequences of implementing technologies in the court system, discussing in the process a wide range of court technologies including online court information systems, e-filing, videoconferences, and technologies for evidence presentation and review.” In her introduction to this second part, however, Jacquelyn Burkell outlines a single and important message that is echoed by each of the chapters it contains, namely, that care must be taken when attempting to improve both the legal system and access to justice as “[w]e cannot assume that there is a necessary and necessarily positive relationship between court technologies and access to justice: instead, we should proceed with cautious rather than unbridled optimism to ensure that technologies are implemented in such a way as to achieve the positive outcomes that we envision.”

This often entails constant involvement from the stakeholders in the legal system, as discussed above, and demonstrated by Justice Horowitz in his chapter, which recounts his own experiences with the digitalization of the justice system. In a similar vein, Sherry MacLennan’s chapter addresses the implementation of British Columbia’s online legal information system and the manner in which collaboration with stakeholders led to an empowerment of the litigants in question. The following chapter, by Amy Salyzyn, takes a different and refreshing perspective on empowerment. Essentially, rather than discussing the manner in which technology should be incorporated into the judiciary in such a manner so as to empower the stakeholders involved, she outlines how the inevitability of the adoption of courtroom technologies imposes an ethical responsibility on the actors in the justice system to comprehend the technologies, as well as their impact, so that they may better represent their clients. The final chapter of this part, presented by David Tait and Meredith Rossner, further elaborates on the need to understand the manner in which technology impacts the administration of justice by presenting the results of a study regarding the manner in which the use of tablets for evidence presentation affects jury deliberation and, ultimately, the fairness of trials.

As is evidenced by the diversity of subjects examined in the second part of this collection, the second working group has

identified and studied numerous limitations to the digitalization of justice and attempted to overcome them through constant collaboration with all the stakeholders involved, including those individuals that the legal system is meant to benefit. In so doing, they have adapted their scientific work based on feedback from partners such that they can offer a more targeted support and ultimately induce change in the legal system, in the hope of simultaneously improving access to justice.

New Procedural Models

The third working group's objective was to rethink judicial and extrajudicial practices by developing new procedural models based on the integration of information and communications technologies, all the while ensuring that this profound change will properly respect fundamental rights and freedoms. This working group's journey toward effecting change through technology in the legal system is illustrated in the third part of the collection, which provides a more exhaustive examination of "the adoption of new technology [in such a manner] that would lead us to achieving cost- and time-effective justice delivery, the course that would lead us to the Holy Grail of access to justice." From this perspective, the chapters of both Xandra Kramer and Katia Balbino de Carvalho Ferreira discuss the ability to improve access to justice through the implementation of technology by examining the specific experiences of the European and Brazilian judicial systems, respectively.

However, in order to trigger the technological change that would lead to better access to justice, the third working group had to first observe "the practices, norms, and assumptions of justice delivery [which] proved more resistant to change than most had anticipated." This aspect is therefore analyzed in more depth in the contributions of Pierre Noreau and Daniel Weinstock, with Noreau "[inviting] us to reflect upon the broader and deeper reasons for resistance to change in highly institutionalized settings" and Weinstock discussing the tension between opposing values that often make them difficult to balance and create obstacles to effecting change in the justice sector. In contradistinction to these chapters, however, the contribution of Clément Camion reminds us of the possible negative consequences of rendering justice *too* accessible, and in so doing provides further insight into the requisite balance that must be ensured when adopting new procedural models.

The third part of this collection therefore presents a comprehensive view of the deep reflection that had to be conducted by the third working group, a reflection which led them to recognize that in order for cyberjustice to have its desired effects not only must the rules of evidence and procedure be reformed to allow for digitalization, but a new work culture in the judiciary must be implemented. By working from this stance, research in the cyberjustice arena supported a successful implementing of concrete change in Quebec's legal system, as embodied by the new *Code of Civil Procedure*,⁵ which encourages the use of technology whenever possible:

In applying this Code, appropriate technological means that are available to both the parties and the court should be used whenever possible, taking into account the technological environment in place to support the business of the courts.

The court, even on its own initiative, may use such means or order that such means be used by the parties, including for case management purposes; if it considers it necessary, the court may also, despite an agreement between the parties, require a person to appear in person at a hearing, a conference or an examination.⁶ (Emphasis added)

This modification represents a truly important shift in judicial mentality and is a definite step forward toward rethinking procedural law and correspondingly improving access to justice. In an effort to give full effect to these new procedural changes, the third working group ultimately took it upon themselves to suggest ways of improving access to justice, namely by re-structuring the judiciary through the use of online dispute resolution. Their research in this respect has emerged as an entirely new concentration of study and now essentially constitutes one of the main research perspectives of the Cyberjustice Laboratory, as will be discussed in further detail in the next section.

Main Research Perspectives

In order to truly appreciate the complexities of the research performed by the *Towards Cyberjustice* team, as presented in the three parts of this collection, it is crucial to keep in mind the perspectives that underlie their work. As has been mentioned on several occasions

throughout this introduction, (a) improving access to justice has become a main focal point of each of the working groups of the *Towards Cyberjustice* project. In an attempt to identify new and technologically enhanced procedural models that could achieve this purpose, the third working group suggested (b) re-structuring the judiciary through the use of online dispute resolution, which ultimately emerged as a new concentration of study for the Cyberjustice Laboratory. Both of these perspectives will be discussed in further detail heretofore.

Improving Access to Justice

Access to justice is an issue that has long been plaguing court systems. According to recent figures, only 17% of Quebecers believe that all can afford to go to court,⁷ whereas a mere 18% are of the opinion that the deadlines associated with the courts are reasonable.⁸ In Canada, the situation is similar, where “approximately 65% of the population is uncertain about what rights are available, do not know how to handle legal problems, is afraid, thinks that nothing can be done, or thinks that it will cost too much money or take too much time.”⁹ What is further striking about these numbers is that they do not solely encompass individuals with fewer resources, but rather also include educated individuals who possess the means to afford a lawyer but prefer to resort to self-representation.

In light of this worrying reality, improving access to justice has become a central preoccupation in the legal world. With new advances in technology, however, it quickly became apparent that new technologies could be of assistance in solving this problem. As such, and as is evident throughout the chapters of this book, the use of technology with the specific aim of improving access to justice has become a common thread and guiding principle of cyberjustice research.

In this light, the *Towards Cyberjustice* project researched several aspects of the legal system that could affect access to justice and which the use of modern technologies may remedy. As discussed in further detail above, project researchers analyzed legal rituals as well as evidentiary and procedural rules in an effort to entirely rethink the legal process such that it would more successfully welcome new technological solutions that would decrease both costs and delays, and thus ultimately improve access to justice.

Improving access to justice by reducing the costs and delays of procedures through the use of technology is not, however, the sole

focus of this research. Indeed, cyberjustice research aimed toward improving access to justice has significantly contributed to promoting the idea that independence and security of the justice system can happily coexist with both openness and a new collaborative culture within the judicial system. In effect, this general idea maintains that using information technology to improve access to justice requires that justice be redefined as a “space of open interactions.” The ultimate goal is essentially to change the social ties and dynamics between the various actors of the legal field, such that this will eventually trigger a democratization of the justice system as a whole and ultimately increase access to justice by improving litigants’ overall impression of the justice system as well as their sense of empowerment, as examined in further detail in Part II of this book.

One of the significant ideas that emerged from approaching the issue of cyberjustice through the lens of access to justice was to understand and adapt legal rituals to promote the amicable settlement of disputes, mainly so as to ease congestion of the court system. In this respect, it was believed that by enhancing the willingness of parties to participate in remote exchanges, as well as by increasing accessibility in terms of costs and availability, the promotion of out-of-court amicable settlements through the use of modern technologies would increase access to justice while simultaneously reducing costs and delays within the justice system. This ultimately led to a new angle of research for the Cyberjustice Laboratory, revolving mainly around online dispute resolution and alternative dispute resolution, as will be discussed further in the next section.

Online Dispute Resolution and Alternative Dispute Resolution

One of the most noteworthy recent research directions taken in the field of cyberjustice has revolved around the idea that disputes can be settled outside the courthouse through alternative dispute resolutions, whose focus on collaboration and participation can often be a better option for litigants as they may benefit from proceedings that are less adversarial in nature. This represents a significant shift in mentality toward a participatory justice perspective that will necessarily involve establishing a new work culture within the justice system. Essentially, advocating for alternative dispute resolution and a stronger role for the extra-judiciary in an effort to bring litigants closer to the justice system will require redefining the roles of all the main actors involved and the dynamics of their relationships. This

need to redefine elements that have been part of the fabric of the legal system for so long can cause hesitations and expectations on the part of legal professionals, which must be thoroughly addressed if a system of alternative dispute resolutions is to be properly implemented.

With these considerations in mind, as well as the ultimate goal of increasing access to justice, the Cyberjustice Laboratory has been examining the idea of re-structuring the judiciary through the use of a branch of alternative dispute resolution, known as online dispute resolution (ODR) in an attempt to reduce caseloads. ODR refers to the use of alternative dispute resolution (negotiation, mediation, arbitration) generally conducted by a neutral third party but in a dematerialized context.¹⁰ The specific angle of research adopted in this respect was the use of online mediation to settle low-intensity disputes, such as consumer disputes or small claims, which originated on the Internet.¹¹

This particular approach to the use of ODR brought to the fore the growing interest of the private technology sector in this form of dispute resolution, which is constantly privatizing ODR mechanisms and associated software development. Essentially, this move on the part of the technology sector demonstrates that cyberspace is well adapted to being regulated by norms developed by non-state stakeholders.¹²

At the same time, however, this phenomenon raises questions regarding the foundations of the justice system. Are we comfortable with the idea of having an entire sector of dispute resolution controlled by the private sector without any oversight from the public sector? Perhaps the best option lies in having privately developed solutions but with the final decision being supervised by the judiciary? Or perhaps it might still be better to simply have a publicly developed and managed ODR mechanism?

While all these questions may seem to suggest that a choice need be made between dispute resolution regulated by the private sector as opposed to having it regulated by the public sector, this is not necessarily the case. Essentially, having ODR mechanisms that are managed by the private sector does not inevitably exclude the state's contribution. Instead the state may seem of the utmost importance in ensuring the real deployment of the principle of ODR, without necessarily needing to control the process itself. In this light, successful implementation of ODR as a means of increasing access to justice was deemed to depend on state action.

With this in mind, there were three possible situations that needed to be studied.¹³ To begin with, an ODR system could be developed to meet the needs of businesses engaging in B2B (business to business) commerce, which would thus involve mediation and arbitration of disputes between two companies. A long tradition dating back to the Middle Ages (*lex mercatoria*) recognizes that merchants have the capacity to resolve their disputes among themselves, without state intervention. In this case, the development and operation of an ODR system would depend on the players themselves. In such cases, the state's role is minimal.¹⁴

Another possible situation that needed to be studied is reminiscent of the dispute resolution process imposed by eBay, the leading online auction site. This case entails the purchase and sale of products by both consumers and merchants, requiring that any dispute-resolution system adopted would have to address the needs of both C2C (consumer to consumer) and B2C (business to consumer) commerce as well as B2B commerce. The case of eBay, however, involves a closed community that buys and sells products and services (well-defined actions) and that has developed its own rules of operation:¹⁵ to buy or sell on eBay, the user has no choice but to obey the rules.¹⁶ As such, this case does not require the intervention of the state with respect to processing disputes or operating their ODR system.

The third and final situation that needed to be examined was that of an ODR system for the general public. This would therefore not involve any specific group of individuals, such as merchants, or a closed community in which compliance with the rules is a membership requirement. Rather, this would involve both domestic and foreign users who use the Internet in their everyday lives. Although research regarding this form of ODR began with a focus on settling low-intensity disputes that originated on the Internet, as research progressed it quickly became apparent that online mediation was just as suited to resolving similar disputes that arise in the physical world as well.

With this enlarged scope of the application of ODR to regular citizens, it was then necessary to reflect upon the manner in which to implement such a system successfully. To this effect, it was questioned as to whether state intervention might be necessary to achieve this goal. Indeed, who other than the state¹⁷ possesses the financial power required to back such a system (from design to implementation

and operation) while simultaneously ensuring the level of consumer protection required for the maintenance of public order throughout both the European Union and Quebec? When viewed from this angle, it becomes clear that enabling the introduction of ODR mechanisms for managing and resolving small claims becomes the responsibility of the state.¹⁸

What is consistent throughout all of the situations described above is that ODR systems are necessary when norms for the regulation of electronic commerce are being developed. It is rather the state's involvement in the system that will vary depending on the situation. That having been said, it is crucial to note that Quebec's new *Code of Civil Procedure*, which came into force in January 2016, places a strong emphasis on the use of private dispute resolution processes.¹⁹ If the past is any indication of the future, this new development may very well enhance the capacity of private actors to conceptualize, develop, and eventually export new norms in the continuously growing field of online consumer dispute resolution.²⁰

A New Way Forward

The domain of cyberjustice is constantly evolving and holds much that is promising for the years ahead. To provide a glimpse into what the future of cyberjustice holds, we will (a) discuss which developments might be expected that will further empower litigants, and (b) outline recently emerging research in the domain of computational law as it pertains to cyberjustice.

Empowering Litigants

The phenomenon of self-representation is slowly becoming a structural element of judicial practice. As previously mentioned, Canada is faced with access to justice problems resulting from the significant delays and complexities inherent in judicial procedures and accentuated by the considerable costs associated with the process.²¹ According to a recent report of the Action Committee on Access to Justice in Civil and Family Matters, up to 50% of litigants are aiming to represent themselves, without any consultation with a lawyer.²² The reasons that motivate these litigants to act without legal representation when dealing with the court system are varied and are not necessarily due to a lack of financial resources,²³ but may be due to their lack of trust in the justice system.²⁴

Whatever the reasons may be, however, the future of access to justice research will necessarily include a component that revolves around the empowerment of litigants, as addressed in the second part of this book. Future research in cyberjustice will thus be aimed toward achieving this purpose and will essentially be based on a reflection surrounding both judicial representation and the expectations of the users of the judicial system. In this light, while it is important to develop solutions for improving access to justice that are not solely limited to socio-economic criteria, it will also prove crucial to provide self-represented litigants with the proper tools to educate and guide them throughout their experiences with the justice system.

Additionally, it will be essential to evaluate any interrelation between the low level of confidence exhibited by litigants in justice systems as opposed to their views on other social transformations, such as the use of digital technologies in their everyday lives. This initial reflection will then need to be deepened so as to examine which new expectations will emerge for self-represented litigants as a result of the incorporation of technology into the justice system, expectations which will largely be shaped by the daily experiences of these individuals as well as their dialogical interactions with technological devices.²⁵

Essentially, with the growing number of technological tools that are being used by public institutions to interact with citizens so as to give the fullest effect to the principle of direct democracy, the manner in which these tools are offered will have to properly address citizens' needs. This is especially so if the goal of the implementation of such tools is to be achieved, which is to allow citizens the independence²⁶ to develop their own strategies and standards of interactions with technologies (such as to skim through certain pages or choose to focus more on certain pieces of information that were deemed irrelevant by search engines, etc.). The use of technology to provide citizens with services in the justice sector can likewise be used to ensure a similar level of user autonomy and will, it is hoped, also improve access to justice and thus change the public perception of the justice system.

It is at this juncture that new non-judicial forms of dispute resolution, such as ODR, will come into play. These dispute resolution mechanisms can be combined with technological tools to provide citizens with renewed interactions that answer their needs, and ultimately empower them within the justice system by providing them

with a sense of ownership and control over the system while also respecting the needs and values of the individuals that it affects. In this respect, future research with respect to the empowerment of litigants will likely revolve around the fundamental role that this appropriation will take toward the empowerment of individuals, inasmuch as it would change the nature and impetus of their interactions with the justice system.

Computational Law

In recent years, a new field of research emerged that attracted the attention of cyberjustice scholars: computational law and artificial intelligence. Essentially, what is intriguing about this field is the plethora of possibilities that artificial intelligence and algorithms might provide toward helping stakeholders in the decision-making process as well as in the field of legal research. Even at its infancy, it is clear that the use of artificial intelligence in the legal field will likely trigger transformations that will allow for a faster, less costly and more predictable judicial process,²⁷ while also enabling its use as a tool for public administrative services. In this vein, by associating artificial intelligence with computational law, it may be possible to improve legal and administrative services by providing tools that can fully adapt to each litigant and offer individuals targeted legal advice based on their level of digital education, the specific context of their legal research, and their specific needs.

While the benefits presented by the use of algorithms and artificial intelligence in computational law may be significant, this form of technology raises some ethical questions with regards to fundamental rights that will need to be addressed should it be properly integrated into the legal system. We are essentially at a point “at which the law and technology can be said to collide as there are a vast array of implications which arise as technology is threatening to cross the divide from being a passive tool to taking an active part in legal deliberations.”²⁸ The implications of using such technologies, which are mostly of an ethical nature, will therefore need to be thoroughly examined in order to assess the risks of using artificial intelligence for the administration of justice.

In light of this new direction of research in the domain of cyberjustice, the Cyberjustice Laboratory’s scientific program remains closely linked to technical advances aimed at facilitating *networking between the various stakeholders within the justice system*. Since 2010, the

convergence of increased Internet access, the maturing of web technologies that allow for greater communication and wider exchange of data between Internet applications, as well as a wider usage of smart devices (computers, phones, tablets, etc.) have provided new motives for accessing justice and its administration. This new reality has therefore been harnessed by the research performed by the Cyberjustice Laboratory in several of its projects undertaken to date.

Research Projects Undertaken to Date:

- Research on amicable conflict settlement (online negotiation, mediation, or arbitration)
- Research on the digital administration of justice (electronic registry, e-filing, digital serving of decisions, etc.)
- Research on digital audiences (electronic presentation of evidence, remote testimony, etc.)

Cloud Computing: The advent of cloud computing represents a significant increase in the capacity to store, process, and communicate data at a decreased cost. While this may greatly benefit the administration of justice, whose costs with respect to information management are not inconsiderable, turning to the cloud is not without risks. For example, judicial data hosted in or transiting through the cloud may be difficult to control and protect, a concern which has already been expressed by the Supreme Court of Canada²⁹ in its refusal to allow Shared Services Canada to manage its computer services on the basis that doing so would jeopardize the court's judicial and administrative independence. On the contrary, American federal tribunals did not hesitate to adopt cloud-computing solutions so as to improve the management of their court records, but they did so by obtaining their own private system, called PACER. These misgivings, which are shared by a large part of the judicial community, have the potential to slow down or even stop the successful adoption of judicial cloud computing. As a result, it is important to further study the manner in which cloud computing can benefit our legal system, a task which the Cyberjustice Laboratory's team has taken upon itself.

Research Projects Undertaken to Date:

- Research on the usage of cloud computing in the justice system

- Research on best practices in cloud computing while adhering to the relevant legal framework and the justice system's basic principles.

Artificial Intelligence: The age of “big data,” defined by the massive creation of computer data, brings to the fore new opportunities for scientific research, technological development, service providing, and product manufacturing. Provided we can make sense of those large data sets, it will be possible to design new, more-or-less autonomous decision-making tools. Using the combined power of automatic machine learning and operation research (meaning the science of optimizing the decision-making process), the first practical applications for artificial intelligence in the field of natural language or image analysis are preambles to those transformations which might occur in the fields of law and justice. Should we come to master those tools and obtain a sufficient quantity of exploitable data, meaning data labelled in a way that can be analyzed by a machine, legal and judicial sciences may have to thoroughly readjust their modes of operation. This phenomenon is currently being analyzed by (1) the computational law division, which is studying digital tools to aid in legal decision-making. Ultimately, this research could bring about (2) the concept of computational justice, which examines the creation of autonomous, automated decision-making tools for the justice system.

1. *Research on Computational Law*

Tools designed to help in the legal decision-making process have existed for several years. They consist mainly of algorithms that have been developed with the ability to reproduce some elements of legal reasoning. Although it remains difficult to ascribe mathematical logic to the process, significant progress has been made in various areas, such as the analysis of natural language, which helps improve interactions between man and machine, the refinement of expert systems that aid in the decision-making process, and the gathering of data. However, these advances remain in the field of so-called Soft AI for the time being. At this point, the Laboratory's research projects will concentrate on their possible applications to help in the decision-making process for the community of legal experts and the various users of legal services, and will be created using legal data that is already available and exploitable (such as through data compiled by various legal information institutes like CanLII). In their wake, and

in order to set the scene for an advanced phase of research on automated learning, also called Deep Learning, researchers at the Laboratory will develop a methodology to collect and label legal data (including court records, evidence, etc.) so as to eventually make them easier to gather in order to improve our legal system.

Planned Research Projects:

- Research on the development of expert systems to help in legal decisions based on analyzing and processing problem descriptions prepared in natural language:
 - Accessing legal information
 - Selecting a competent instance
 - Preparing legal documents
- Research on the development of predictive systems to help in legal decision-making:
 - Predicting the prospects of success of a legal action
 - Suggesting negotiated solutions
 - Evaluating evidence acceptability
 - Evaluating damages
- Research on labelling methods for legal data in preparation of their future gathering in order to render them useful for the development of legal and judicial sciences:
 - Methodology for gathering judicial data
 - Methodology for labelling judicial data

2. *Research on Computational Justice*

Should they be able to model judicial reasoning in whole or in part and to automate the decision-making process for some court judgments, new developments in the field of computational law might come to fruition. Before then, inasmuch as it may be accessible or desirable, there is a short-term possibility to automate the decision-making process in some well-defined instances (social benefits, opposition to certain rules, homologation of mediation agreements, homologation of proceedings agreement, etc.). The following is a short list of the planned research projects in this sector:

Planned Research Projects:

- Research on the development of automated decision-making processes:
 - Opposition to various social benefits (unemployment insurance, etc.)

- Opposition to various infractions and rules
- Homologation of a mediation agreement
- Homologation of a proceedings agreement

Projects conducted so far by the research program *Towards Cyberjustice* and future projects have the ability to transform our understanding of the judicial process. We must however be wary of any techno-utopianism. The objective is to pursue opportunities and at the same time be aware of the limits of technology. Justice demands at least that.

Notes

- 1 "The Project – Rethinking Processual Law: Towards Cyberjustice," online: Laboratoire de cyberjustice <www.cyberjustice.ca/en/projets/vers-la-cyberjustice/>.
- 2 See, e.g., the *Integrated Justice Project*. This project was launched in 1996 by the Ministry of the Attorney General and the Ministry of Public Safety and Security of Ontario. "The objective of the Project was to improve the information flow in the justice system by streamlining existing processes and replacing older computer systems and paper-based information exchanges with new, compatible systems and technologies." Office of the Provincial Auditor of Ontario, "Integrated Justice Project," 2003 Annual Report, at 283, online: <www.auditor.on.ca/en/content/annualreports/arreports/en01/303en01.pdf>.
- 3 Karim Benyekhlef and Nicolas Vermeys, "Best Practices in the Field of Cyberjustice," in *Seminar on Recent Trends and Good Practices in the Application of Electronic Technology to Judicial Processes (E-Justice)*, ed. Carlos Gregorio, Mexico, April 2011.
- 4 Ibid.
- 5 *Code of Civil Procedure*, CQLR c C-25.01 [NCCP].
- 6 Ibid. at art 26.
- 7 Catherine Dubé, "Les Québécois font de plus en plus confiance aux tribunaux," *L'Actualité*, December 8, 2014, online: <www.lactualite.com/societe/tribunaux-le-besoin-de-croire/>.
- 8 Ibid.
- 9 Trevor Farrow, "What is Access to Justice?," *Osgoode Hall Law Journal* 51:3 (2014):957 at 964; see also Ab Currie, *The Legal Problems of Everyday Life: The Nature, Extent and Consequences of Justiciable Problems Experienced by Canadians* (Ottawa: Department of Justice Canada, 2007) at 55–56 and generally 55–67, 88.

- 10 Mohamed S. Abdel Wahab, Ethan Katsch and Daniel Rainey, eds., *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* (The Hague: Eleven International Publishing, 2012).
- 11 Nicolas Vermeys and Karim Benyekhlef, "ODR and the Courts," in *Online Dispute Resolution: Theory And Practice: A Treatise On Technology And Dispute Resolution*, ed. Mohamed S Abdel Wahab, Ethan Katsh and Daniel Rainey (The Hague: Eleven International Publishing, 2012) at 295.
- 12 Karim Benyekhlef, "La résolution en ligne des différends de consommation: un récit autour (et un exemple) du droit postmoderne," in *L'accès des consommateurs à la justice*, ed. Pierre-Claude Lafond (Cowansville: Yvon Blais, 2010) at 89.
- 13 Ibid.
- 14 Ibid.
- 15 See "eBay.ca User Agreement," online: <pages.ebay.ca/help/policies/user-agreement.html>.
- 16 Benyekhlef, *supra* note 11 at 89.
- 17 Surely we can look at the state, but we are well aware of the territorial limitations of its action. It is therefore worth considering *ad hoc* associations of states, as well as organizations of states, such as the European Union. In 2013 the European Union adopted a regulation on ODR for consumer disputes which entails setting up an ODR platform to resolve such disputes online. This ODR platform was launched in February 2016. See Regulation (EU) No 524/2013 of the European Parliament and of the Council of 21 May 2013 on ODR for consumer disputes, amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC (Regulation on consumer ODR), online: <eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0524&from=FR>.
- 18 In 2010, Working Group III of the United Nations Commission on International Trade Law began drafting a set of non-binding procedural rules governing ODR for cross-border electronic commerce transactions. Once finalized, such rules could be used as reference frameworks for states wishing to regulate ODR mechanisms. For more information on these draft procedural rules, see the United Nations Commission on International Trade Law's webpage: <www.uncitral.org/uncitral/en/commission/working_groups/3Online_Dispute_Resolution.html>.
- 19 For example, sections 1 to 7 of this new *Code of Civil Procedure*, *supra* note 4, deal exclusively with "principles of procedure applicable to private dispute prevention and resolution processes," whereas section 26 states: "In applying this Code, appropriate technological means that are available to both the parties and the court should be used whenever possible."
- 20 Benyekhlef, *supra* note 11 at 89.

- 21 Action Committee on Access to Justice in Civil and Family Matters, *Access to Civil and Family Justice: A Roadmap for Change*, October 2013, online: <www.cfcj-fcjc.org/action-committee>.
- 22 Ibid. at 4.
- 23 See in this regard, the work of Trevor Farrow, including this text: Trevor Farrow et al., *Addressing the Needs of SRLs in the Canadian Justice System* (White paper prepared for the Association of Canadian Court Administrators) (Toronto: Canadian Court Administrators, 2012).
- 24 Charlotte Fraser, "Public Confidence in the Canadian Criminal Justice System: A Review of the Evidence" (Report presented at the Sixth National Symposium on Criminal Justice, Ottawa, January 2014) [unpublished].
- 25 Francis Jauréguerry and Serge Proulx, *Usages et enjeux des technologies de communication* (Toulouse: Èrès, 2011).
- 26 Ibid.
- 27 Isolde De Villiers, "Instant Justice, Cyber Style – "Artificially Intelligent" Judges: the Law," *Without Prejudice* 7–9 (2007) at 12.
- 28 Ben Jarvis, "Artificial Intelligence and the Resolution of Disputes: Where the Law and Technology Collide" (Honours Thesis, University of Technology, Sydney, 2005) at 2.
- 29 Supreme Court of Canada, press release, January 7, 2016, online: <scc-csc.lexum.com/scc-csc/news/en/item/5132/index.do>.

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