Putting technology at the service of access to justice, cultural diversity, and dispute resolution development*

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ABSTRACT

At contracting stage, the most efficient dispute resolution mechanism is difficult to predict. Later, however, parties may no longer be able to agree on it. Add to this the fact that cultural differences in dispute resolution are of 'greater importance than most businessmen and practitioners suspect, and may be a decisive factor', and current approaches to dispute resolution reveal some considerable shortcomings. A predictable decision model combining risk management and legal analysis with socio-cultural characteristics could address these difficulties.

This proposal is, accordingly, for a large-scale multi-disciplinary project leading to the development of a comprehensive dispute profiling tool. The decision model, relying on combined data sources using semantic web technology, could evaluate the entirety of business organisational and industry characteristics, operations, and interests, legal, socio-cultural and even religious influences over the parties' expectation and perception of disputes.

With the profiling tool included in a multi-tier dispute resolution clause, its primary benefit would be to improve access to justice. The interactive case assessment would lead to a predictable dispute resolution mechanism of maximum procedural efficiency and resulting in an outcome enjoying higher level of acceptance by the parties. The second, more far-reaching benefit would be for the tool to function as an ongoing data collection platform, providing essential information about any need for legislative or service development in a geographic region or area of dispute resolution.

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INTRODUCTION. IMPROVING ACCESS TO JUSTICE

When thinking of improving equal access to justice[1], we think of equality not only as the possibility to access a procedure, but rather as equal opportunity to a fair resolution of a disagreement.[2] A dispute resolution procedure that is perceived as fair by the disputing parties will raise the acceptance of the outcome[3], and consequently the perception of good access to justice. As such, it will also strengthen the rule of law.[4]

The fairness of a procedure is of as great importance as it is difficult to determine.[5] Especially when cultural backgrounds are different, the perception of whether or not a dispute resolution procedure is fair may differ. Finding common ground on a fair procedure needs specialized knowledge and considerable resources not all parties have.[6] A profiling tool performing this task would make this part of the procedure time and cost efficient, by reducing procedural disagreements to the minimum.

As every dispute is different, the best way to solve any dispute can only be determined if and when that dispute occurs. However, finding common ground on a fair procedure at that stage is more likely to fail. For this reason, dispute resolution clauses incorporated in commercial contracts when no dispute is yet in sight are, so far, the most common and most recommended compromise solution[7]. An objective method to determine the common grounds for identifying the most fair and workable dispute resolution mechanism for all those involved could, however, solve this issue better, and make access to justice a more real possibility.

The present paper proposes such a tool, primarily for commercial disputes. The paper will present the context, the need and the benefits justifying the development of the tool proposed, and the approach through which the recommended system could achieve an improved access

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[1] As per the United Nations Sustainable Development Goals, 16.3: "Promote the rule of law at the national and international levels and ensure equal access to justice for all"; Resolution adopted by the General Assembly on 25 September 2015.

[2] In this regard we view legal frameworks by its purpose, in the words of the United Nations Resolution 67/1 (2012) para. 8: "We recognize the importance of fair, stable and predictable legal frameworks for generating inclusive, sustainable and equitable development, economic growth and employment, […] we commend the work of the United Nations Commission on International Trade Law in modernizing and harmonizing international trade law."

[3] Shestowsky, Donna, The Psychology of Procedural Preference: How Litigants Evaluate Legal Procedures Ex Ante (January 13, 2014). Iowa Law Review, Vol. 99, No. 2, 2014; UC Davis Legal Studies Research Paper No.363. Available at SSRN: http://ssrn.com/abstract=2378622, accessed 3 January 2017.

[4] Report of the UNCITRAL, forty-seventh session (7-18 July 2014), para 240, confirms that facilitating access to justice is an instrument in strengthening the rule of law. UNICTRAL distinguishes three dimensions of access to justice: normative protection, capacity to seek remedy, and capacity to provide effective remedies.

[5] Fairness first and foremost as perceived by the actual parties in a dispute, to be distinguished from more universally determinable fairness like the ability to present your case in a court proceeding.

[6] Report of the UNCITRAL, Forty-ninth session (27 June-15 July 2016), para 337 – 338. Full disclosure: one of the authors of this article (Dr Demeter) was a panellist on a Rule of law presentation in that UNCITRAL session.

[7] Nigel Blackaby , Constantine Partasides , et al., Redfern and Hunter on International Arbitration, 6th edition (Kluwer Law International; Oxford University Press 2015) p. 71

to justice. The paper will discuss how not only substantive disagreements, but also socio-cultural differences need to be bridged for fair and effective dispute resolution processes; how the proposed tool would achieve that, compared to similar options; and how this will benefit dispute resolution and the development of international trade more broadly. We conclude with the practicalities and the challenges of the proposed project, and some suggestions of legal questions that it may raise.

THE BACKGROUND

DISPUTE RESOLUTION METHODS ACROSS THE GLOBE

Without looking at historical data and other than commercial disputes, the range of dispute resolution (DR) methods currently available can be categorised in two groups, based on two different factors. On one hand, there is litigation, ensuring more-or-less similar type of access to justice in the national court system of every jurisdiction. In addition to this mainstream channel to solve disputes under the law, there are a wide range of alternative dispute resolution (ADR) methods available and accessible to various degrees in many jurisdictions. These broadly include any and all methods that are 'alternative' to litigation, whether involving a third party neutral or not, and whether they are traditional methods or the result of modern developments in legal harmonisation and global trade. Based on this criterion, a somewhat hybrid category – although not officially labelled as such – is the court-ordered ADR, most commonly court-ordered mediation, more present in civil law disputes, and raising a range of challenges to the concept of party autonomy based ADR.

On the other hand, the long list of existing DR mechanisms is often grouped into broader adjudicative and non-adjudicative categories[8]. The former includes primarily litigation and arbitration, both involving a process that is not dependent on all parties' engagement, and a final and binding outcome enforceable in court. Where present, adjudication also falls under this category. As opposed to these, non-adjudicative methods are dependent on the parties' collaboration, and the outcome of these methods has the value of a contractual agreement[9], not enforceable as a judgment or judgment-like decision[10]. Negotiation, mediation and conciliation are the best known mainstream processes in this category, with mediation and conciliation often treated as synonyms[11].

While the list of existing DR methods in general is much longer, these categories are indicative of the main manner in which they operate, with differences in details being present

[8] For a detailed presentation on the two different categories, see Susan Blake, Julie Browne, Stuart Sime, A Practical Approach to Alternative Dispute Resolution, Oxford University Press (2016)
[9] See Eric van Ginkel, The UNCITRAL Model Law on International Commercial Conciliation, Journal of International Arbitration, (Kluwer Law International 2004, Volume 21 Issue 1) p. 1
[10] At the time of the drafting of this paper, the initiative for a convention that could make mediated agreements enforceable across borders was still under development at the UNCITRAL Working Group II – see the documentation from the session meetings at http://www.uncitral.org/uncitral/en/commission/working_groups/2Arbitration.html
[11] See Zlatanska, Elina and Fawehinmi, Folake, Mediation and Conciliation: In Pursuit of Clarity (May 2, 2016). 82 International Journal of Arbitration, Mediation and Dispute Management, Issue 2 (2016)

across jurisdictions and cultures without significantly impacting on the methods' primary legal characteristics. Their relative uniformity is also supported by developments in legal harmonisation, where common definitions are successfully avoided – even though the way these methods are recognised in law does lead to an implied common nomenclature in the various jurisdictions.

Partly for this reason, but partly also due to an ever-increasing level of over-regulation inducing uniform processes regardless of factual differences between disputes and disputing parties, some authors consider international commercial dispute resolution, especially arbitration, to be free of cultural differences[12]. The authors of this paper cannot agree with that view for reasons elaborated below, instead proposing the acknowledgment of cultural differences and the incorporation of the relevant elements of those differences into creating a more efficient approach to dispute resolution.

CULTURAL DIFFERENCES ACROSS THE GLOBE

Culture is defined in different ways, depending on the field in relation to which it is being researched. Broadly, culture is represented by a set of shared rules, norms, values, beliefs, perspectives, practices and rituals[13], or more particularly by the "collective programming of the mind that distinguishes the members of one group or category of people from others"[14]. Given that any and all such rules or believes can only be shared and characteristic to a limited group of individuals, cultural differences are a matter of fact, present and faced by everyone venturing outside a small group and a life of status quo.

There are several theories around cultural characteristics and differences, assisting to identify relevant elements and factors based on which individuals and/or groups can be recognised, their behaviour better understood, and communication across the different cultures improved. Hofstede's 'cultural dimensions' recognise systemic differences between how certain cultures handle inequality[15], uncertainty[16], relationships[17], gender related qualities[18], time[19], and

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[12] See Stephan Wilske, Significant Differences in International Arbitration in the "East" and the "West": Myth, Reality, or Lost in Globalization?, in Legal Thoughts between the East and the West in the Multilevel Legal Order. A Liber Amicorum in Honour of Professor Herbert Han-Pao Ma, Lo, Chang-fa, Li, Nigel, Lin, Tsai-yu (Eds.), Springer (2016)

[13] See Chan, E.H.W. and Tse, R.Y.C. (2003) 'Cultural considerations in international construction contracts', Journal of Construction Engineering and Management, 129(4), 375-381

[14] Hofstede, Geert, Dimensionalizing Cultures: The Hofstede Model in Context, Online Readings in Psychology and Culture (2011), p.3

[15] The power distance (PDI) index is defined as "the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally." (Hofstede, supra n.14)

[16] The Uncertainty avoidance (UAI) index is defined as "a society's tolerance for ambiguity," in which people embrace or avert an event of something unexpected, unknown, or away from the status quo. (Hofstede, supra n.14)

[17] The Individualism vs. collectivism (IDV) index explores the "degree to which people in a society are integrated into groups." (Hofstede, supra n.14)

[18] The Masculinity vs. femininity (MAS) index defines masculinity as "a preference in society for achievement, heroism, assertiveness and material rewards for success." Its feminine counterpart represents "a preference for cooperation, modesty, caring for the weak and quality of life." (Hofstede, supra n.14)

[19] The Long-term orientation vs. short-term orientation (LTO) dimension associates the connection of the past with the current and future actions/challenges (Hofstede, supra n.14)

happiness[20]. While Hofstede's theory has been widely criticised[21] and not all these dimensions may appear obviously relevant for dispute resolution processes, research into the practical application of these dimensions show their importance in marketing, communication, international negotiation and management[22] - all areas with impact on trade and dispute resolution.

Another approach to analysing cultural differences is present in Trompenaars' seven cultural dimensions[23]: universalism versus particularism[24], individualism versus communitarianism[25], neutral versus emotional[26], specific versus diffuse[27], achievement versus ascription[28], sequential versus synchronous time[29], and internal versus external direction[30]. Some of these dimensions seem to overlap with Hofstede's[31], but while Hofstede's analysis based on work values may be more visibly relevant for dispute resolution, Trompenaars' behavioural analysis is equally important in anticipating disputing parties' approach to dispute resolution. They both have serious shortcoming, though.

In addition to the questionable methodologies these studies used[32], basing cultural characteristics on national borders, disregarding sub-cultures and ethnic groups, or perceiving culture as a static characteristic all weaken the reliability and applicability of these

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[20] The Indulgence vs. restraint (IND) dimension measures whether or not simple joys are fulfilled, where indulgence is being defined as "a society that allows relatively free gratification of basic and natural human desires related to enjoying life and having fun." (Hofstede, supra n.14)

[21] See, for example, Jones M, Hofstede – Culturally questionable?, Oxford Business & Economics Conference. Oxford, UK, 24-26 June, 2007; or Lena Schmitz and Wiebke Weber, Are Hofstede's dimensions valid? A test for measurement invariance of Uncertainty Avoidance, Interculture Journal (2014) pp.11-25, available at www.interculture-journal.com/index.php/icj/article/download/226/322

[22] See, for example, Huib Wursten and Tom Fadrhonc , International marketing and culture, itim Internaitonal (2012), available at https://geert-hofstede.com/tl_files/Marketing_and_Culture_itim_International.pdf; Rebecca Merkina, Vas Tarasb, Piers Steelc , State of the art themes in cross-cultural communication research: A systematic and meta-analytic review, International Journal of Intercultural Relations Volume 38, January 2014, pp. 1–23; Danny McFadden, 'Culture, Business Negotiation and Mediation: Understanding Cultural Differences, Communication Styles and Finding Mutual Understanding' (2014) 16 Asian Dispute Review, Issue 3, pp. 132–136; and Robert T. Moran, Neil R. Abramson, Sarah V. Moran, Managing Cultural Differences, Routledge (2014).

[23] The Seven Dimensions of Culture were identified by management consultants Fons Trompenaars and Charles Hampden-Turner, and published in the book 'Riding the Waves of Culture: Understanding Diversity in Global Business' (McGraw-Hill, 1997)

[24] i.e. whether there is a clear definition for right and wrong, or circumstances and relationships determine ethical decisions

[25] i.e. whether humans are perceived as individuals or rather as parts of a group

[26] i.e. whether emotions are controlled or expressed openly and spontaneously

[27] i.e. whether private and public space are interwoven and the extent to which they are shared with others

[28] i.e. whether status is recognised based on personal achievements or identity

[29] i.e. whether time is linear or based on the rhythm of the group and nature and allowing for work on several things at the same time

[30] i.e. whether the environment is an external factor controlled by, or interconnected with and controlling society and the individual

[31] For example, Hofstede's collectivism vs. individualism is similar to Trompenaars' communitarianism vs. individualism; the power distance index is similar to the achievement vs. ascription dimension; and the long-term vs. short-term orientation index is similar to the past/present/future time orientation from Trompenaars

[32] See, for example, McSweeney, B., Hofstede's model of national cultural differences and their consequences: a triumph of faith – a failure of analysis, Human relations, Vol. 55 (2002), pp. 89-118

'dimensions'[33]. In addition, studies merely highlighting the differences in cultures also fail to reach far enough to explain the reasons for those differences, even though those reasons become relevant when differentiating between individual and group characteristics.

The difference in the degrees of the same characteristic is also mainly absent from these theories. For example, a research comparing two societies with consensus based decision processes, Japan and The Netherlands, found that the Japanese is based on a more ordered sequential based process than the Dutch[34]. Consequently, they do not perceive each other as consensus based decision makers, meaning that even a well-studied concept such as 'consensus' fails to universally describe cultural elements accurately. A more recent publication[35] primarily addresses this last issue, placing key elements on a scale, by which cultures are subject to a relative comparison, rather than an absolute classification. Erin Meyer's scales assess eight key areas managers "must be aware of", but which are equally essential in personal or business relationships, as well as disputes. These key areas are communication (low v. high context), evaluation (direct v. indirect negative feedback), persuasion (principles first v. applications first), leadership (egalitarian v. hierarchical), decision-making (consensual v. top-down), trust (task-based v. relationship-based), disagreement (confrontational v. confrontation-avoiding), and scheduling (linear v. flexible time)[36].

It is fair to observe that all major works on cultural differences identify more-or-less the same areas relevant in cross-cultural business dealings. Whether they assist in identifying why actors in different countries behave in different ways when confronted, for example, with the same economic situation[37], is another issue. Finally, the degree at which each dimension/key area plays a more or less important role in a culture group's behaviour or a certain scenario remains also unaddressed. Only a case-by-case assessment could provide such level of application of these scales, but case-by-case assessment require complex criteria to be used for unique combinations of characteristics.

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[33] A more recent large-scale research project, building on previous works in the field, even gathered countries sharing cultural similarities into 'clusters', further centralising cultural characteristics. According to this project, the 62 societies studied could be merged into 10 societal clusters, based on "nine cultural dimensions that make it possible to capture the similarities and/or differences in norms, values, beliefs and practices among different societies". As a result, the study concluded that the 62 countries researched fit in only four clusters[33] – i.e. Anglo-cluster (i.e. mainly English-speaking countries), Middle Eastern, Confucian (i.e. East Asian), and Southern Asian (see Ghada M. Gad, Jennifer Shane, A Delphi Study on the Effects of Culture on the Choice of Dispute Resolution Methods in International Construction Contracts, Construction Research Congress 2012, ASCE (2012), p.4, referring to The Global Leadership and Organizational Behavior Effectiveness (GLOBE) Research Program). While there are, no doubt, shared values and characteristics among those societies grouped in such a wide cluster, this level of generalisation is of little value when it comes to specific characteristics impacting on a cross-cultural business relationship or dispute.

[34] See Niels G. Noorderhaven, Jos Benders, Arjan B. Keizer, Comprehensiveness versus Pragmatism: Consensus at the Japanese–Dutch Interface, Journal of Management Studies Vol.44 Issue 8 (2007), pp.1349–1370

[35] Erin Meyer, The culture Map. Breaking through the invisible boundaries of global business (Public Affairs New York, 2014)

[36] Idem p.16

[37] Organizational Trust, a Cultural perspective, Mark N.K. Saunders Ed. (Cambridge University press, 2010) p. 90

For example, one of the main elements in shaping trade and dispute resolution is trust. Trust plays an important role in building business relationships, and many dispute resolution mechanisms have (re)building trust as one of their objects. But trust and trust development is not universally understood in the same way[38]. For instance, one party may need a high level of detail on a situation before trusting the other, while the other might perceive that as micro-managing associated with distrust[39]. Sources of trust may be different too. In the Cambridge vertical contracts project it was shown how Germans derive their trust of a party by what organisations such partner affiliates itself with, while in the UK trust builds on interpersonal contacts[40]. Among many other elements, this could possibly also be reflected in the way parties from these cultures select a dispute resolution mechanism they trust.

Merely comparing cultures will not result in bridging cultural differences. However, cultural research can help revealing all possible differences and formulating questions that would enable making a cultural profile of each actor in a dispute. For each case the relevant questions will reveal the actual differences in believes and assumptions and also the common ground, that would allow to determine a mutually acceptable dispute resolution mechanism.

The authors of this proposal have to respectfully disagree with a respected arbitration expert's view that "the 'clash-of-culture' theme in arbitration is vastly exaggerated in the modern world"[41]. Instead of following those select few who handle a thin layer of high-value commercial disputes involving the same group of lawyers and arbitrators over and over again[42], we prefer to listen to those whose expertise is in cultural differences and cross-cultural business relationship, and apply that specialised knowledge to the rest of the dispute resolution world, constituting the vast majority. As Meyer says, "[i]f you go into every interaction assuming that culture doesn't matter, your default mechanism will be to view others through your own cultural lens and to judge or misjudge them accordingly" [43].

CULTURAL DIFFERENCE AND THE CHOICE OF DISPUTE RESOLUTION METHODS

This proposal is based on the premise that "one of the very critical clauses affected by the cultural aspect is the dispute resolution clause"[44]. The reason for this lies in the complexity of culturally sensitive elements that become relevant in efficient and effective dispute resolution. If "[d]ifferent cultural backgrounds, contractual factors, legal and economic factors, languages, technical standards, procedures, currencies, and trade customs involved in

[38] Idem, p. 9
[39] Idem, Chapter 9
[40] Idem, p. 90.
[41] Jan Paulsson, Moral hazard in international dispute resolution. Inaugural Lecture as Holder of the Michael R. Klein Distinguished Scholar Chair University of Miami School of Law (29 April 2010), available at http://www.arbitration-icca.org/media/0/12773749999020/paulsson_moral_hazard.pdf
[42] See Michael D. Goldhaber, Deciding the world's biggest disputes, Focus Europe, July 2015, available at http://www.curtis.com/siteFiles/News/2015-06-30%20American%20Lawyer%20-%202015%20Arbitration%20Scorecard.pdf
[43] Meyer, supra n.35, p.13
[44] Ghada, supra n.33

international projects make projects more vulnerable to disputes"[45], then the same will also play role in how those disputes will be handled.

Cross-cultural problems have been repeatedly identified in dispute resolution writings, mainly from the practical perspective of skills development for negotiation[46] or mediation[47]. Arbitration is also recognised by some authors to be subject to cultural considerations, which "can play a vital role in the acceptance and successful functioning of international commercial arbitration"[48] – a benefit "easier to recognize than to accomplish"[49]. Dispute resolution is affected by differences between the disputing parties' home countries and home legal systems, affecting both procedural and substantive aspects. In addition, "all participants, including the arbitrator, will bring their own particular politics, gender, religion, communication styles, perception of time and context, gestures, body language and taboos into the hearing room with them"[50].

Whether communication-dependent, law-based, relationship-focussed, authority-imposing, strictly scheduled, or flexible, any and each dispute resolution mechanism comes across a range of cultural dimensions. Yet, previous attempts to incorporate cultural dimensions in dispute resolution choices resulted in only partially realistic and widely generalised recommendations. For example, one recommendation represented in the form of a table[51], in addition to lacking explanatory basis, is also one-dimensional; it connects dispute resolution methods to only one cultural dimension at a time, failing to provide for a solution to combine the different dimensions.

CURRENT APPROACHES TO ASSESSING DIFFERENCES

The tools developed based on the works of Hofstede and Trompenaars, as well as Meyer, assist to some degree in incorporating cultural awareness into business relationships, and can be applied to dispute resolution management. Hofstede's cultural dimensions provide an online country comparison, as well a personalised survey called the 'culture compass'[52]. Trompenaars' model serves as basis for another 'culture compass', as well as a series of web tools provided through the authors' own consultancy service, claimed to be built on "the largest cross cultural database in the world [which] captured the key business issues that relate to cultural differences" [53]. Meyer's 'culture map' also offers a practical formula for comparing cultural characteristics in the form of a chart, where each culture is represented by

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[45] Idem, p.2
[46] See Emem Udobong, How to deal with cross cultural problems in international business negotiation; Also see Andres Correa Cruzat, Cross-cultural negotiation and dispute resolution, Santiago Arbitration and Mediation Center (CAM Santiago)
[47] See Jasper Ozbirn, Mediating cross-cultural imbalances – Maintaining 'Fairness' by complying with cultural expectations, ADR Times 20 June 2011
[48] Faisal Kutty, The Shari'a Factor in International Commercial Arbitration, Berkeley Electronic Press, 2005 http://law.bepress.com/cgi/viewcontent.cgi?article=4382&context=expresso
[49] Madge S. Thorsen and Thorsen Kaplan, The Whole Enchilada: Cultural Differences in International Arbitration, MSBA ADR Section May 8 2007
[50] Idem, p.3
[51] In Ghada, supra n.33, p.915
[52] Available at https://geert-hofstede.com/tools.html
[53] Available at http://www2.thtconsulting.com/tools/#webtools, and at http://www.cultureforbusiness.com/bac/

a line connecting the dots representing the eight relevant scales. That line, "representing the overall pattern of that culture on the map"[54], can then be compared with another line representing another culture, for a more comprehensive visual representation of how the different key dimensions relate to each other from the compared cultures. However, all these attempts are based on generalisation and/or assessment based on a limited range of dimensions that are insufficient for efficient dispute resolution planning.

Having a selection mechanism that operates at the time of an actual dispute, incorporating more than one element is, nevertheless, not new. The best known mechanism used for this purpose is the Early Case Assessment (ECA) used "for evaluating whether and on what terms to settle, or whether to pursue litigation or an alternative dispute resolution (ADR) process"[55]. It is commonly applied in mediation, where it informs the approach and methods of the mediator. ECA combines the evaluation "of the risks involved, including their nature (e.g., money damages, injunctive relief, and reputational harm), scope (e.g., impact on entire business, business unit or product line) and urgency"[56].

ECA also appears in online forms made freely available by several dispute resolution providers, like the International Institute for Conflict Prevention & Resolution (CPR) ECA Toolkit[57], the Online Dispute Analysis (OLE) Toolkit offered by the International Mediation Institute (IMI)[58], or the ADR Process & Professional Selection Tool offered by "the world's leading mediation web site"[59]. These ECA tools offer the possibility for similar assessments, based on a combination of elements including the facts of the dispute; business concerns; risk management; legal evaluation; financial loss and cost-benefit analysis; strategy analysis; strengths, weaknesses, opportunities and threats for each side; best, worst and probable outcomes if the dispute does not settle; and way forward options.[60] While these are all valuable elements to consider when designing dispute settlement strategies, their common characteristic is that they disregard cultural differences.

Aside from the ECA's there are other selection mechanisms that operate at the time of an actual dispute, like the 'multi-door' courthouses in the United States[61], or the online dispute resolution platform for consumers in the European Union[62]. With dispute resolution providers

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[54] Meyer, supra n.35, p.246

[55] Harrie Samaras & Judy Weintraub, 'Using Early Case Assessment as a Tool for Triaging Disputes', 1, accessed at <http://harriesamaras.com/sitematerials/Early%20Case%20Assessment.pdf>.

[56] Idem

[57] Available at https://www.cpradr.org/resource-center/toolkits

[58] Available at https://imimediation.org/ole

[59] Self-proclaimed, at http://www.mediate.com/aboutris/aboutus.cfm

[60] Other automated systems developed include a recent one in Egypt (Elziny et al. 'An expert system to manage dispute resolutions in construction projects in Egypt', Ain Shams Engineering Journal (2016) 7, 57–71) and one as early as 2004 (Sai On Cheung, 'A CBR based dispute resolution process selection system' International Journal of IT in Architecture, Engineering and Construction Volume 2 / Issue 2 / May 2004).

[61] By an idea of Frank Sanders introduced in 1976, the multi-door courthouse concept envisions one courthouse with multiple dispute resolution programs ('doors'), in which cases are referred through the appropriate 'door' for resolution (see Dispute Resolution Magazine p.6 (2012-2013), The Pound Conference Remembered, Earl Johnson.)

[62] On this platform consumers can lodge a complaint against online traders, and the platform will assist the parties to agree on an alternative dispute resolution mechanism to solve the issue - see: https://webgate.ec.europa.eu/odr/ (Accessed 3 January 2017)

broadening their services to more than just one dispute resolution mechanism, choices available between the limited number of dispute resolution methods offered within one institution are also becoming widespread. Such choices are either left for the disputing parties to be based on any criteria they deem relevant by simply listing the available services[63], or are assisted by providing the relevant criteria in the rules themselves[64], in order to provide 'an effective answer to the legitimate concerns of the business community'[65]. Either way, the choice made available is not assisted by any formula that can assess the weight given to any of the relevant criteria. The proposed novel profiling tool is intended to provide such an assessment, and to match that assessment with the dispute resolution mechanisms available.

THE POPOSAL. AN INTELLIGENT DISPUTE PROFILING TOOL

The present proposal is for an automated dispute profiling platform that can be used as an interactive selection tool for the dispute resolution mechanism that provides the best chance to resolve the dispute from the perspective of all parties involved. In that regard, it resembles early case assessment, but with the add-on of recognising and incorporating cultural differences that are relevant for procedural effectiveness and acceptance of the outcome, and applied before any other dispute resolution mechanism is actually initiated.

Facilitated by contemporary information technology, the tool will allow for an effective and predictable selection method, through interactively analysing and balancing more than one decisive factor, including bridging cultural differences between the disputing parties. Built on an interactive decision tree system[66], the profiling tool will present several rounds of questions the answers to which will determine the direction to follow, in order to arrive at a conclusion on all relevant topics, and ultimately at the dispute resolution mechanism that fits that dispute best.

THE RATIONALE

The literature already identified the need for complex dispute profiling. "Assessing cases early in a dispute is an essential step in managing them efficiently"[67]. Research on existing early case handling both in courts and private dispute resolution indicates that the need for more complex systems built on flexible protocols tailored "for particular cases and dispute systems is important"[68]. Extensive research on cultural differences also demonstrated the

[63] See, for example, the list of services provided by the ICDR, including even 'a la carte services', at https://www.adr.org/aaa/faces/services/disputeresolutionservices
[64] Like the expedited arbitration procedure offered by the ICC in case the claim value is relatively small (see Article 30, Rules of Arbitration of the International Chamber of Commerce, in force as from 1 March 2017)
[65] Quoted from the ICC Court President Alexis Mourre in the ICC news release of 4 November 2016, http://www.iccwbo.org/News/Articles/2016/ICC-Court-amends-its-Rules-to-enhance-transparency-and-efficiency/ retrieved at 30 Dec 2016.
[66] For true decision trees, see W. Steenbergen, Rationalizing Dispute Resolution: From best alternative to the most likely one. In Proceedings 3rd ODR workshop, Brussels, 2005.
[67] John Lande, The movement toward early case handling in courts and private dispute resolution, Ohio State Journal on Dispute Resolution Vol.24:1 (2008), p.112
[68] Idem, p.90, referring to early case handling researched across the US.

need to acknowledge and incorporate cultural dimensions in the way we approach dispute resolution. The present proposal is aimed to combine the two by developing a complex dispute profiling tool that incorporates the elements of early case assessment with the relevant cultural dimensions that may have relevance in a given dispute, and to apply them in a decision-making that leads to a dispute resolution process, instead of being done within a predetermined one.

Interestingly, the need for "a comprehensive conflict resolution tool" to map out cultural commonalities and the relationships between culture and conflict has been flagged by religious literature[69]. While the concept may appear more justified when the nature of the conflict is more human than commercial, the recommendation is equally relevant for business conflicts, given the material, symbolic and relational levels of conflict on which it could be based[70]. The justification of the present proposal focuses on cultural characteristics as an element influencing the fairness of a dispute resolution mechanism that has not been sufficiently factored in before, but the proposed profiling tool will include all relevant factors that are, occasionally, considered in preparing for a dispute. For instance, Kwok Leung found that animosity reduction is relevant for the choice of procedure: "Procedural preference was found to be influenced by the extent to which the procedures were perceived as (a) granting the disputants process control, (b) capable of animosity reduction, (c) fair, and (d) favorable."[71] Accordingly, one possible option in the profiling tool could be that, when the element of fairness is satisfied, the dispute resolution mechanisms with the greatest capability to reduce animosity could be selected.

Another well-known issue is whether to have a dispute handled by a technical expert or by a legal professional. This can be considered as a choice between professional cultures, as a procedure conducted by an engineer is likely different from one conducted by a lawyer[72]. For example, the World Bank is one of the organisations that advise to consider having disputes about technical matters resolved by technical experts in public private partnership contracts for infrastructure.[73] The profiling tool we suggest could also include a module that can determine whether or not an issue is technical and potentially best be dealt with by an expert. Similarly, risk aversion and/or management are also relevant factors in dispute resolution – even though "not all risk factors have an effect on the choice of a dispute resolution method"[74]; and the list of relevant factors can go on.

When selecting a dispute resolution mechanism, the weight that brings all these different elements to the balance, could make the difference between one or another dispute resolution

[69] See Richard A. Goetsch, Integration of conflict resolution methods across cultures, Trinity Evangelical Divinity School Illinois (January 2012)
[70] Idem, p.3, relying on Ronald Fisher, The social psychology of intergroup and interpersonal conflict resolution (New York: Springer, 1990)
[71] Leung, Kwok, Some Determinants of Reactions to Procedural Models for Conflict Resolution: A Cross-National Study, Journal of Personality and Social Psychology, 1987, Vol. 53. No. 5,898-908.
[72]Alan Muir Wood, Tunneling management by design (2000) p. 268; On the analysis of the differences between the Eurotunnel Dispute Panel dominated by lawyers, and the Oresund Link Dispute Boards where discussion were between engineers.
[73] World Bank, Report on Recommended PPP Contractual Provisions, Edition 2015, p48
[74] Ghada, supra n. 33, p.83

mechanism to become the ideal one of that scenario. Accordingly, the dispute profiling tool is proposed to include two main components: at one end, the online platform will collect the relevant information from the parties; the decision tree will then assess every piece of information against pre-existing data about dispute resolution methods; finally resulting in a recommendation that is based on the unique combination of characteristics provided by all parties involved. Almost as a continuous loop, the set of pre-existing data is intended to permanently grow based on knowledge acquired also through the cases submitted to the platform, reinvesting the information obtained from parties into future decisions. Through this, the platform will serve both as a dispute profiling tool, as well as a data collection tool assisting future dispute profiling, and serving as basis for developing dispute avoidance and management techniques.

THE TECHNOLOGY

Data collection

Collecting the knowledge and determining the logical connections which form the bases of the interactive decision tree, can basically be done through two types of resources: 'expert knowledge' or 'case based knowledge'. The former is the knowledge of experts transformed into a logical model; it is the only source of knowledge to describe circumstances that have not yet occurred, however, it is prone to the possible errors of the expert.[75] Case based knowledge can automatically be derived from actual legal cases and is said to represent real-life situations more accurately. However, when there are insufficient cases with comparable circumstances, the knowledge base will not be sufficiently comprehensive to work in practice.[76] For the dispute profiling tool, we propose to use the best of both worlds, working both with expert knowledge, and using feedback from actual cases to improve the knowledge base. Consequently, cases will need to be followed and analysed regularly in an automated way, resulting in non-biased knowledge, based on real-life cases. This can be achieved through a technique known as machine learning.

Machine learning can combine knowledge by applying reasoning, and through such processes generate new knowledge without human interference. In the world of big data, machine learning is used to generate knowledge from a large stack of information.[77] Although machine learning is in an early stage of development, it would provide a valuable benefit to the proposed dispute profiling tool by preserving confidentiality of individual cases, as it would exclude the human analysis otherwise needed to derive valuable knowledge from cases.

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[75] Although not ideal, human error in knowledge acquisition can be corrected through statistical methods. See, Aref Charehzehi et al., 'The Use of Analytical Approach for the Selection of Dispute Resolution', Civil and Environmental Research Vol.3, No.3, 2013.

[76] On knowledge acquisition, see Peter Lucas (Radboud University), Expert Systems, p. 6, in Encyclopedia of Life Support Systems of UNESCO.

[77] M. I. Jordan and T. M. Mitchell, "Machine learning: Trends, perspectives, and prospects" Science 17 July 2015: Vol. 349, Issue 6245, pp. 255-260

Logic of reasoning

To derive conclusions from knowledge the way different elements of that knowledge relate to each other, the profiling tool will need to apply logic reasoning. Many knowledge items will indicate advantages or disadvantages for using a certain dispute resolution mechanism, while some may indicate a disqualifier fully excluding a particular dispute resolution mechanism from the pallet of options. For instance, when parties refuse to communicate at any sensible level, the dispute resolution mechanism recommended could not be any type of negotiation or mediation, despite a possibly large amount of advantages. Abductive reasoning includes all these relevant positive, negative and disqualifying elements. Much used in the medical field, we intend to use that experience and the extensive resources available on how to build decision support systems using abductive reasoning[78], to transplant it into the field of dispute management.

Serving access to justice, the profiling tool will not have to stop at determining a dispute resolution method in principle, but will match each individual case to the best available dispute resolution mechanism. Hence, next to an analysis from a theoretical scientific point of view, a second step is proposed. In this step decidable indicators from available dispute resolution mechanism providers will be utilized to further narrow down the selection and arrive at the best possible dispute resolution mechanism for that particular case. This stage will also include relevant information on the legislative framework that can influence the efficiency or success of a dispute resolution approach. For example, even though arbitration may otherwise seem to be the most efficient way to solve a dispute from the perspective of the parties and the issues in dispute, the tool would put this preference into the perspective of the parties' home legislation, especially with regard to the future recognition and enforceability of an award. Such analysis is, again, not a completely new approach in deciding on dispute resolution methods, being frequently performed when drafting dispute resolution clauses to be included in contracts. However the proposed tool would combine this evaluation with a set of other relevant information that is often non-existent at the stage counsel would evaluate the legal framework, or simply disregarded.

The right logic applied to a scientific knowledge base and proven dispute resolution mechanisms, makes for a strong basis for trustworthy automated decision making. This decision-making should, however, also factor in possible choices between attributes having different units of measurement, like time, cost and cultural aspects. In the legal field, weighing seemingly incomparable arguments is a common exercise, though usually performed by humans. The scientific field of multi-attribute decision making tries to mimic this human decision-making process using algorithms.[79] On the selection of dispute resolution method, Sai-On Cheung and Henry C.H. Suen were in 2001 possibly somewhat ahead of their time, when they proposed a combination of analytical hierarchy process (AHP)

[78] See, for example, Bertaud Gounot et al. 'Creating an Ontology Driven Rules Base for an Expert System for Medical Diagnosis', in User Centred Networked Health Care (A. Moen et al. (Eds.)).

[79] For a comprehensive and recent overview, see Salvatore Greco et al "Multiple Criteria Decision Analysis", Springer 2016

and multi-attribute utility technique (MAUT)[80]. A decade later, Violeta Keršuliene and her colleagues proposed to use step-wise weight assessment ratio analysis method (SWARA) "to assess dispute resolution methods from economic, social and other points of view".[81] The same year, Paul Prestia and Harrie Samaras proposed a method duped "augmented option analysis" as an option building on decision tree analyses.[82] The proposed research project will need to perform an in-depth assessment of the range of methods available for multi-attributable decision making, especially considering whether the added cultural attribute might lead to different conclusions than drawn from previous research.

Distributed and open technology

Building on available techniques, we propose a distributed and open system: distributed as to enable every interested party to make its own version while enjoying fully maintained IT infrastructure,[83] and an open system to ensure transparency. Technically speaking, we consider semantic web ontologies for the knowledge bases,[84] joined together through blackboard architecture,[85] using a standard reasoner possibly complemented by a rules engine, to allow for abductive reasoning and multi-attribute decision making[86], and communication with the end-user through a web service.[87] Public blockchain[88] can be used to attach an authentication token to the final decision made by the dispute profiling tool, with a similar authority as that of an authentication by a witness or public notary[89].

This construction can be best illustrated by a hypothetical example. Presume that the (imaginary) National Institute for Contested Entrepreneurs (NICE) decides to be the first to implement the dispute profiling tool. For that to start with, NICE should determine what knowledge to use, and it chooses the full public set, including knowledge about applicable law, cultural differences, value of the dispute, and more. However, NICE knows its members value the level of how adversarial procedures are, and to facilitate this NICE adds a small knowledge base containing that additional element. Second, NICE will need to determine the

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[80] Sai-On Cheung & Henry C. H. Suen (2002) A multi-attribute utility model for dispute resolution strategy selection, Construction Management and Economics, 20:7, 557-568.

[81] Violeta Keršuliene, Edmundas Kazimieras Zavadskas & Zenonas Turskis (2010) Selection of rational dispute resolution method by applying new stepwise weight assessment ratio analysis (Swara), Journal of Business Economics and Management, 11:2, 243-258

[82] Paul Prestia and Harrie Samaras, Beyond decision trees: Determining aggregate probabilities of time, cost, and outcomes, Alternatives Vol.28 No.4 (2010)

[83] Distributed refers to the possibility that parties making an own version of the tool host the knowledge bases of that version themselves, for instance to enjoy a greater amount of control over versioning and security.

[84] Semantic web is an initiative of the World-Wide Web Consortium (W3C) and ontologies are one way to structure data to make it more accessible for all.

[85] See for Blackboard architecture for legal knowledge systems: Charles Stevens, 'The Next Generation of Legal Expert Systems-New Dawn or False Dawn?' research paper accessed through https://www.dora.dmu.ac.uk/ (3 Jan. 2017),

[86] WC3 maintains a webpage with a wide selection of these tools: https://www.w3.org/2001/sw/wiki/Tools (accessed 3 Jan. 2017). Standard reasoners can work with deductive reasoning, for abductive a rules engine can complement the system, see: Gounot et al., supra n.78).

[87] Webservice as in an application programming interface (API) that allows third parties to make their own interface – webpages with forms etc. – while using data and processing from a third party.

[88] Blockchain is most well-known from Bitcoin. Another is Ethereum (https://www.ethereum.org/) that can be used to run applications including notary public kind of service.

[89] Not the document, but a unique fingerprint (hash) code derived from the document is stored. Parties who have a copy of the document can calculate that hash and compare it to the one stored in the blockchain.

importance of each part of the decision tree. First, it determines that the outcome of the adversarial nature will disqualify any non-matching dispute resolution mechanisms. Further, it decides to give the cultural element more weight than the pre-setting of the dispute profiling tool does, because the activities of their stakeholders are so often contested, that they believe issues can in part be resolved by bridging differences in culture more effectively.

At this stage, it is time to implement the dispute profiling tool in the NICE website. Nothing more than a few lines of html-code is needed to do so, all through standard techniques working on every major internet browser. With the tool ready to be used to determine the relevant dispute mechanism for each dispute separately NICE members may have to submit, the resulting recommendation will be drawn up in a document that the dispute profiling tool communicates to the parties. At the same time, the dispute profiling tool will take a fingerprint-like code and store that in a public blockchain, so that anyone having the document can establish that it is authentic, through no third-party interference and without the document itself becoming public. This, of course, is only one potential scenario how the platform could be used and adapted to specific organisational needs.

FURTHER POTENTIAL

To take the technical aspects a step further into the area of legal development, the proposed dispute profiling tool could be designed to work like a smart contract. As dispute resolution clauses are generally accepted as being separable from the main agreement, having this part becoming a smart contract while the remainder has a classical written form, is not an unrealistic perspective. A smart contract can be defined as an application of a blockchain, whereby the public ledger can be used in organising contractual relationships through a software programme that executes agreements in an automated manner.[90] Accordingly, an automated interactive dispute resolution clause could become part of, or an entirely self-standing smart contract. By becoming independent from trust in a specific organisation, it will then rely on the trust of a group of interested parties, through a system usually referred to as distributed ledgers, the same way as bitcoin does[91].

The proposed profiling tool can also be used as a first step of a multi-stage online proceeding. The profiling tool could only determine which dispute resolution mechanism the parties should follow, but if the recommendation is for an online dispute resolution method, then the entire process can become fully automated from start to the very end. The two stages could either be separated, to request the parties' acceptance of the recommendation before continuing to proceed to ODR, or could become a continuous automated mechanism, if the parties agree beforehand to accept any recommendation the profiling tool may make. The latter could result in a more efficient online dispute resolution mechanism[92] that is still matched to a dispute on a case-by-case basis, avoiding the risk of one-size-fits-all approaches.

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[90] Riikka Koulu, Blockchains and Online Dispute Resolution: Smart Contracts as an Alternative to Enforcement, Scripted, Volume 13, Issue 1 (May 2016).
[91] See https://www.bitcoin.com/you-need-to-know, accessed 9 March 2017
[92] Online dispute resolution not in the sense of related to electronic commerce, but as in that the resolution itself is fully online.

BENEFIT TO BUSINESS

The design of the proposed dispute profiling tool is aimed at offering new possibilities to both the dispute resolution industry and the various industries using dispute resolution, providing benefit across the entire market. Aided by this tool, providers of dispute resolution services could offer sophisticated dispute management better than ever before, by connecting disputants to a procedure with the greatest chance of a solution for their dispute. Using the full range of state courts, arbitration, or other alternative dispute resolution mechanisms, the tool would effectively serve access to justice by minimising procedural disagreements and maximising the expected acceptance of the resulting outcome[93]. The data collection process could also reveal details and preferences that as of yet do not have a good solution or place in the market, company or dispute profiles. This would be valuable information to result in an even more comprehensive and fine-tuned offering of dispute resolution mechanisms.

One striking example of an industry sector where the proposed profiling tool would generate clear benefit is in partnerships that are multi-dimensional in different respects. Partnerships are contractual relationships and parties will need, by definition[94], to agree between themselves on all decisions. Disagreements are not only internal issues, but have relevance as formal disputes. Hence, partnerships would benefit from a dispute resolution mechanism that operates in close proximity of the governance structure[95], acting as ultimate decision-making mechanism in complex organisations, preventing deadlocks[96]. However, governance structures change over time, while dispute resolution mechanisms are usually static, in order to be predictable. When called upon to decide on an issue, the dispute resolution mechanism previously chosen could very well still follow what at governance level is considered old and past thinking.

For example, consider a semi-public organisation that funds investigator initiated clinical trials conducted by academic researchers from Europe and Africa, working in collaboration. Pharmaceutical companies are involved for the intellectual property rights, and to bring successful compounds as medicine to the market, participating with additional funding.[97] In such partnership, there are geographical cultural differences between European and African scientists, but also professional cultural differences between academics and corporations[98]. Categories of issues that may cause a dispute include technical issues, compliance issues, issues on intellectual property rights, or payment issues. In addition, it will be hard to find

[93] This benefit is predicted based on the premise that dispute resolution is genuinely used for its declared purpose, and not as a delaying tool or to serve any hidden and potentially unethical agenda.
[94] International Financial Reporting Standards (IFRS) nr 11: Joint Arrangements, stating that a collaboration is a partnership when there is joint control, opposed to one party being able to decide for the other party or parties.
[95] For instance dispute boards see: Kurt Dettman and Eric Kerness, The Role of Dispute Review Boards in Dispute Prevention (Febr. 2009), Dispute Resolution Board Foundation.
[96] E. H. Klijn and J. F. M. Koppenjan, Complexity in Governance Network Theory, Complexity, Governance & Networks (2014) 61–70: "[…] the presence of many actors is not the same as social complexity. It is the lack of coordination mechanisms that causes stagnation and deadlocks."
[97] EDCTP was initiated by the European Commission through Decision No 1209/2003/EC. Full disclosure, one of the authors (Knijpenga) was employed by this organisation (2003-2005).
[98] Munksgaard, Kristin B., et al. "Open Innovation in Public-Private Partnerships?." Ledelse & Erhvervsøkonomi 77.2 (2012): 41-51. Providing a list of 5 differences between public and private actors in PPP.

any greater difference in how legal problems are solved, than between US based pharmaceutical companies and African based academic scientists.

In a scenario like this, any standard pre-defined dispute resolution clause would likely fail to provide a fair procedure for all combinations of parties concerned in every category of possible issues. When a dispute arises and the issue and the parties to the dispute are known, only then there is realistic opportunity to select a dispute resolution mechanism that provides for a procedure considered to be fair by all those parties, by taking into account both cultural issues and legal constraints. The proposed dispute profiling tool could perform that task as part of a fair, stable and predictable legal framework, with its adaptability providing effective access to justice for all.

THE CHALLENGES. QUESTIONS OF FACTS AND LAW

Although the present research project proposal primarily focuses on practical issues, there are relevant legal constrains that also need to be addressed. On one hand, for the profiling tool to provide its service in full knowledge of all the relevant details, it should be accessed when the dispute already exists. This, however, is a stage at which agreement towards anything is often problematic, if not impossible to achieve, while resort to the profiling tool is entirely dependent on party agreement. For this to work, the dispute profiling tool would need to be incorporated into an enforceable contract clause, according to which the parties promise to accept the dispute resolution mechanism recommended by the automated tool, whatever that recommendation may be. Given that this promise refers to something that cannot be defined at the time of contracting, the enforceability of such clause can also become problematic, only adding to, instead of minimising the possible legal issues. This dilemma can be reduced by an agreement only to resort to the profiling tool and postpone agreement on the actual dispute resolution mechanism recommended by that tool, in the idea that the recommendation would serve the best interest of all parties involved, anyway.

Second, the possible incorporation of the dispute profiling tool into smart contracts will likely challenge the validity requirements of dispute resolution clauses like arbitration agreements. With the 2006 amendments to the UNCITRAL Arbitration Model Law and the UNCITRAL recommendations on defining arbitral agreements[99], we recognize to have come from simply written, to a wider range of forms of electronic agreements. Yet, the recognition of automated and smart contracts as agreements between parties is still an area in development, leaving the question open as to whether parties' agreement is sufficiently determinable when embedded in a software code. Similarly, the authentication power of blockchain is another legal issue open for discussion, waiting to see whether it will be accepted globally by state courts.

Finally, when the profiling tool would be used as an online dispute resolution mechanism, the main issue becomes the acceptability of the outcome. The tool would not only make a determination on ODR being the most suitable form for that dispute, but would also lead to a

[99] Recommendation regarding the interpretation of article II, paragraph 2, and article VII, paragraph 1, of the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, done in New York, 10 June 1958, adopted by the United Nations Commission on International Trade Law on 7 July 2006 at its thirty-ninth session.

decision rendered in an automated manner without any human interference, and communicated in an electronic way as a final outcome, with no human review. This could raise many legal questions, probably some of them similar as for developments in robotics, or for instance, self-driving cars.[100] Especially when the profiling tool would become adaptable through machine learning techniques, the challenges posed by technology would go way beyond those currently posed by already existing ODR techniques.

CONCLUSION. THE WAY FORWARD

The proposed dispute profiling tool will aid effective access to justice to all, as it would provide an easily accessible method that will offer disputing parties the best possible resolution mechanism for the specific dispute, and with that the best possible chance to resolve their differences. Following the approach taken long ago by the UNCITRAL when developing arbitration as an adaptable method, serving all disputes ranging from the smallest claims to the multi-billion Dollar mega-disputes and disputes between states, the proposed new tool is also intended to be a generic one. Many parties would be able to make their own, adaptable version, and many parties could refer to already existing, fixed versions, to make maximum use of their capabilities.

The proposed project needed to develop the tool in full, practical details, is designed to be a large-scale collaborative one, combining expert knowledge from very different scientific backgrounds and seeking interest in the market. The current stage of the project development has attracted interest from a number of experts in dispute resolution, sociology and cross-cultural research, as well as dispute resolution psychology and cognitive decision-making. The project is designed to make use of IT services to incorporate the results of the research into the targeted technologies and perform the coding.

Funding is sought to support the research needed to design the elements of the complex decision tree proposed. Similarly, collaborations are sought with dispute resolution organisations to connect to the tool developed, to provide the data necessary to match each individual case against available dispute resolution methods, and also to offer the tool to their clients and use it as ongoing data collection platform.

[100] Gless, Sabine et al., 'If Robots Cause Harm, Who Is to Blame? Self-Driving Cars and Criminal Liability' (January 29, 2016). Available at SSRN: https://ssrn.com/abstract=2724592