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Smart Contracting for the Proactive Governance of Digital Exchange

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Declaration:
Hereby I declare that this doctoral thesis is my original investigation and achievement, submitted for doctoral degree at Tallinn University of Technology, and has not been submitted for doctoral or any equivalent academic degree before.

Maria Claudia Solarte Vásquez

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MARIA CLAUDIA SOLARTE VÁSQUEZ

Contents

List of Publications

This thesis compiles the research published in the following scientific papers:

I. Solarte-Vásquez, M. C. (2014). Reflections on the Concrete Application of Principles of Internet Governance and the Networked Information Society in the European Union Institutionalization Process of Alternative Dispute Resolution Methods. *Regulating eTechnologies in the European Union* (pp. 251-283). Springer International Publishing. https://link.springer.com/chapter/10.1007/978-3-319-08117-5_12. (3.1)

II. Solarte-Vásquez, M. C., Järv, N., & Nyman-Metcalf, K. (2016). Usability Factors in Transactional Design and Smart Contracting. In The Future of Law and eTechnologies (pp. 149-176). Springer International Publishing. https://link.springer.com/chapter/10.1007/978-3-319-26896-5_8. (3.1)

III. Solarte-Vásquez Maria Claudia, Rungi Mait (Accepted in May 2017). Perceptions on Collaboration Affecting the Viability of the Smart Contracting Approach. *Journal of Management and Change* [forthcoming]. (1.2)

IV. Solarte-Vásquez, Maria Claudia & Nyman-Metcalf Katrin Merike (2017). Smart Contracting. A Multidisciplinary and Proactive Approach for the EU Digital Single Market. *Baltic Journal of European Studies* (pp. 208-243). https://doi.org/10.1515/bjes-2017-0017. (1.1)

Other Articles related to the content of the work

- Solarte-Vásquez, M. C. (2013). Regulatory Patterns of the Internet Development. Expanding the Role of Private Stakeholders through Mediatised "Self-regulation". Baltic Journal of European Studies, 3 (1), 84−120. (1.2)

- Solarte-Vásquez, M. C.; Rungi, M.; Nyman-Metcalf, K. (2018). Perceptions on self-regulation and transaction friendliness relevant to smart contracting. International Journal of Law and Management. 10.1108/IJLMA-03-2018-0061 (1.1)

Author's contribution to the publications

I. Maria Claudia Solarte-Vásquez designed and prepared the study, researched the phenomenological background, developed the theoretical principles laying the foundation of the research, applied them to a concrete regulatory institutionalization case, and was the sole author of the paper.

II. Maria Claudia Solarte-Vásquez developed the ideas on concrete factors applicable to transaction UX and the nesting of these constructs into the field of proactive law and the result of a continuum of disciplinary developments. She worked on theory development and substantiation tying the emerging field of legal design to conflict management, compiled the information, and wrote the paper in collaboration with the co-authors who provided input according to their area of expertise. The integrated taxonomy of UX factors was prepared with PhD Ca. Natalia Järv, and Adjunct Professor Dr. Katrin Nyman-Metcalf reviewed the content, reasoning and presentation of the work.

III. Maria Claudia Solarte-Vásquez designed the study and collected the data. She performed the data processing, studied the results and drew conclusions on the findings under the guidance of the co-author who also made substantial contributions and actively participated in the process of writing and publishing the article.

IV. Maria Claudia Solarte-Vásquez made the proposal of the paper and wrapped the Smart Contracting approach up, organizing all its theoretical components in a concise presentation. She summarized the characterization, operationalization and specification of the approach and contextualized it within the institutional framework of the European Union (EU), with the guidance and support of the co-author with whom the ideas were refined and the paper was completed.

Introduction

That regulatory transformations are necessary to improve the governance of exchange interactions is uncontested, but how to address the incredibly fast growing challenges that technological progress poses to institutions central to traditional democratic societies, remains one of the most serious question of the times (Hadfield, 2016). The scale and complexity of the digital markets intensify the inherent limitations of States to structure and manage the legal and policy infrastructure efficiently, or to ensure the quality and legitimacy of their interventions. The forecasted speed of change and disruptive effect of more advanced technologies suggest that the failure of traditional entities to keep up with the regulatory demands of society will continue to be on the increase (Hadfield & Talley, 2006; Moses, 2011). To coordinate the ongoing transitions calls for the involvement of private stakeholders in regulatory functions and broader and strategic governance activities. Companies and other private organizations and influencers with the potential for collective entrepreneurship (Hardy & Maguire, 2008) logically emerge as much stronger candidates than any state organ, to lead and disseminate institutional change and innovation initiatives. In addition, the proactive, human centred and reflexive perspective to contract based governance models, stands out as a more suitable option for the development of smart ways to regulate present and future interactions without antagonizing the legal framework. This work contends that private and proactive transaction design strategies are the key to improve the governance of exchange relations and to ensure the efficiency and comprehensibility of legal interfaces in semi-automated and automated systems of interaction. The renewal of contracting and transacting design activities under those conditions defines the scope of this research.

The topicality of the work is also established on practical terms, considering that that the overheads of contracting drafting and implementation are major corporate governance and management concerns (Ehret & Haase, 2012; Gennaioli, 2013). This has been corroborated by industry studies such as the Benchmark Survey conducted yearly by the International Association for Contract & Commercial Management (IACCM), where poor contract drafting and litigation over contracts are consistently found to be the highest costing contingencies for business, across industries and around the world.[1] Furthermore, according to the IACCM reports, most sectors are preparing to use computational methods and Artificial Intelligence (AI) in contracting, and perhaps more alarmingly, they expect technology to provide solutions for the consumption and supply of legal services.

While the long term effect of a premature disruption of lawyering (Sheppard, 2015) has not been gauged to determine whether it would cause more harm to the legal environment of business than good, the institutionalization of improved contracting practices should increase the governance capacities of the private sector and smooth trade relations at virtually no risk. It could also help society succeed at larger goals on sustainable growth (Helne & Hirvilammi, 2015) if it tackles the growing complexity of the digital markets and automated exchange interactions where the incidence of conflict and disputes is expected to be much higher. This, without losing sight on that inadequate contracting practices affect many stakeholder groups, the biggest of which is composed by customers, or the front-end users of products and services.

[1] International Asociación for Contract & Commercial Management https://www.iaccm.com/services/research-and-advisory/

Research problem

Traditional contracting is stale and lacking well-justified, coherent, functional and forward-looking renewal proposals to meet the needs of the knowledge economy and the digital markets. The interdisciplinary engagement in the determination of the problems of traditional practice has been insufficient, and the commitment to the development and diffusion of alternatives uneven. This lack of integration and functional scientific convergence, although common to early stages of all research fields, has deterred the establishment of a strong transaction design referent. This may play a role in the delayed institutionalization of new processes, when business awareness and the interest in alternative contracting are low, and the organizational policies on legal strategies conservative (Kahan & Klausner, 1997; Poppo & Zenger, 2002).

The (legal) industry has attempted some reforms, but it is still overconfident and/or relies on technology-based adjustments. Unsurprisingly, the disparate growth in legal automation methods (software) and the market for legal technology ("legaltech") does not reflect so far in its limited applications, and has had little or no transformative effects in terms of organizational culture, corporate values or the contracting agents' worldviews (Altman Weil Flash Survey, Law Firms in Transition 2017).[2] This discrepancy shows that changes are taking place on the surface, primarily via digitization and business model innovation and at the level of the provision of legal services. They may be addressing the problems of efficiency and costs that are acknowledged as the broadest vulnerabilities of the legal industry to larger changes of the social economic and technical system, but distract from the much deeper and long-standing crisis concerning regulatory quality and the governance of new forms of exchange. The implications of this oversight are manifold, but this study narrows down to the level that demands adjustments most urgently. Contractual legal products of any kind feature extremely low Usability (UX) qualities, undermining their promise of reliability and security (Haapio, 2013). This may result in uninformed/misinformed consent becoming acceptable grounds for lawfulness, especially in digital consumer transactions, which the thesis claims could constitute the most harmful neglect in the governance of exchange being transferred to the digital markets. Moreover, the Internet of Things and the unrestrained use of computational methods in law would mean a return to discrete forms of exchange transactions and have a regressive and possibly irrevocable effect in contracting and trade.

To rationalize the research process, the work set to attend, in order, to these four interrelated issues:

-Insufficient understanding of the phenomenological and institutional background affecting the governance of exchange relations.

-The need to unify a transformative proposal with ontological and epistemological standing that would not contradict laws and doctrine

-The operationalization transaction design guidelines applicable to mediatized and digital interactions

-The absence of the 'transitional pathway' concept from the academic dialog on legal innovation and automation or any closely related strategic approach.

State of the art and research gaps

The governance capacities of contracts and transactions and their impact on long-term trade relations has been a central preoccupation of classic legal and economic

[2] http://www.altmanweil.com/LFiT2017/

scholarship (Williamson, 1979). Copious research with marked influence in the field of business and management (McLaughlin et al., 2014) highlight the strategic value of private agreements (Macneil, 1980; Macaulay, 1985). More recently, the interest on regulatory quality and on the relational governance potential of contracts to improve the legal environment of business has been on the rise (Schwartz & Scott, 2003; Argyres & Mayer, 2007), but the contracting capacity is known to remain largely unexploited (DiMatteo, 2010; Siedel & Haapio, 2010). Even though the digital transformation and automation challenges affecting human interaction and the platforms of exchange are new topics in law, academic communities have been forming and seeking for innovation and change catalysts. On the one hand, they are looking at visualization, information architecture and design techniques (Brunschwig, 2014; Passera et al., 2016; Berger-Walliser et al., 2017), and on the other hand, at technology applications, as the most promising alternatives to traditional contracting (Clack et al., 2016; Christidis & Devetsikiotis, 2016).

In the converging area of business, Information and Communication Technologies (ICTs) and the law, this scattered progress and processes critically misalign, exposing deep knowledge voids and many areas that would benefit from integration. First, the relevant and encompassing phenomenological background research and understanding was missing, and yet needed to justify grounding and foundational cross-disciplinary studies and to substantiate novel theoretical proposals in all these directions. Second, the literature problematizing contracting did not contextualize or fully operationalize contracting theories or/and transactional legal design cohesively with coherent concepts, models, transferable techniques and standards or guidance for applications. The research priorities were not established and there was no systematic agenda to follow or vision in respect to digital exchange relations and automation. Some revisionist proactive constructs facilitating disciplinary integration and promoting innovation are robust contributions informing the subsequent developments on resilient, human centred and sustainable contracting (Berger-Walliser, 2012), but they lacked substantiation, justifications, and/or were not detailed and pressing enough.

Aims and research questions

Bearing emancipatory and practical ends in mind, the general aim of the research was to unify and systematize dispersed conceptual developments on transaction and legal design in one compact proposal, resting on a proper phenomenological and institutional review of the changing environment of the governance of exchange, and in support of the consolidation of the emerging research field. This involved the formulation of an encompassing and functional principled approach referred to as Smart Contracting and the first exploratory study with regards to its viability and the upgrade priorities needed for its application. More concretely, the research set to delineate cross-disciplinary conceptualizations based on sound phenomenological and theoretical justifications, some empirical standing, and operationalization standards and guidelines. The approach had to be a functional option, indicate the organizational and institutional contexts where it may find practical applicability, and be useful to smooth the transition to more digitized and automated models of exchange. Smart Contracting implements a perspective indispensable to serve as a pathway to automation, a concept that was absent from the legal innovation agenda and discourse and introduced by this work.

In consideration of the time-dependent and contextual perspective of science affirmed by Tsoukas and Knudsen (2013), the work was guided by a **General** meta-theoretical **Research Question (GRQ**) as follows: How to justify, substantiate and operationalize

transformative and sustainable innovation to improve the private governance of exchange and the digital trade environment for the users of legal products? In turn, five separate sub-questions linking to the specific research issues helped accomplish the aims of the work in an orderly manner:

RQ1 What guidance and justifications for legal innovation and improved contracting could better phenomenological and institutional insight about ICTs' development and the emerging private governance regulatory patterns inform?

RQ2 How to substantiate, unify and conceptualize/characterize a forward-looking approach to contracting, to suit the sociotechnical requirements of the times, without contradicting legal theory postulates, legislation or public policies?

RQ3 Are the conditions for the deployment of proactive legal innovation and postulated by Smart Contracting sufficiently met, and what evidence can legitimize the proposal and endorse new practices?

RQ4 How to operationalize a smart and sustainable relational contracting theory proposal, in a way practical and transferable to any exchange context?

RQ5 What sets Smart Contracting apart from the "smart contracts" notion, and why is this specification key to the consolidation of the legal design research field, and the satisfaction of the future needs and challenges of digital commerce?

Figure 1 Illustrates the main research problem, issues taken for assessment, research questions, and indicates the connections that led the research process to its outputs and completion.

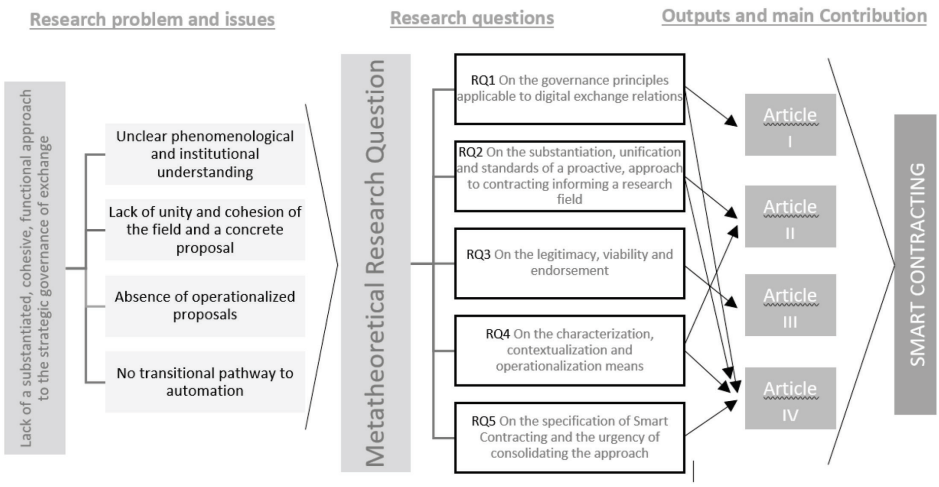

Figure 1. *Author's compilation of the components and outcomes of the research*

The core assumption of the thesis, drawing from Macneil's relational theory (1980) and research on non-distributive negotiation and preventive lawyering (Fisher et al., 2011; Brown, 1950) is that in business transactions, the greatest transformative potential would result from implementing relational wisdom to upgrade the generation, accessibility, and delivery of legal content, rather than from digitization and automation. This gave rise to the Smart Contracting proposal and its related concepts, which compose an original strategic approach to conceiving and designing transactions, the smallest building blocks in private and legally relevant human interactions. At its basic level, Smart Contracting rests on institutional and regulatory research (Williamson, 1979; Gunninham & Rees, 1997; Hadfield & Bozovic, 2016), Contract Theory (Schwartz & Scott, 2003), and

the law. It borrows from more specific knowledge domains as it relates to contract based business strategies and other organizational activities, operations, communications and functions. The proposal links governance, business contracts and proactivity, underpinning the strategic value of legal resources to the strengthening of organizational renewal capacities. It does so, combining the proactive principles and concepts (Passera & Haapio, 2011), conflict management (Hollander-Blumoff & Tyler, 2008), innovation management and diffusion theories (Tidd & Bessant, 2014), absorptive capacity (Zahra & George, 2002) and dynamic capabilities theories, and strategic management (Teece et al., 1997. DiMatteo, 2010), to list a few. Finally, because it is interested in systemic transformations, the proposal adopts terms and understandings from sociotechnical theories at an overarching level, taking into consideration the paradigm shifts affecting all human and human-computer interactions that are increasingly complex, mediatized by digital technologies, and growingly automated. Smart Contracting sources central criteria from the transition systems and sustainability theories (Geels & Schot, 2007; Smith, & Stirling, 2008), and the general HCI literature on the heuristics and methods for interface design (Nielsen, 1994).

The depth of purposes, breath of aims, and the research problems, required a recursive multi-phased and mixed research strategy, which evolved as presented in **Figure 2**.

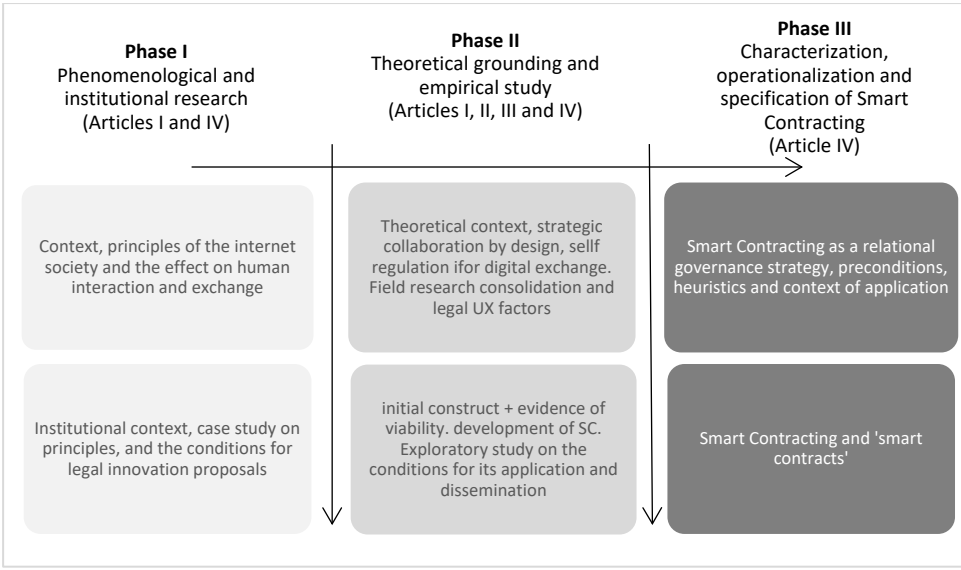

Figure. 2. *Author's summary of the research process and evolution of focus and outputs*

The research progressed from gaining phenomenological and institutional insights in phase I, to the theoretical grounding and underpinnings of transaction design and the Smart Contracting proposal in phase II, together with an empirical study of viability, and the complete contextualization and specification of the approach in Phase III. The first meta-theoretical phase was useful to prime the work, justify core assumptions, and examine the governance capacities of the traditional regulatory systems. The second built, nested and substantiated the cross disciplinary proposal, and explored its first legitimizing signs. The third unified and refined the characterization and operationalization of Smart Contracting, which was posited to offer a smooth transitional

pathway to ubiquitous automation that could prevent the dysfunctionalities of exchange to be locked into computational systems.

Smart Contracting is the chief scientific contribution of this work, both, to the theory as a proactive and relational governance proposal that advances the legal design field, and to the practice because it is an operationalized, contextualized and specified approach, particularly suitable to the design of transaction for digital exchange, viable and of easy adoption. Furthermore, its various constituents and collateral outputs are by themselves significant contributions that could be listed and categorized as follows:

The priming section of the work advanced the literature on governance models and regulatory quality from a new perspective, resulting in arguments that were not raised before and transferable principles for regulatory action in the present private environment of exchange and digital trade. In addition, the discussion of a case study on the institutionalization of collaborative exchange techniques in Estonia and within the EU used the original formulation of Principles of the Interconnected –digital- Society and produced empirical material that helps to inform other public regulatory interventions.

Smart Contracting was conceptualized as the natural evolution and an advanced proactive strategy within a disciplinary continuum on Conflict Management. This facilitated a theoretical thread to justify ontologically the transaction design concepts and tools composed to assist the transformation of contracting and strategic contractual management activities. The empirical findings on the viability of the approach legitimized the proposal and invites organizations to adopt, implement and spread Smart Contracting practices.

The input towards the completion of the research consisted in refining the theoretical content on the relational characterization of the approach and completing the operationalization tasks in the way of contractual management cycles and principles. The research also presented evidence of suitability in the context of the EU Digital Single Market and ended with the specification of Smart Contracting, urging more active scholarly engagement on 'regulation by design' rather than on regulation 'by code.'

This rest of the paper is structured in four chapters: the first elaborates on the background and context. The second explains the research design and methodology as well as other aspects of the philosophy of the research, to clarify the less paradigmatic (Patton, 2008) nature of this inquiry. The third presents the results, discusses and expands on the contributions and implications for regulatory quality, the governance of exchange relations, and the consolidation of the legal design field. The last chapter concludes, describes the research limitations, and reminds the reader of the strategic opportunities that this line of research opens, as well as the traditional scientific and practical areas where the future of contracting activities and strategies could be positioned.

Glossary of Terms

Adaptive	Ability to accommodate to changes, flexible
Agent	Person acting in his own or on behalf of another one in legal or other capacity
Automation	Application of computational methods, and the use of self-executing agents to perform tasks under human direction or self-controlling.
Block chain	Public ledger with linked locked blocks of information on transactions conducted on a network of nodes distributed across millions of computers
Computational method	Problem solving technique based on automated and semi-automated tools and processes (numerical and non-numerical algorithms, information technology and computer infrastructures)
Consent	Informed agreement and free of vices, in law. A binary concept in law and economics, consent is the expression of private autonomy, freedoms and responsibilities
Contract Management:	Professional administration and control of processes conforming all the phases and stages of the lifecycle of contracts pursuing optimal performance. Not necessarily a lawyering practice
Contractual management:	The governance of contract management processes (Keskitalo, 2006)
Customer	Recipient of the product or service
Digital Transformation:	The strategic use of ICTs in business operations, and the impact of digitalization in social interactions
Distributed system	Autonomous computers that share resources and capabilities to create a single and integrated, coherent network for users
Interface	Visual layer of a system, containing information architectured for UX to a different degrees
Mediatized	Through an ICT based medium, normally an interconnecting gadget such mobile and other electronic and interactive artefacts
Party	Natural or moral persons who participate of a contracting process and possess legal capacity
Private Governance	Regulatory activities of non-public entities
Proactive lawyering	The mixture of preventing harm or minimizing risks while inducing gain and supporting compliance, applied to the legal practice
Reflexive –regulation-	Affected by the perceptions of participating parties, related to the responsive treatment of feedback. Because this adds fuzziness to relationships, reflexivity applies to dynamic and flexible rules

Regulation	"…*instrument (legal or non-legal in its character, governmental or non-governmental in its source, direct or indirect in its operation…) that is designed to channel behaviour*." (Brownsword & Somsen, 2009:8).
Regulatory system	An organized normative scheme with methods and principles Transferable: denotes the quality of being suitable in various contexts, diverse applicability Self-regulation: broadly speaking, self-organizing, self-reliant, self-governing, in no need for external control
Relational Contracting	Not discrete. Processes that contextualize exchange and add a layer of consideration of the relationship and the institution that a given contract could preserve. These are chiefly collaborative (contract solidarity) and dynamic (Macneil, 1980)
Responsive –regulation-	Recognizes stakeholders' needs and respects institutional environments; deploys new regulations consistently and is performance sensitive, with grasp of shifting challenges (Baldwin & Black 2008).
Smart Contract	A metaphor used to designate self-help or automated execution mechanisms
Smart Contracting	Relational approach to strategic contracting characterized by being collaborative, proactive, dynamic and applicable to automated and non-automated exchange events.
Strategic Contracting	The use of private governance mechanisms such as contracts as a competitive advantage
Transactional/transaction design	Activities investigating, planning and representing legally relevant exchange, identifying each transactional unit
Usability (UX)	Design feature defined as '*The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use*' in the ISO standards 9241-11 (https://www.iso.org/standard/63500.html)
User	-Human- operator of a system
User centered design	Process that focuses on users and their needs, iterative and preferably measured against user performance.
User Experience (UXI)	Emotional aspects related to the interaction between a user and a system, services, and/or products.

1 Background and theoretical framework

The research was conducted in three progressive phases that required separated, and multidisciplinary but interdependent foundations and frameworks. The research problem, issues and questions were addressed in the same manner as the focus shifted from the broadest governance levels to narrow issues of quality in the smallest components of mediatized exchange or micro-transactions. This scaffolding was beneficial to justify the integration of drafting tools and standards for the interfacing of interactions with legal relevance. This area of interest was referred to in the work as "digital transaction design," which nowadays overlaps with the emerging and more general research field of "legal design" (Berger-Walliser, et al., 2017). Easing the way into these theoretical discussions and conceptualization processes is the proactive approach (Pohjonen, 2010), which provides respectable theoretical basis for the development of more interdisciplinary contracting models and alternative lawyering practices. In addition, the proactive law movement has given traction to earlier, less active but equally valuable alternative theories, and accomplished a lot more in terms of raising awareness of the efficiency, effectiveness, and relational benefits of self-regulatory means and strategic collaborative contracting in business (Groton & Haapio, 2007; Haapio, 2010). These were revisited and given more phenomenological and theoretical foundational support to link newer research streams with the forerunners in the field of conflict management and dispute resolution, where proactive views find the strongest ontological and axiomatic substantiation.

This thesis is critical of the misleading and indiscriminate endorsement and promotion of technological solutions, and defends that changes in the generation, accessibility, and delivery of legal content are more crucial – digital, automated, or otherwise – most particularly in the field of business transactions. Moreover, it argues that the diffusion of these new practices shapes the preparatory pathway needed for legal technological progress, and should be collectively promoted by private influencers such as business organizations and not only recommended by niche institutional innovators. These roles are explained from various perspectives, among others by Venkatesh & Davis (2000), Rogers (2010), McGaughey et al. (2016), and Boxenbaum & Jonsson (2017), while when speaking of technological pathways, the work refers to the terminology used by Geels (2005) and Geels & Schot (2007).

The visibility of the problems of efficiency and costs in the legal industry has increased to the point of shifting attention and resources away from other, more serious dysfunctionalities. Improved delivery and better legal services are in high demand, and supplied via digitization, digitalization, and automation processes (Parviainen et al., 2017:64). These represent, in fact, some of the most hyped trends of the past years (Ciupa, 2017). A better and more contextualized balance between technical and social progress is needed to prevent what Sheppard (2015) called premature disruption and incomplete innovation dangers. Rushing disturbs progress in the improvement of contracting processes and regulatory quality advocated by relational contracting and preventive and proactive law movements, and contradicts the essence of free and strategic contracting and transacting, leaving the exchange needs of the market unmet.

The digital-transformation considerations as well as the automation aspects and the legal-lag problem discussed in this work are extensions that this research introduced to the preventive and proactive discourse. Digitalization, the internet of things, and forecasts on trans-humanization were found to be much more persuasive forces

suggesting a rethink of regulatory processes and instruments than any effort ever performed on this respect, in all sectors, at any level. ICTs and other technologies applied to business management and operations continue to move forward rapidly, whereas legal institutions fall further behind. Some works on transitions and systemic change had mapped the background as a wide-scale phenomenon (Perez, 2002; Geels, 2005), but to produce sound, readily applicable, and effective contributions to the improvement of single transactions and the contracting practice it was necessary to lay detailed, solid, and encompassing foundations. In addition, regulatory improvement efforts should transcend single disciplinary perspectives, as achieved by the empirical research on strategic contracting and legal innovation conducted so far. The awareness of applied legal knowledge management and contract visualization increased with the academic work of Passera (2017), who also introduced design thinking and user-centred considerations to the world of contracting less than a decade ago (Passera, 2012). In addition, a number of concepts, methods, and techniques have been taken from other domains and re-combined into different stages of contracting to facilitate the functioning of the private order, as Schuhmann and Eichhorn (2015) and Hines et al. (2004) have explained and advanced.

The thesis explained that updates in strategic contracting must be relational and resist subordination to economic efficiency factors at any cost, to prevent a regression to the "discreet transaction stage" in contract theory (Williamson, 1979). Furthermore, to contribute to relational and proactive contracting, any new approach must be dynamic and resilient, and withstand the test of time (Nystén-Haarala et al., 2010). Automated and technologically assisted contracting or private regulation by code are the newest challenges to the dominant practices, but will not be the last. Digital transformations involve complex social processes that take long to complete and are hard to consolidate Software and AI are used to expedite fixes in the provision of legal services, regardless of the fact that the results may be unrelated to the output of proactive legal and contracting alternatives. Algorithms do not have agentic abilities to participate in the ongoing revision of contract theories or any other organizational and institutional change. For example, the "smart contract" concept, although twenty years old, debuted on the legal scene after 2014 with great impetus with the block-chain technologies (Swan, 2015), but its applications are still devoid of a complete contractual autonomous performance. These transactional instruments made the most important legal tech headlines of the year 2017, and are described as disruptive; regulators and institutions in the financial sector have started to take action to research and develop "smart contract" platforms and more applications. Legal innovation is gaining momentum, but automation is receiving more attention than the institutional change promoted by legal design, which represents decades of evolution in legal thought and ten years of proactive activism and hard work.

Instead of the hasty adoption of automated transaction-securing systems, this thesis recommends social and transitional innovation initiatives to preserve the values claimed by relational exchange proponents (Macneil, 2000; Goetz & Scott 1981) and discussed by Contract Theory (Hart and Holmström, 1986). This path should prevent a greater disconnect between regulations and regulatory targets caused by technological change; the opposite would result in inefficacy and the erosion of regulatory legitimacy (Baldwin & Black 2008).

Figure 3 illustrates key terms and topics highlighted in each research phase and how the Smart Contracting approach was conceptually nested.

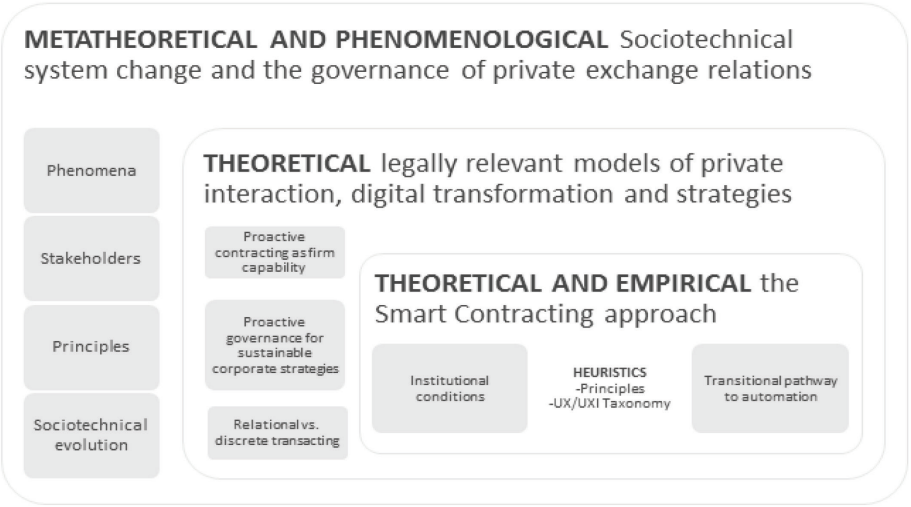

Figure 3. *Author's illustration on the conceptual nesting of the research*

Phase I. This phase examined the field of private governance and new patterns of exchange resulting from digitalization and interconnectedness phenomena and their characteristics. It justifies the claims about the compelling character of the regulatory changes first forecasted and then observed across social and organizational domains. The intent was to identify the impact of change on legally relevant interactions, conceptualize principles applicable to the governance of exchange relations, and identify the conditions affecting current regulatory dynamics. The theory generation process was based on a normative analysis of relevant EU policies from prior to the Internet Governance Strategy 2016[3] such as the digital agenda for Europe,[4] the former European Consumer Strategy 2007–2013,[5] regulations and legislation on Alternative Dispute Resolution (ADR),[6] and statistical data from the Digital Agenda Scoreboard[7] and other publically available from official sources such as the International Telecommunication Union.[8] Formal regulations were contrasted with the observation of governance and regulatory problems discussed earlier in general regarding ADR by authors such as Menkel-Meadow (2000), and exemplified with the case study of the institutionalization of mediation and the dispute resolution culture in Europe. The wider phenomenon described, called for more systematized and contextualized knowledge that was informed by Solarte-Vásquez (2013), and the works on governance by Trubek and Trubek (2006), Castells (2011), DeNardis (2010), and Fuchs (2010), among others.

The regulatory quality of exchange and trade based on private agreements has occupied legal theorists in the fields of contract law (Gundlach & Achrol, 1993; Macneil, 1980, 2000), preventive law (Brown, 1950), collaborative law (Webb, 2003; Daicoff, 2006), ADR (Cronin-Harris, 1995; Goldsmith et al., 2011), and general business law

[3] https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805c1b28
[4] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52010DC0245R%2801%29
[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Al32054
[6] for instance: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013L0011
[7] https://ec.europa.eu/info/policies/justice-and-fundamental-rights/effective-justice/eu-justice-scoreboard_en
[8] https://www.itu.int/pub/D-IND

(Argyres & Mayer, 2007; Weber & Mayer, 2011). Not less notably, the interest in governance and regulatory efficiency is central to other social sciences, such as public administration, institutional and organizational economics, and business, as the works of Rhodes (1996), Coase (1937), Barnard (1968), Klein & Shelanski (1996), Williamson (1979, 1989), Llewellyn (1931), and Chandler (1966) illustrate, respectively. However, the expansion and growing popularity of these topics responds to the digital transformation trends in public and private sectors; the formulation and adoption of new institutional frameworks pertaining to the evolution of the digital market(s); and the branding of new generations of cross-functional professions pushing forward the interest in social/legal innovation (Susskind & Susskind, 2015). It is clear that the unsettling impact of the transition to the digital sociotechnical paradigm has placed the regulatory and institutional quality issues at the top of every serious social sciences research and policy agenda (Genus & Coles, 2008). The need for adjustments is pronounced because of the global scale of the transformations taking place: technologies and the complexities of emerging social interactions are in conflict with institutional inertia.

Legal processes have never advanced in building institutional capacities at the speed of technology, but now this gap is growing at an exponential rate and calling for an urgent regulatory systems upgrade. Normative institutions are very slow to change (North, 1990; Greif & Laitin, 2004), and innovation in the legal sphere is restricted by strong self-preservation mechanisms and other axiological constraints. Opportunities to advance at a faster pace and to be more in tune with the requirements of the times arise in the field of contract law, because the private order is dynamic and may be more responsive and creative, which allows it to govern exchange relations and trade more efficiently, effectively, and satisfactorily. This may in part explain why the private sector has been more active in trying to cope, although by adopting hardly any truly transformative contracting practice. A much richer understanding of private governance institutions and capacities has ensued lately, but contracting, transactional instruments, and the interfaces of exchange are the same in practice, with dire consequences for the business environment. Under-performing legal instruments are terribly expensive to monitor, enforce, and contest (Choi & Triantis, 2008).

Phase II. This phase completed theoretical and empirical tasks, departing from a revision of specific tensions arising in contracting activities, contractual management, and business transactions, where some of the most deeply rooted institutions of the society's private order can be found. It took into consideration that legal frameworks and the application of new perspectives were in the making, such as the update of the data protection regime of the EU, where requirements for information quality and accessibility have been added.[9] It was stated that while the disconnect described earlier is unavoidable, and bound to worsen considering the forecasted technological trajectories, the impact on some human institutions can be managed if dealt with opportunely, and preferably with non-obstructive interventions and "evolutionary efficiency." By interventions are meant preventive, strategic, and self-regulatory leverage upgrades during the planning and drafting processes, rather than legal coercive or remedial action. This is where private organizations and businesses have a prominent role to play, as institutional entrepreneurs and influencers of change. The idea of new stakeholders becoming more actively engaged is supported by the vision of regulatory

[9] The evidence, analysis, and policy context of the Digital Single Market Strategy for Europe is available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1447773803386&uri=CELEX:52015SC0100 Last accessed on 18.07.2018.

innovators such as Gunningham et al. (1998), and consigned in the multistakeholderism principle identified in Phase I. To take advantage of the private governance capacities, traditional contracting strategies could be adjusted to serve the purposes of efficiency, effectiveness and satisfaction. Until now, they mostly promote the restrictive use of agreements to guarantee performance (offensive character) and manage risks – dispute resolution – (defensive character), despite wide recognition from within the managerial sciences of the virtues of relational contracting (McLaughlin et al., 2014). It followed that this work on regulatory quality is anchored in the field of conflict management and dispute resolution, which in turn involves a number of theories, and concepts. Proactive law is one of the most prosperous streams, with a wide spectrum of applications in the private and public governance spheres, and success in attracting the attention of business management and organization studies scholars. In addition, proactive law experts have engaged other professionals and explored alternative means to facilitate exchange relations (Berger-Walliser, 2012; Passera et al., 2013; Berger-Walliser et al., 2017), for example by merging contract design with information design, and promoting legal design as an independent field of studies.

Established that the public regulatory systems in place have reached their limits, it had to be emphasized that the traditional contract theory is questioned (Hart and Holmström, 1986; Hadfield, 2016), and the potential of the existing contractual models is underexploited (Haapio, 2010). At the same time, it was necessary to add that these models fail to properly support and expand organizational or personal capacities for digital interactions. To boost the efficiency, transparency, and dynamism of digital markets (especially in Europe, where the institutional setup has been preparing for changes) and the legal environment of business in general, the regulatory means in trade and exchange must be screened in terms of their substance and appearance. Legally relevant communication and documents have been denounced as impractical by corporate and personal standards (Haapio, 2013). They are not designed from the knowledge management perspective, reflect no relational contracting principles, and are not primarily conceived to promote understanding or share expertise beyond the professional sphere. They are produced by lawyers on the basis of normative criteria alone (validity), resulting in legally relevant interactions becoming unfriendly to most users, that is complex, unintelligible, confusing, burdening, and stress-producing. When UX is this low by default, legally relevant documents may be said to be virtually deprived of value, or worse; agreements could be configured in the absence of free and informed consent, affecting the lawfulness of all related transactions. These issues are especially concerning when they intensify knowledge asymmetries in consumer agreements, given the steady rise in digital interactions and the preeminent role these stakeholders play in interconnected and interdependent digital markets.

Smart Contracting was formulated during this phase, proposing a more complete and viable approach of easy uptake for institutionalization purposes. The viability conditions of the approach derived from the results of the first phase, while the quality criteria/drafting guidelines compiled as a taxonomy of legal UX/UXI factors were based on the combination of conventions, most generally the ISO9241,[10] and resources from initiatives like Clarity International,[11] and legal and the HCI literature (Bevan, 2006; Lidwell et al., 2010; Preece et al., 2015). The major strengths of Smart Contracting are its

[10] retrieved from: https://www.iso.org/standard/52075.html

[11] http://www.clarity-international.net/

unobtrusive fit in this changing institutional environment and the compatibility of its postulates with the traditional legal doctrine. At the same time, the approach is transformative, forward-looking, and encompassing of most branches of interest in proactive legal innovation, such as legal visualization. These new areas of knowledge have accumulated a good amount of empirical data, resulting from field and experimental work (Passera, 2017), but also from opportunity, rather than following a systematic research agenda. That is why the substantiation, cohesion and theoretical reinforcement work were necessary.

Phase III. This phase filled in the remaining voids, extending the EU institutional assessment (for example looking into the Directive on Electronic Commerce (2000), the 2001 "Mandelkern Group on Better Regulation,"[12] the marketing law and the Consumer Rights Directive report 2017[13]), and responsive regulatory processes (Braithwaite, 2011). It delineates the theoretical grounds of the legal design field while restating and expanding the operationalization components of Smart Contracting with guiding principles. A central aim of this phase was the specification of the concept and the sharp differentiation from the "smart contract" notion (Szabo, in Christidis & Devetsikiotis, 2016), which was explained to be a misnomer in the legal context and does not necessarily represent Smart Contracting processes or its proactive strategy.

[12] final Report, retrieved from http://ec.europa.eu/smart-regulation/better_regulation/documents/mandelkern_report.pdf

[13] available at: http://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=59332

2 Research design and methodology

The work at hand comprises four papers unified by a general purpose; they follow coherent axiological considerations and a logic that results from the pragmatic/realistic perspective applied (Morgan, 2007; Yvonne Feilzer, 2010). The strategy was to divide the work into three complete but interdependent phases, taking into account the complexity of the research problem and the lack of consolidated theories gathering the pertaining concepts and assumptions necessary to accomplish the research aims. *The first phase* was meta-theoretical in that it had to map the phenomenological and institutional background, and theoretical in that it justified core assumptions and provided a better understanding of the scope of the (private) governance of (mediatized) exchange relations, using a case study example for analogy. *The second phase* was theoretical and empirical. The various conceptualizations and theorization outcomes of the initial stage of this phase were given a preliminary corroboration, confirming some of the assumptions, and backing more arguments up for the continuation of the research onto *the third phase*, where the theoretical proposal was further characterized, operationalized, contextualized, and specified. Pragmatism suited the interdisciplinary ontology of this research, and the rapidly changing environment influencing the progression of the thesis. Recursive research allowed for flexibility and the consistent incorporation of phenomenological dimensions to achieve unity, enabling the wide range of contributions that were accomplished (DeCuir-Gunby & Schutz, 2016).

The interdisciplinary ontology of this research required unique epistemological choices, and a combination of methods and techniques from the legal and the social sciences. Purist approaches, with bundled sets of features referred to as paradigms-worldviews (Lincoln, 1990), are not comprehensive or helpful to evolving and expanding scientific inquiry projects (Morgan, 2007). Monolithic stances are not only discouraged in early stages of the development of a research field like transaction or legal design, but they are unfit to interpret the interdisciplinary dialogue on institutional transitions, regulatory quality, and innovation that this work proposes. Moreover, part of the problem of the institutional stiffness afflicting governance tackled in this thesis has to do with the lack of cross-functional expertise among researchers and practitioners and the difficulties to reconcile methods and evaluate quality using various types of reasoning. Pragmatism and critical realism encourage the combined use of methodologies and legitimizing the creation of alternative ways that allow scientific communities to communicate and share interests as practically and contextually responsive as possible. Pragmatism also promotes epistemological experiments, variations of traditional methods, and, when needed, a change of practices (Datta, 1997). Both the quantitative and the qualitative approach were used, according to the needs of each phase and stage (data collection, analysis, or inference), but the latter prevailed throughout. In all respects, this thesis implemented a partially and concurrent *mixed methods research design* (Creswell et al., 2003; Teddlie & Tashakkori 2009).

The quantitative components were limited because of the lack of a consolidated theoretical framework, and to avoid speculative hypotheses. The wider phenomenon studied called for new concepts and perspectives to assist in the production of "warranted assertions" (Dewey, 2013; Biesta, 2010) or the "best possible knowledge" that could be produced, given the means and methods available. In places, the work departs from observations of problems that according to the researcher's expertise need to be solved and could be reframed through various disciplinary lenses. For example,

contract law is not user-centred, and UX/UXI factors are not essential for contract formation or validity, but to adopt contractual processes that incorporate these elements is possible by borrowing from other disciplines. The deductive portion of the work, thus, was limited to a summative analysis during the second phase of the research. As for the rest, inductive and abductive reasoning were applied (Morse & Chung, 2003; Marcio, 2001; Walton, 2014). Overall, this process reflects a systematization effort that sharpens the ontological scope of the emerging field of legal design and facilitates the development and consolidation of its theoretical underpinnings. It also assists the practice with a complete approach to transaction design. This practical orientation confers a "policy science" if not an underlying action-research character to this inquiry (Whitley, 1984).

The next sub-sections explain the elements that give consistency to the work and the research strategy. After presenting the methodology and other epistemological aspects, the rest of the philosophical components of the research are referred briefly, bringing together the pragmatic/realistic stance adopted.

Methodology

Regulatory research is an interdisciplinary field at its core, but in the absence of a single structural and methodological frame, and due to the many dimensions it may involve and its prescriptive nature, it may seem confusing. The pragmatic worldview offers ways to develop knowledge about the institutional settings where contracting issues arise. It argues for multi-paradigmatic research stances, and recommends the methodological resources of the critical realism for serving the purpose (Losoncz, in Drahos, 2017). This thesis needed to combine epistemologies, methods, criteria, and tools for reasoning, and this was justified for the reasons that Greene enumerates (2007; 100–104): it enables triangulation, complementarity, development, initiation, and expansion. The latter occurs because several phenomena become intertwined in each of the studies compiled for the thesis. Research on legal doctrine—affected by and affecting social and organizational activities in each given context—or on regulatory development can be served only by epistemological pluralism and a mixture/adaptation of methods (Healy, 2003; Miller et al., 2008).

In this thesis, the legal reasoning was adjusted to alternative epistemological routes, limiting the discussion of rules and resorting to diverse standards, all in the interest of enriching the dialog about legal innovation. The schemes of intelligibility and terminology of the social sciences were approached to reason about facts and phenomena concerning legal content of relevance to organizational theories and the business practice. The lack of maturity of the transaction and legal-design research landscape required the use of qualitative methods, exploration studies of new phenomena, and theory building. The results obtained do not generalize well, but the purpose was action rather than verification or prediction. In addition, exploratory research is not deprived of scientific value. For example, hypotheses and propositions are commonly sourced from new theories to be used in further qualitative or quantitative experiments, for the proof of concepts, and corroboration studies (Healy & Perry, 2000). Advancing legal design is similar to any innovation process. In early stages, while ontologies are inconclusive and the terminology is underdeveloped, it relies on conceptual creativity and intellectual risk-taking. The same can be said about the methods and techniques; here, pragmatic, abductive inferences are proposed to solve the expected epistemological uncertainties (Marcio, 2001).

This research supplies advanced proactive applications with meta-theoretical considerations of governance, general principles of exchange, and the how-tos of addressing ergonomic components in ideal interactions, before anything could be observed at the level of a single transactional type. In other words, the field is in a stage prior to and unfavourable for deduction or straightforward induction, the process throughout was abductive, and the analysis was performed on the basis of eco-cognitive hypothetical thinking (Magnani, 2015; Gold, et al., 2011) and retroduction.

Methods, data collection and processing per output

Article I: Content analysis of doctrine, literature and official documents, grounded theory, and a single case study: the institutionalization of ADR methods and ADR culture-building in the EU. The data processing focused on a phenomenological and critical/institutional interpretative analysis via induction and abduction, with some legal comparative techniques. This type of reasoning inferred governance principles from social and formal institutional observations, in order to work out plausible answers about the quality and efficiency challenges of the traditional regulatory systems of exchange (Morse & Chung, 2003). The paper argued for empowerment to increase self-regulatory competences and facilitate access to justice permitting more collaborative and dynamic developments, amenable to the digital transformations and mediatized exchange interactions.

Article II: Content analysis of doctrine and a systematic review of the literature on political science, ergonomics, HCI, and law (substantiated an historical continuum on the development of proactive legal scholarship and practice, and a taxonomy of legal UX/UXI). The data was processed using historical interpretative analysis, critical interpretative analysis, and integrative inductive and abductive reasoning techniques to tie the emergence of a new research field (Morse & Chung, 2003) and the theory stemming to their forerunners, while suggesting a way ahead to manage the future of contracting at the level of transaction design (Walton, 2014).

Article III: Various methods were combined during the three-year exploratory and multimodal multiple case study on the first assessment of the viability conditions of Smart Contracting, based on the public's perceptions. The study used a large convenient sample of 255 respondents. It first compiled and processed a quantitative style dataset to which basic summative statistical techniques were applied (Creswell, 2016), followed by thematic-semantic/linguistic interpretative techniques for the codification, classification, and interpretation of the reported meanings. Nine categories (seven with positive or neutral and two with negative connotations) were extracted as codes out of the 120 words reported, when related and repeated most frequently (Tashakkori & Teddlie 1998). The codification was reviewed with a card sorting test (Rubin & Chisnell, 2008). The forms of reasoning needed were deduction to a limited extent, and induction and abduction. The results were encouraging but preliminary insofar as they are not corroborated by other studies.

Article IV: This article relied predominantly on content analysis of doctrine, literature and official documents on a case study (Smart Contracting within the EU system), and theory development (conceptualization and formulation of principles, a systematic unification of justifications for the relational and proactive approach to contracting, and a discussion of the contributions to the emerging field of legal design). The reasoning techniques were the inductive for the theoretical constructions, the critical interpretative for the conceptual review, a complementary institutional analysis of fit of

the approach within the EU system, and abductive reasoning for the expansion into contract automation disruption (Morse & Chung, 2003).

Other components of the philosophy of the research

This work was designed to integrate, develop and expand theories, and contributes to various spheres of knowledge in sociotechnical, non-positivist ways and modes of analysis available to the fields in question. It was intended to produce useful, transferable and readily applicable understandings. This is why it can be categorized as pragmatic and critical-realist research, both theory-driven and generative of more theory (Carlsson, 2006; Hoch, 2007; Bergene, 2007), and not limited to the identification and description of interesting phenomena.

The pragmatic stance or worldview is suited to research in the digital sphere and on new governance strategies for planning and designing exchange transactions for two reasons: first, pragmatism, or what John Dewey called “practical fallibilism” (explained by Campbell, 1995), recognizes the temporary nature of the products of the mind. It is not certain that the institutionalized solutions being developed now will be appropriate for the problems of the future (Granqvist & Gustafsson, 2016), but making provisions for what is seen ahead is the most a pragmatic researcher can do. What kinds of exchange and contracting practices will exist in the long term may be envisioned to a degree, but not predicted with accuracy. Second, because the ultimate goal of regulatory research is transformative, the critical perspective of this realistic approach fits well. Pragmatism incorporates critical theory components in the way it promotes the re-thinking of assumptions, traditional practices, false dichotomies, and change (Shook, 2000). In this view, knowledge and theory generation are strongly instrumental to action. Pragmatism does not aim to settle dogmatic discussions for the sake of pure ideals, or to achieve deductive validity, but offers a programmatic research agenda and some ways to go about it (James, 1995). This thesis looked for useful and the “best” possible explanations, upon which reflective regulatory action can take place later. **Table 1** presents an overview of the philosophical foundations of the research.

***Table 1**. Summary of the philosophical foundations of the research*

Research philosophy	Pragmatism and critical realism with salient interpretive/constructivist components
Overall research goal and components	- Exploration-interpretation-reflection-(mostly abduction), - Understanding and formulation (mostly induction), - Exploratory identification (basic deduction), to a lesser extent. Theoretical and empirical components
Ontology	Interdisciplinary: built around theories belonging to business management, legal theory and sociology of law and principles of HCI.
Epistemology	- Mixed methodologies with qualitative emphasis - Mixed reasoning techniques: descriptive, interpretative and dialectic methodology. Inductive and abductive processes, mainly. - Mixed methods: content/document analysis, survey, case study, thematic analysis, legal hermeneutics (doctrine analysis and interpretation), theory generation and comparative historical review
Logic and axiology	Principled, collaborative, self-regulatory, dynamic, contextual, human centred regulatory approach
Mission and tools	Encourage changes in contracting practices implementing a strategical relational contract vision - technology-based tactics. Digital transformation leading to a collaborative shift of the legal practice and preservation of contractual freedoms in automated schemes. Advance the legal design and proactive law field with systematization, substantiation, and unification of postulates. Propose a transitional pathway to automation.

Source: composed by the author

Ontology

The cross-disciplinary nature of the object of the research combined theories from business management and law with principles and standards from computer sciences, which together make up a proactive governance approach for mediatized exchange and a transaction design proposal named Smart Contracting. Overall, this academic effort added concepts and terminology that delineated an evolving research field in its beginnings, contributed to the development and consolidation of the existing and applicable theory, and operationalized it to transform legal and managerial practice. The ontology evolved with the work that begins with a meta-theoretical, phenomenological and institutional study about the changes in the governance of exchange relations resulting from social and technological paradigm shifts. It continued at the theoretical level, conceptualizing, theorizing, and substantiating. And it concluded with a contextualized operationalization of the proposal as a transitional pathway to

automation that considers the implications of rushing the use of computational tools and distributed technologies in contracting.

Logic and axiology

Working on transformative proposals is in itself a concrete, value-driven effort, which in this thesis is about regulatory processes to become principled and to increase their responsiveness to the needs and requirements of the times. The work reveals its human-/user-/consumer-centred logic throughout. This in turn reflects ethical commitment to collaborative, preventive, and responsible private regulatory activities. Human centrism and empowerment are viewed as legitimizing components of any regulatory development. This orientation is argued to facilitate the proactive governance of micro-level exchange transactions and addresses some of the dysfunctionalities identified in traditional contracting. The search for theoretical and institutional consistency, unity, and conceptual coherence embed the aesthetic component of the philosophy of the research. It is seen in the promotion of improved and enhanced alternatives to the formats, appearance, and delivery of legal texts, and changes in the interfaces of the law, and justified by their fit of purpose and the identification of new interaction patterns in mediatized exchange relations.

3 Results, findings and contributions

This work unpacked governance capacities of traditional stakeholders in its first phase, and studied regulatory quality issues in mediatized exchange relations as reflected in private transactions and agreements in the second. It argued for transformative innovation with relational sustainability in contracting strategies, reaching a cogent theoretical approach proposal during the third phase. The research problematized digitization and automation trends and warned of the dangers of ignoring the social dimensions of the increased use of certain technologies and its legal implications. The private sector is called on to engage and shown its regulatory allowances to achieve the dynamism required to update contracting processes, digital ones in particular, and institutionalize new, proactive practices, such as the use of transaction and legal design techniques, to improve the legal environment of trade and the governance of exchange relations.

The first phase was important for explaining and substantiating the most important departing assumptions of the work and to discuss the new formal and informal institutional frameworks shaping as a result of socio technical paradigm changes. It argued why regulatory sources, processes, and formats cannot remain the same. Public governance capacities have reached their limits while other stakeholders have become empowered and more actively engaged. It was affirmed that while regulatory lags are unavoidable and perhaps intensifying, some processes may be upgraded with transaction and legal design, ready-to-use techniques, more appropriate to meet the needs and requirements of the times. The second and third phases spoke more narrowly of proactive contracting as a strategic approach and its links to risk management, ADR, strategic management, and legal competences. Proactive contracting is described as a fundamental dynamic capability of individuals and organizations. Next, the work concentrated on highlighting the justifications of the transaction and legal design fields and purposes, and on the systematization of its concepts and some measurability parameters. This helped formulate a compact proposal on relational and proactive contracting and contractual management referred to as the Smart Contracting approach. It brings preventive tenets into a forward-looking and more sustainable strategy for the governance of exchange relations along with principles and measurable technical standards of human-centred design to guide the practice, and applicable to automated interaction schemes.

The next subsections explain the results, findings, and contributions per paper and corresponding to each phase of the research.

3.1 Phenomenological and institutional assessment

This assessment corresponds to the meta-theoretical stage of the work in phase I, which addressed and responded the RQ1. The outcome was a phenomenological and institutional evaluative observation of regulatory effectiveness, competences, and conditions that exposed the need for alternatives regulatory strategies and opportunities for legal innovation. It focused on the social, technical and legal environments of the private governance of exchange and concluded with a formulation of general principles that justify a transformation of legal practice and a renewal of the scholarship on the transaction costs of exchange relationships with legal relevance. The assessment included a case study on a traditional institutionalization process example (**Article I**). The raised about the impact of technology, the relevance of new arguments to promote

change in contracting practices, and the usefulness of an institutionalization process analogy stemmed from the priming text on internet governance and the evolution of private models of governance written in preparation for the thesis (Solarte-Vásquez, 2013).

This phase evidenced the importance of collective, collaborative, and independent self-regulatory capacity in interconnected times, and the contrasting effects of formal (legislation and public policies) and informal (based on private initiatives) institutionalization processes. Some directions of the current governance trends and transformations affect exchange and were presented to gain a better understanding of the new responsibilities, conditions, and interactions appearing in digital trade. The new participatory role of stakeholders, deriving from increased self-regulation and the capacities of private regulatory options to help overcome regulatory stiffness were explained. This phase also introduced the empowerment effects of self-reliance, which became, together with the collaboration principle, common denominators throughout the research. This "accountable" sort of agency is claimed to be a precondition for the meaningful participation in interactions of the interconnected society, and imposes more responsibilities than ever before on groups and individuals, in times of changing sociotechnical, legal, and economic conditions.

The principles of the networked information society formulated in the article are: (a) regulability through cooperation and increased self-regulation; (b) multistakeholderism, from which collaboration was derived for being a democratic and inclusive principle; and (c) neutrality. The impact of the information society on interactive governance was identified at the widest level of analysis, supporting relational views of exchange that do not fit the efficiency and effectiveness premises of the transaction costs economics school (Peters et al., 2011). The need for a transformation of regulatory processes based on new interactions was restated, for which the institutionalization of different procedural rules and practices is imperative, coinciding with Trubek and Trubek (2006), and Hendriks and Grin (2007). It was concluded that better regulatory systems should be dynamic and adaptive, and the new practices responsive (Voss et al. 2006) and preventive/proactive in the public and the private spheres, at all levels, as Sorsa (2009) suggests.

These theoretical reflections added to the understanding of the specific effects of public intervention and the problems of balancing flexibility and formalization for long-term systemic change. They also helped understand how to combine legislation with other reflexive and dynamic models to match the speed of progress and requirements of the times. Constructive association and collaboration were found to be fundamental, as reflected in the networks' self-generated arrangements, and are valuable competences, compatible with the complexities and uncertainties of the globalized, interconnected world. Crossing the barriers to innovation in law is not a task for innovation experts or lawyers alone. The vitality of fundamental institutions in society depends on how stable the legal system is. This calls for a delicate balance and the strategic involvement of experts from various disciplines, in a more sustainable effort to integrate knowledge rather than to continue to compartment it. Strategic management and innovation devoid of legal considerations would become unrealistic activities, while legal knowledge without a managerial and dynamic edge could continue to obstruct certain dimensions of progress.

The case study helped identify some conditions determining regulatory developments in purposeful institutionalization processes. Seen from this perspective, it was the first

assessment that linked technological innovation to private regulatory competences with a concrete example. This example was the effect of policies and legislation on ADR methods of the EU in one member state. The concepts of responsive, reflexive, and dynamic governance were introduced to the discussion as in connection to opportunities to adjust trade and transacting to the requirements of the times.

ADR culture is strictly transactional, establishing the relevance of the example used for this study, and indicating that ADR and contracting share ontologies. Indeed, these conflict management methods and contracting are intimately connected. The outcomes of the assessment are transferable to other areas and instances where similar interactions occur. They showed that technology of the range and scale of ICTs has affected power relations and stakeholders' responsibilities in ways so significant, that contract theory, contracting strategies, and contractual practices should be renewed.

Traditional contracting strategies should be adjusted to reflect and serve the values of cooperation, empowerment (self-regulation), self-reliance (freedom), effectiveness, and dynamism. It was emphasized that the prevailing contracting styles are problematic because they still promote the restrictive use of agreements; offensively to guarantee performance and defensively to and manage risks, including dispute resolution contingencies. This first phase of the work was necessary because the results informed and justified core assumptions that guided the remainder of the work. However, the assessment was updated towards the end of the research, in consideration of the rapid evolution of policies, legislation, and the deployment of the block-chain technologies.

3.2 Transaction design and the strategic management of contractual processes

This section discusses the results and contributions concerning the justifications and substantiation of the transaction and legal design field in which transaction design standards and the Smart Contracting proposal find their roots. It refers to the theoretical aspects of the initial stages of phase II of the research when the theory-building process was initiated, in response to the RQ2, and RQ4 in part.

Proactive law and Smart Contracting were placed at the end of a Conflict Management and Dispute Prevention Continuum, proposed and described as advanced practices and an application of the perspective, evolving naturally from the already mature preventive law propositions and theories. By anchoring the evolving streams of research in that historical perspective, the thesis adds legitimacy and credibility to a wide spectrum of innovative legal proposals on law, including SC, logic, and standards (**Article II**). The expression Smart Contracting was used to refer to the proactive, relational strategy/approach for the first time in this work then, showing its value as a linkage bringing the legacies of the predecessors of proactive law into the emerging research fields to encompass a strategy that prepares for the foreseeable future of contracting, as was further explained in phase III. A careful transposition of concepts from across disciplinary boundaries, and an integration of theoretical insights and advancements of the past six decades of conflict management and ADR theory, resulted in a solid foundational background for the transaction and legal design field(s). The same progression lays the scientific foundations of the Smart Contracting proposal and contributions. The summary of the evolution of the conflict management concept to its current proactive status was reasoned to unify the disparate streams of specialization under one roof.

The continuum was illustrated as appears in **Figure 4**. Subsequent developments related to the digital economy and electronic transactions and contracting were already envisaged in this phase.

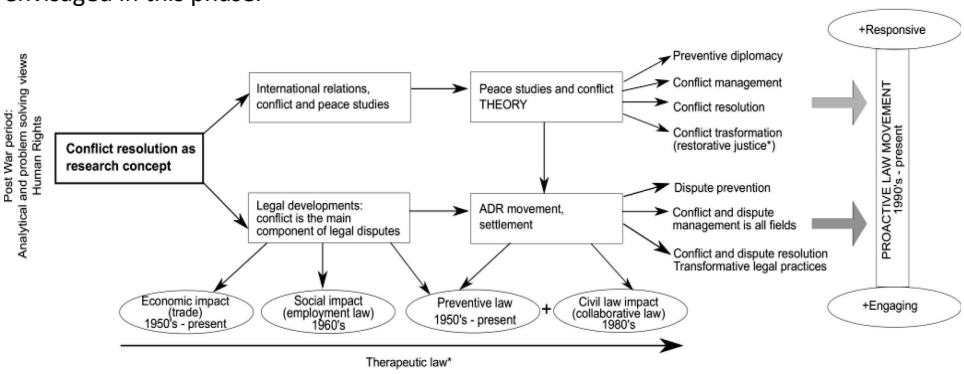

Figure 4. *Conflict Management Continuum "From Conflict Resolution Studies to the Proactive Law Movement." (Article II)*

This phase also showed that legal standards should be complemented with others, the technical and the aesthetical for starters, in line with Passera, who implemented the proactive, and the preventive and collaborative postulates of Brown (1950) and Scott (2008), championing the legal UX notion, but opting for a focus on visualization (2017). Legal visualization has acquired relevance within the forming community of practice; it is well documented and easily placed under the legal design research denomination. However, in terms of the Smart Contracting proposal, visualization is only one of several UX factors (**Article II**).

Other results of this phase supplied the regulatory quality criteria to operationalize the Smart Contracting practice by way of guidelines based on a few minimum and measurable transaction design factors. In their development, the essential legal and UX factors from HCI were integrated with an extended user experience set of principles, to fill in the gaps of earlier works and complete the task of formulating a functional framework for the preparation of enhanced relational contract interfaces. Passera endorsed legal design techniques (2017), but without a complete, interdisciplinary, systematized, and transferable technical set of parameters to measure legal UX/UXI.

The taxonomy of UX and UXI factors summarized in **Table 2** may be used as a checklist or screening tool in transaction and legal design. It is most valuable for being the first of its kind to define the possibilities of ascribing concrete indicators/qualities to legally relevant interfaces, as well as for considering UXI components and standards to be applied to legal practice. These factors, thus, operationalize the theory, helping the planning and testing of legally relevant texts for mediatized exchange transactions. "Transactional design" is presented as a Smart Contracting expression/activity.

Table 2. *Abridged UX taxonomy for transaction design*

Efficiency	**Effectiveness**	**Satisfaction**
Readability	*Completeness*	*Awareness:* taking notice
Consistency	*Collaborative:* perception of mutual gain, emotional incentive	*Understanding:* knowing
Organization	*Communication effect on consensus*	*Consensus:* wilful participation, engagement and commitment
Information visualization	*Pleasantly memorable:* attention, memory and emotions	*Compliance:* associative action
Learnability	*Sustainable*: relational resilience	Positive exchange experience
Flexibility		Sustainability of agreements
Control of the interactive and the static layers		

Source: adapted from the original *"Combined taxonomy of usability components applicable to transactions"* (Article IV).

The classification combined essentialist criteria in contract law (requirements of validity in the formation of enforceable agreements) and selected literature on proactive law, plain language in legal drafting, and design. The most important concepts come from drafting rules and papers about the positive attributes of legal texts (Phelps, 1986; Masson & Waldron, 1994; Kimble, 1996), whereas the criteria/parameters derived from UX basic standards of efficiency, effectiveness, and satisfaction, as well as others from HCI (Norman, 1983; Nielsen, 1994) that were applicable. The parameters include visualization, but the selection and evaluation of images and other unconventional texts are matters that belong to the legal semiotics field and deserving of a much more careful research. The outcome was an integrated UX/UXI taxonomy that in spite of having resulted from a theoretical process is a readily applicable contribution of standards that the law is not measuring so far. Thus, it is novel, advances doctrine, and is of practical significance for complementing proactive developments without contradicting legal theory postulates, legislation, or public policies. These contributions may reduce the fragmentation of the research agenda, and invite the research community to agree about minimum working standards.

3.3 Smart Contracting viability and innovation readiness

The last stage of the second phase addressed the viability issue and the RQ3 in part, on the basis of a multiple case study that explored the extent to which awareness, disposition, readiness and appreciation were found among the public about the meaning of collaboration, self-regulation and transaction friendliness. The thesis compilation includes only the results on collaboration (**Article III**). A precise definition of the term was composed to suit in any domain concerned with human interaction, but primarily to unify the terminology of the proactive field where collaboration is a key competence. The data were interpreted to find out if the proactive theory developments are generally responsive, and correspond to the needs and interests of ordinary users of legal products. Attending to the Diffusion of Innovation Theory (Rogers, 2010), empirical evidence of the viability of the proposal should help persuade business organizations and other potential institutionalization agents/influencers to adopt it. This would engage the

widest possible range of adopters in the transformation of exchange relations. Companies may find in Smart Contracting, and similar alternative proposals, opportunities to enhance corporate and management strategies that could outweigh the costs and risks of implementation, if the soundness of the approach is established. The endorsement of firms could help then spread and institutionalization of the approach.

Rigorous scientific legal usability and proactive research was available, but it was opportunistic and indifferent to whether the deployment of legal innovation was expected or welcomed by the public or not; legal UX was studied in a niche. Being this is a thesis that speaks about regulatory upgrades based on human-centred legal practices, consulting the users was considered imperative.

The Smart Contracting as a strategy and a concept, and the supporting theory was revised to restate the functions of contracts beyond their status as legal and economic instruments (**Article III**), something rarely found in the literature on business, organizational theories, and project management. A task was undertaken to position strategic contracting in the literature, referring primarily to the connections between law and business strategy and the weight of this partnership in terms of the dynamic capabilities theory (Winter, 2003), for example. Collaboration was said to add to the dynamic capabilities of businesses (Bagley, 2005), to be useful to align organizational relations and practices, and extendable to all legally relevant interactions with customers via Smart Contracting strategies. The arguments of the thesis in this generative phase of the work rest on the earlier discussions and theories linking collaborative trends with larger governance changes in global trade intended to smooth the complexities of the legal environment of business and mediatized exchange relations.

The new, principled definition introduced in this phase, described collaboration as '*the deliberate organization of human effort, aimed at generating long term value for all parties involved, and at reducing the risks and disadvantages of competition*.' It clarifies ambiguities of the terminology from the converging domains, communicates relational values, fits sustainability strategies, and is inclusive of various views on the characteristics of human interaction. Smart Contract is collaborative because it is user centered, and so are the UX/UXI upgrades of legal interfaces for transaction design. More usable legal products offer leverage to users, mostly consumers, diminish information asymmetries, and facilitates mutual understanding but most importantly, could set the grounds of a truly informed consent. Transactional experiences resulting from these contracts could be friendlier and the general sense of trust in legally relevant exchange and in digital trade environments in particular would benefit.

From the study was inferred that the understanding of collaboration matched the theoretical constructs from the business, proactive law, and ICTs' literature sufficiently. This allowed us to conclude that the collaborative features embedded in proactive strategies should meet the expectations of the public. Numerous coincidences showed awareness and positive connotations of collaboration and indicated good disposition to the adoption of alternative, collaborative legal offerings. The convenience sample was subdivided beyond the standard demographic information into subgroups according to expertise field, level of studies, and occupation, because these variations were assumed to provide a finer depiction of the results and more detailed findings. The outcome showed that these were not very relevant variables overall but permitted observations resulting from the most remarkable differences in perceptions found in country groups. It was concluded that regardless of expertise field, education levels, and occupation, the cultural factors in human interaction understandings and trust influence most clearly the

notion of collaboration. For example, contrary to what was expected, people with a legal background or possessing that expertise were not the most averse to collaboration. In general, the public would perceive collaboration in legal innovation if it increases understanding, and eases access to and clarity of information, participation, and mutual benefit.

The use of the terms collaboration and cooperation is especially inaccurate among the public, but the preference for more intense connections with connotations of greater understanding, were clear. In sum, the proactive scholarly and experimental developments of practitioners resonate with the public the most, which indicates responsiveness on the one hand, and receptiveness when it comes to collaborative offerings on the other.

In light of the findings of the viability study, collaborative practices it proposes could be gradually adopted at least within the groups that showed better disposition. However, this is the first examination based on the assumptions of the Smart Contracting proposal, and is not presented as conclusive. It is nonetheless encouraging, and helps to engage the community in a different dialogue about the conditions for the implementation of new practices. In addition, it legitimized the conceptualization process and assisted in preparing for a more systematic application of user-centred design techniques to contract management within digital business strategies.

3.4 Characterization, contextualization, operationalization, and specification of Smart Contracting

The phase III and last of this research refined and reformulated Smart Contracting, completing the tasks on all issues steaming from the research problem, and reinforcing the theory-building effort of the thesis, by contextualizing the theoretical and practical applications of the approach (**Article IV**). Additional rounding-up concepts were added to characterize Smart Contracting in terms of its governance capacities for strategic management under the relational exchange theory umbrella and as a deep transformative alternative to mere digitization of contracting and contractual management processes. It operationalizes the relational theory in response to Macneil's call assuming the conditions of viability are present for deployment and dissemination, and adding to the guidelines proposed earlier six principles/standards for sustainability and dispute prevention. Finally, the work answers the RQ5 specifying Smart Contracting in contrast to the "smart contract" metaphor, highlighting the urgent need to examine the automation rush in business, industrial management, and law.

The first result of this phase is the institutional review of the EU framework on trade and exchange relations for the Digital Single Market (DSM). This contextualized the applicability of Smart Contracting in connection to the phenomenological analysis, as was intended to complete the answer to the RQ1. Additional substantiation of Smart Contracting as a novel relational and proactive approach, suitable to sociotechnical requirements of the times supported the initial answers given on the RQ2. The governance capacities for businesses and within businesses were re-explained. While the Smart Contracting depiction is detached from the unsatisfactory conception of transaction costs economics, the characterization of this work leaves the classical contractual legal theories and the laws on contractual freedoms and responsibilities unchallenged. The formulation of the set of principles complements the operationalization means that answered the RQ4, to guide the practice and connect to

the contracting strategy a sustainability purpose for more meaningful contractual processes and exchange. The RQ5 was answered towards the end, where Smart Contracting was set apart from the "smart contract" notion, aiding its consolidation as a proactive strategy that leans towards the satisfaction of the real needs of exchange and those of the future of transacting, while exposing the foreseeable implications of an unchecked adoption of automated contracting processes.

The last paper of the compilation (**Article IV**) featured a critical/interpretative analysis of the literature, doctrine and official documents, theory building, and a case study about the institutional back-up of the EU that legitimizes regulatory proactive innovation. **Figure 5** shows the structure and contents of this paper, which is representative of the research outcomes in brief.

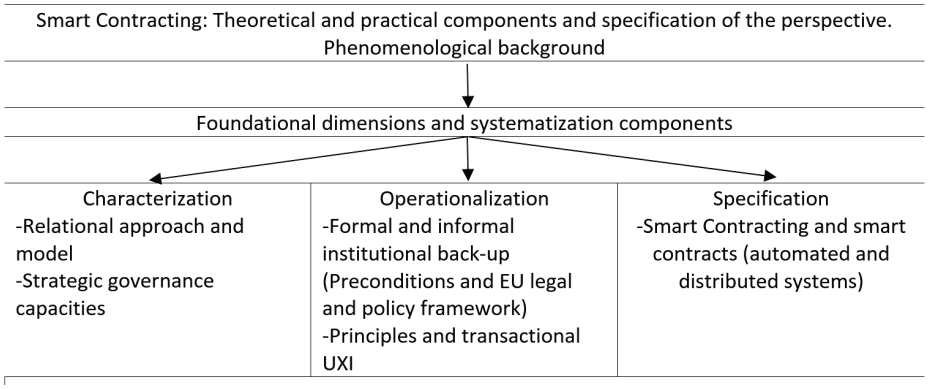

Figure 5. *Author's graphical summary of the components of the Smart Contracting approach*

As for the *characterization* outcomes, the relational dimensions of Smart Contracting were reviewed and confirmed (Macneil, 1980). The relational exchange theory connecting it with this advanced development of the conflict management and dispute prevention field, and linking ADR with newer sociotechnical exchange phenomena such as the digital transformation of business and legal automation. References to contract drafting/design (purposes, formation, and processes) from earlier in the XX century, were mentioned to remind that private governance by contract has been intertwined with theories on transaction costs economics (Williamson, 1979) as well as with game theory (Schwartz & Scott 2003) and the institutional and neo-institutional theories (Rutherford, 1996; Powell & DiMaggio (eds.), 2012), and thus, essential in the development of the relational views (Goetz & Scott 1981; Gudel, 1988; and, Macneil, 2000). Additional reflections were included as background about wiser, mixed, contextual, participatory, and collaborative regulatory processes (Gunningham et al., 1998).

Alluding to strategic governance and management capacities, this stage considered the literature establishing that contracts/self-regulatory means are a source of competitive advantage (DiMatteo, 2010) for business. It clarified why Smart Contracting processes would result in more dynamic and responsive contracts. That is, adaptive, less rigid, and able to resist more changes (Termeer et al., 2015). For that purpose, Smart Contracting activities are placed across processes or contracting cycles, not just during drafting or contract formation phases. **Figure 6** shows the model of the contractual cycle conceptualized in this phase.

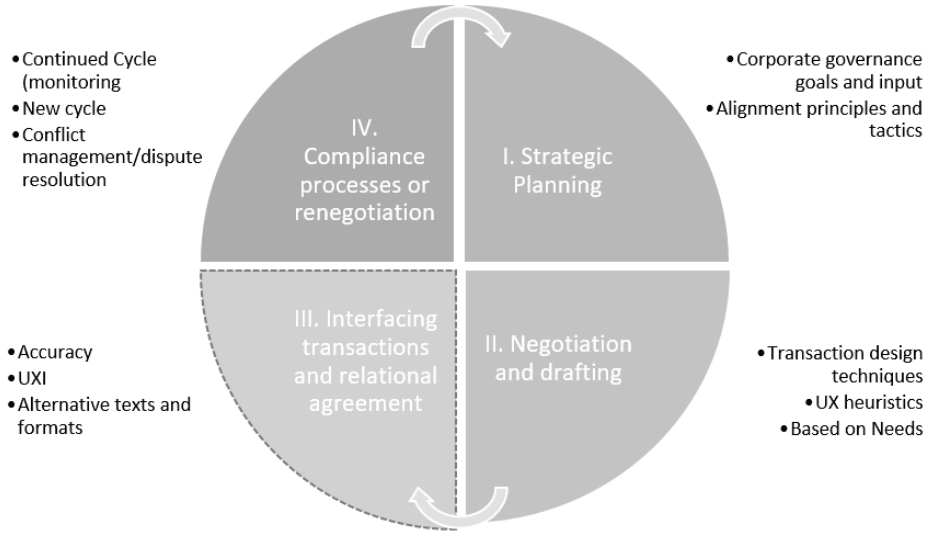

Figure 6. *Adapted from the author's Contracting Cycle in contract and contractual management (Article IV)*

The strategic collaborative or proactive governance capacities of Smart Contracting were said to be advantageous to coordinate action at all organizational governance levels, during phase II, but it was illustrated and reiterated later in this phase. Interactions deriving from strategic goals at the top may enhance action and communication in the managerial and operational layers below, as shown in **Figure 7**. Consumer contracts would align in relational sustainability at the operational level; alliances and partnership contracts at the managerial levels; and larger proactive projects at the community or social scale at the corporate level.

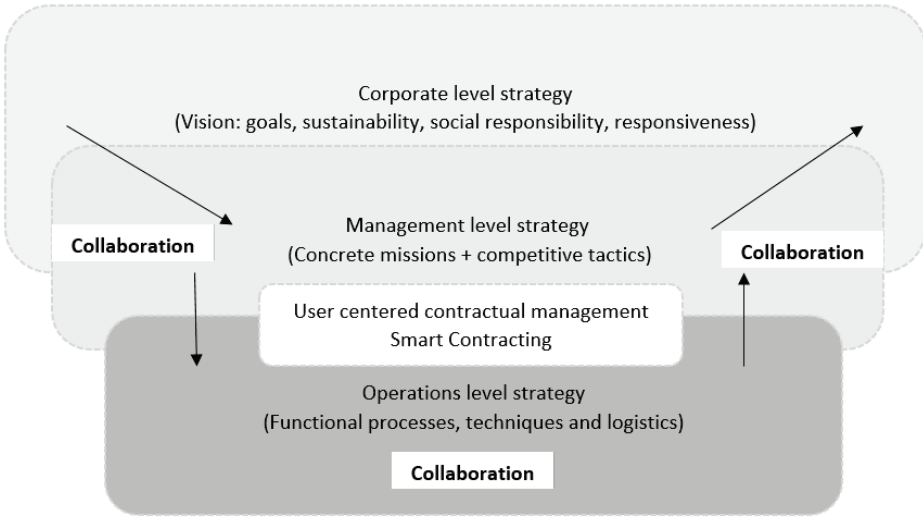

Figure 7. *Adapted from the author's chart on the strategy levels and collaboration where Smart Contracting is applicable (Article IV)*

Before speaking of more contributions to the *operationalization* of Smart Contracting, the minimum conditions of viability (collaboration and contractual responsibility/self-regulation capacities) and the EU institutional legitimizing framework for regulatory innovation were re-examined. The importance of servicing consent through UX is implicit in the mandate of the renewed data protection regime of the EU[14] that raised the standards for the quality and accessibility of legally relevant communication affecting the public. This legal instrument is a ground-breaking advancement in terms of legal UX, because it acknowledges that information quality is crucial for an agreement to come into existence, and that consent is required for the lawfulness of its execution. Digital consent is an elusive validity concept awaiting harmonized regulation. The thesis suggests that legal UX standards should be made substantial to transacting, to begin with.

Smart Contracting helps to build consumer protection into legal documents by design, following six functionality principles (Article IV) that unify the values of the proactive approach. Contractual processes and activities should be *principled, collaborative, strategic, proactive, interdisciplinary, and technical*. These, together with the taxonomy of UX/UXI factors, are heuristics that do not contradict the law, or interfere with trade, but are soft and yet fundamental to the improvement of exchange and regulatory quality.

To end, Smart Contracting was specified to separate it from the "smart contract," concept, and temper the enthusiasm about automating contractual management and contracting processes. It was concluded that a rushed increase in the adoption of these technologies would be regressive, considering the historical achievements in understanding the social functions of contracts. This issue was anticipated almost a decade ago by Brownsword and Somsen (2009), before "smart contracts" became technically possible with the advent of block-chain technologies. "Dumb" contracts can be made highly functional at the technical level if automated, and the dangers of building undesirable complexities and suboptimal interactions into these are very high. Most importantly, the lack of flexibility of "smart contracts" completely ignores that contracting and exchange are, in general, imperfect activities. Feasible Smart Contracting practices are the ideal transitional pathway to regulation by code. Smart Contracting can improve the UX of "smart contracts" in the same way that it upgrades other mediatized transactions, and both may eventually be integrated into digital contractual management models but for now, these two "smart" concepts should remain differentiated.

[14] Consult Regulation (EU) 2016/679 of the European Parliament and the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, available at: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32016R0679

4 Conclusions, limitations and future research

Research on regulatory quality has always been of relevance, but traditional understandings and models of governance are no longer useful or dynamic to adapt to the requirements of the times. This crucial juncture makes the search for alternatives and strategic regulatory innovation studies a must. This research was concerned, most generally, with the governance capacities of private regulatory systems, and most concretely, with their upgrade for the improvement of exchange relations and the digital environment of business. The thesis systematized an approach to the design of legally relevant transactions and mediatized interactions that could benefit all users, consumers and agents in commerce, classified as a proactive governance proposal transferable to other fields interested in interfacing human interaction. The proposal is called Smart Contracting.

Smart Contracting is an original strategic approach to conceiving and designing legally relevant exchange interactions, and a cohesive formulation, founded on solid ontological and epistemological stands, ultimately characterized for being principled, proactive and interdisciplinary and compatible with the EU legal and institutional frameworks. It may also be expected to provide a transitional pathway to automation, and be of easy uptake in all organizational levels for its successful deployment and diffusion. Therefore, the proposal also involves practical and managerial contributions derived from various conceptualizations levels such as transaction design guidelines on improving the drafting and UX/UXI of legal texts and interfaces, and measurability factors or minimum quality standards that were not formulated before, or related to mediatized and digital interactions. Smart Contracting encapsulates several regulatory constructs, and heuristics of practical significance including principles for the management of contractual processes and exchange interaction/transaction design. Dispersed conceptual developments on proactive and strategic contracting and design were unified and systematized progressively, scaffolding the development of the approach, based on a good understanding of the phenomenological, institutional and theoretical background conditioning legal innovation and its eventual implementation in context. In the process, the thesis built pillars for the consolidation of legal and transaction design, whether it should be nested in other domains or as an independent, cross-disciplinary field of study. These results achieved the purposes of the research, solved the problem and issues described, and offered substantial scientific contributions to the theory and practice and in the converging domains of law, business and ICTs.

Smart Contracting, is the main theoretical contribution of the work, but stands on conceptual blends of no less significance, also produced by this research. All theoretical contributions intertwine with practical ones because pragmatic research is fundamentally transformative. Firstly, the phenomenological and institutional review that justifies arguments in favour of this proposal advanced the general literature governance models and regulatory quality from an entirely new perspective. This inspired new reasonings on the potential of proactive contracting and the formulation of the principles of the interconnected society affecting current regulatory activities of exchange and digital trade (**Article I**). Secondly, the case study on an institutionalization process example from inside the EU contains empirical evidence of the inefficacies of the traditional regulatory approaches. These outputs are useful to guide public regulatory interventions across several domains of interest.

Prior to developing the main proposal, the research explained the foundational justifications of the proactive perspective and placed Smart Contracting at the extreme of a disciplinary continuum on Conflict Management presenting it as an advanced proactive strategy (**Article II**). This substantiated for the first time the ontological underpinning of the transaction design and legal design fields, as well as the concepts and tools that followed, to assist strategic contracting and contractual management activities with more theoretical and practical contributions (**Articles II and III**). The Smart Contracting proposal represents the unification and systematization of these insights, other proactive developments from the literature, and includes measurability standards referred to as the minimum transaction design factors to consider in UX/UXI design and the screening and testing of legal products (**Article II**). The role of transaction UX/UXI is to expand the validity criteria in contracting in a collaborative way, making legally relevant communication more usable. Better legal interfaces and texts diminish frictions resulting from information asymmetries, and facilitate mutual understanding. In essence, it supports informed consent. Transactional experiences may be friendlier, and the general sense of trust in digital trade environments should increase.

The literature on strategic contracting as a dynamic capability was enriched with the conceptualization of the Smart Contracting applications and this first characterization. Business organizations were asked to endorse Smart Contracting practices, and invited to become institutionalization agents of the approach (**Article III**). The thesis indicated a paced institutionalization way, where prior to introducing the Smart Contracting and other alternative practices, some evidence of readiness for and disposition to these changes should exist. When the PhD project began, proactive and legal design research initiatives were few, scattered and experimental. No evidence was available on whether they were legitimate and opportune, what were the conditions and standards to deploy and measure upgrades, and which interactions had to be improved first. The signs of public readiness and disposition found by the multiple case study about the viability of Smart Contracting and transaction friendliness indicators, expand the knowledge on strategic proactive contracting applications and transaction design, and suggest that incurring in the costs of drafting alternative contracts and investing on transaction design is not so risky as may be expected (**Article III**). The empirical study clarifies some questions but most importantly, it shows the priorities to consider in the setting of a more focused research agenda. For example, it identified the groups that could be targeted in corroboration studies to strategize the deployment of legal innovation. This first study begs the formulation of further questions, for example: Would the findings apply to all formats of exchange and subject matters? How the country of origin, and the stereotypes discussed by critical research studies, may condition the successful implementation of Smart Contracting upgrades and/or interventions?

Smart Contracting was refined gradually, to conclude with a more complete theoretical characterization and functional operationalization means capable of meeting long-term exchange requirements and transform exchange relations through transacting and contracting (**Article IV**). The last theoretical contributions that should guide the transaction design and contractual management practices were: the review its dimensions as a relational exchange conception, the contextualization for its adoption and implementation in the EU context as a strategy consistent with the current legal and political framework, the formulation of the Smart Contracting principles, and the specification of the approach as a smoothing and necessary transitional pathway to automated exchange models. Smart Contracting can have a buffering effect that would

prevent the dysfunctionalities of exchange exposed in early phases of the research, from being built and locked into code. It was underlined that the problems associated with legal theory, institutional transitions, regulatory quality, and innovation are sociotechnical and too complex (Rittel & Webber, 1973) and cannot be fully solved with computational methods and automation alone. Smart Contracting is explained to contrast with automated transactions coded into block-chain technology, and erroneously misrepresented as "smart contracts" as the two elaborations belong to different conceptual categories.

In sum, Smart Contracting updates the governance of exchange relationships with a novel contribution for the provision of legal services, featuring concrete managerial, non-prescriptive guidance for contractual processes, such as relational components and "missions" like sustainability, in strategic lawyering activities. On the other hand, this work offers a thread of continuity and coherence for the long run, making significant advances in a transition towards the future of contracting and proposing a dialog on issues into which proactive lawyers and legal designers were not invested. This research stands out and differs from others also, in that it posits that contractual management and contracting quality by design are required competences, not only as a resource of a firm, but representing the continuous development of organizational dynamic capabilities. Here, better contracting is not about obtaining and maintaining a strategic advantage in terms of transaction costs (Argyres & Mayer, 2007), but in terms of a relational investment. Adaptive and responsive legal communication is more functional for mediatized and digital-exchange trade environments than stiff legal documents. Besides, UX/UXI are quality neglected criteria but underlined in here as fundamental for digital trade for the purposes of collaboration, understanding, and relational sustainability. These may be especially beneficial for reducing litigation and non-compliance risks, as well as dissatisfaction with consumer contracts and other legal products.

Limitations and future research agenda

The researcher's views and experience, was coupled with the design and methodology used for this regulatory inquiry, and is reflected in the theoretical stance adopted. Thus, inherent biases and preferences affected some scientific choices, from the subject matter to the reporting formats. Every research is limited considering the greater scheme of academic progress and what is attainable. This project scopes from the field of the transitions of sociotechnical systems that are relevant to the governance of contractual relations in digital exchange.

Governance and regulatory research is interdisciplinary and evolving, requiring diverse assessment approaches, which is often perceived as a special kind of limitation. Validity, nonetheless, was pursued, with a careful combination of methods and, and this is where the fit of pragmatic critical realism becomes such an important epistemological option. Pragmatism allows for producing the most plausible response to the questions asked in this type of research. Institutional and sociotechnical phenomena were re-contextualized and observed using the lenses of diverse theories. This gave new significance to concepts such as collaborative strategic management, consumer centrism in law, the application of UX factors to the drafting of legal documents, and sustainability in connection to legal texts.

Research processes naturally evolve from ideas and assumptions that cannot be corroborated as preconceived most of the time. This is particularly true in qualitative

interpretative studies of rapidly changing environments, during which the capacity to adjust to the circumstances and move ahead while keeping the research purpose and vision in focus is a clear indication of academic responsibility. This work was initiated by one researcher when the topic was novel and remarkably under-researched, but in just a few years, governance by private regulatory means has grown to become a top priority in most domains affected by digital transformations, around the world. Interdisciplinary teams are now beginning to host conferences and work in labs established by prominent institutions and associated in generously funded projects. Governance and strategy by contract, digital transformations, sociotechnical systems, regulatory quality, and contract theory, enjoys now a well-deserved reputable position on the global research agenda.

The preparatory work for the thesis intended to concretize theoretical and practical recommendations with other limitations that were expected and have already been turned into opportunities to bring the research on issues of constitutive legal UX/UXI further. The conclusions and the findings of the work may be considered general and preliminary, but this is common in emerging fields of study where arguments are insufficient or unconvincing to warrant large scale verification studies. The articulation of an integrative theory with profound ontological impact, such as adding a customer orientation to the law, was a complex and valuable scientific contribution in itself. In addition, this study marks just the beginning of the development of the Smart Contracting approach, which could be extended to other fields and regulatory spheres.

The empirical study could have applied a wider range of data-processing methods. However, it did not fail to comply with its intended purpose. The report of the findings was split into two papers to fit the word-length limits of scientific publications. Hence, further (internal) triangulation can be performed during later stages, with a recast of the study and additional data.

In the future, it is advisable to focus on regulatory quality issues in digital environments using innovative, mixed, plural, and critical methodologies, without enlarging the epistemological divides of the past. Essentially, proactive scholars are action-oriented, transformative researchers who want to overcome the shortcomings of traditional and monolithic disciplinary entrenchments. For these initiatives to be more fruitful, introducing alternative contracting and developing non-legal skills for lawyers and well as contractual competences for non-lawyers must begin at universities. This may be one of the fundamental implications of research on digital transformation and governance: the teaching of legal subjects must become less adversarial and more oriented to preventive and collaborative dealings, assisted by technology.

The conclusions and findings of this work must be contrasted with more evidence, and tested as the field evolves. Researchers should expand the variety of methodologies and methods, experiment, and refine the results for specific automated applications. The development of hypotheses for studies in different country settings, sectors, organizational and contractual schemes, and levels is advised, while experimenting with different legal formats.

Among the directions for further research, three summarize the priorities highlighted in this thesis:

- *Outcome assessments in transacting, aligning, and digital contracting*: a. measuring UX/UXI in the lab and in the wild, b. measuring post-interventions (upgrades) contentiousness and litigation rates in longitudinal studies on different legally relevant documents and interfaces, and c. developing

collaboration and self-regulation competences indicators or measurement criteria in the context of exchange relations/consumer contracts, by subject matter.

- Extensions of the *strategic contracting* approach and its applications in business, including the development of models with templates for automated solutions. In strategic studies, contracting innovation must remain intimately connected to organizational capabilities such as coordination and alignment. Look into how to offset the costs of building up smart drafting capacities and investigate the benefits of increasing digital-trade relational sustainability.
- Follow-ups on the theoretical and phenomenological research on the *institutionalization of new regulatory patterns*, revising formalism vs. informalism, and the private and public roles in each approach. These last areas could include awareness –building and influence *legislative developments*, especially on *legal locks to the use of computational methods in contractual interactions*.

As a last message, it is imperative to keep in mind that the hasty adoption of automated execution and distributed digital management rights undermines the relational contract and contract-theory advancements of the past fifty years. “Smart contracts” focus on an extremely limited conception of what laws do, and on how to optimize transactions by code, excluding any instantiation of issues fundamental to the social construction role of contracting, such as the duty of good faith in exchange or collaborative dealings. If block-chain technology is adopted as standard regulatory instrument eliminating choice, reverting to the discrete-transactions view of contracting and transactions, it will turn into a regressive technology in the social sense. Hence, the importance of the spread and institutionalization of the proactive digital contracting design perspective promoted by Smart Contracting. Consumer empowerment could increase and with it confidence in digital trade and the business environment. This research reconciles legal theory with innovation in private contracting, and furthers our understanding of new patterns of exchange relations and the organizational strategies that are most suitable to rapidly changing times.

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Abstract

Smart Contracting for the Proactive Governance of Digital Exchange

Market interactions are built upon contractual relations and transactions, which in turn constitute the basis for governing private exchange and its platforms. Contracting practices are related to most aspects of corporate governance and performance, including risk management and other strategic responsibilities, reputation, products and services, and ultimately profitability. Classical contract laws, doctrines and long standing practices have governed these interactions, but their regulatory capacity has diminished as exchange parties now favour expedite, responsive and dynamic modes of governance, more amenable to the digital globalized business environment of the times.

While the laws of contract and business lawyering activities remain rooted in traditional and discrete notions of exchange, the theory has begun to evolve integrating socio technical concepts, and facilitating the emergence of new streams of research. To participate in this renewal process and to make principled contributions of practical applicability were the main motivators to complete this thesis. The objectives were to substantiate and justify the evolution of the legal design field and to promote its consolidation, as well as to persuade on more responsible innovation management in the legal sphere. The chief aim was to compose a sound and systematic proposal, characterizing, operationalizing and specifying a user-centered contracting approach that may also smooth the transitional pathway to automated transaction models. The proposal, called Smart Contracting, consists of four components: a set of principles for a goal directed practice of transaction design, a taxonomy of Usability (UX) and User Experience (UXI) factors, a transferable model for contractual management processes, and applications (institutional context-managerial-strategies–automation). In addition, a section of the research explored the viability of the proposal empirically, and identified upgrade priorities to inform the formulation of a truly responsive research agenda.

The limited capacity of contract theory and business laws to capture newer forms of interaction and adequately respond to technical innovation has been extensively acknowledged and prompted inquiry into alternatives and interdisciplinary regulatory mechanisms for trade. However, these old problems in the governance of exchange are being transferred to the digital markets, neglected and about to get built/locked into automated transaction tools.

It is expected from legal systems to be extremely resistant to change and in some areas, practically immune to innovation. Nonetheless, from the institutional perspective, public policies already endorse the adoption of alternative, more relational mechanisms of exchange within the legal system. What surprises, in contrast, is that firms are yet to include transformative adjustments to the legal components of their business strategies. The popularity of digitization processes provided by legal-tech solutions may be distracting from the fundamental dysfunctionalities of legally relevant exchange. This work assumes that in the field of business transactions the greatest transformative potential would result from innovative changes in the generation, accessibility and delivery of legal content rather than from mere digitization and/or automation.

Concretely, contracting and other lawyering activities are some of the strategic support systems that help the implementation of a business strategy, but the delivery and quality of legal products and services fail to meet the requirements of the times. The high costs

of drafting and implementing contracts are denounced across industries to be major corporate governance and management concerns. Moreover, contract drafting and litigation over contracts are reported to be the highest costing contingencies for business, globally. The outputs of lawyering activities, products and their interfaces feature extremely low usability qualities; they are unpractical, complex, unfriendly, and suboptimal especially for digital transactions. This results in part from the problems of information and knowledge architecture affecting consent in consumer agreements not having been firmly addressed so far. It is argued in here that improving business performance must involve not only transformative upgrades of regulatory mechanisms of exchange such as contracts and transactions, but also ethical shifts in a more collaborative and user friendly direction. The possible adjustments, although substantive and related to the validity of contractual agreements, do not have to antagonize with the normative systems in place but can be the key to invigorate the digital markets.

In light of this scope, the research was organized in phases, and used an interdisciplinary and a mixed methodological approach, but predominantly qualitative. The first phase was a meta-theoretical and phenomenological investigation about the institutionalization of collaboration in exchange relations as a result of technology evolution. It primed the work and examined the capacities of traditional regulatory systems to adjust to the digital and networked age. The results included a formulation of principles of the interconnected –digital- society and critical reflections on the effectiveness of formal institutionalization methods of collaborative exchange techniques illustrated with a case study.

The second phase covered the development and formulation of concepts, the theoretical grounding and nesting, and an empirical exploratory study of the viability of a new proposal based on the readiness of the general public. The Smart Contracting approach and the basic transaction design factors on legal UX and UXI were proposed, and evidence of readiness and disposition from the public was gathered. Business organizations were invited to become efficient institutionalization agents for the diffusion of the approach.

During the third phase, the components of the Smart Contracting proposal were fully revisited and characterized as a relational theory of exchange, contextualized within the European Union Digital Market, where the deployment of the approach is possible and its diffusion legitimized by the institutional framework. Besides, for a proper specification, Smart Contracting was posited to offer a smooth but critically needed transitional pathway to the ubiquitous trends in legal automation, which is presented as the most likely force to disrupt legal systems. This section reaffirms that legal innovation and Smart Contracting could be the most efficiently promoted by companies and private influencers in business strategies. Collaborative and strategic contracting could redefine the governance power of private agents, and constitute imperative competences of the times. This section links the work back to discussions about digital governance, and situates in the current academic debate about socio technical systems applications.

The continued interest on this line of research is ensured, and the SC concept may play an important role in tempering hasty digitization trends while renewing but in accord with contractual freedoms and doctrine. The concept proposals and research findings discussed in this thesis are among the first contributions toward this end.

Lühikokkuvõte

Nutikas lepingute koostamine digitaalsete tehingute proaktiivseks juhtimiseks

Turusisesed vastastikused toimed tuginevad lepingulistele suhetele ja tehingutele, mis omakorda on loonud aluse eratehingute juhtimiseks ning on üles ehitanud nende platvormid. Lepingulised tavad on seotud ka suures osas ettevõtete juhtimise ja nende toimimisega, mille hulka kuulub riskimaandamine ja muud strateegilised kohustused, maine, tooted ja teenused ja lõpptulemusena ka kasumlikkus. Selliseid tehinguid on juhtinud klassikaline lepinguõigus, doktriinid ja praktika, kuid nende regulatiivne võimekus on langenud, kuna eratehingute osapooled eelistavad nüüd kiireid, reageerivaid ja dünaamilisi juhtimisviise, mis on vastutulelikumad tänapäeva digitaliseeritud ja globaliseeritud ärikeskkonnale. Kuigi lepinguõigus ja äriõigusega seonduvad tegevused on jätkuvalt juurdunud traditsionaalsetele ja tagasihoidlikele arusaamadele tehingutest, on teooria hakanud arenema kaasates sotsiaaltehnilisi kontseptsioone ning uued uurimisvood on kogumas populaarsust. Käesoleva doktoritöö peamisteks ajendiks on võimalus osaleda eelmainitud uuendusprotsessist ning teha praktilise rakendatavusega panuseid. Töö sihiks oli tõestada ja põhjendada evolutsiooni *legal design* uurimisvaldkonnas, seaduslik innovatsioon ning selle konsolideerumine. Peamiseks eesmärgiks oli aga koostada põhjendatud ja süstemaatiline ettepanek iseloomustada, töökorda seada ja täpselt määratleda kasutajakeskne lepingute sõlmimise praktika mis omakorda võiks siluda üleminekut automatiseeritud tehingumudelitele. Ettepanek, mille nimeks on *Smart Contracting* (nutikas lepingute sõlmimine), koosneb neljast komponendist: põhimõtete kogum eesmärgipõhise tehingudisaini tarbeks, kasutatavuse (UX) ja kasutaja kogemuse (UXI) faktorite taksonoomia, ülekantav lepingulise juhtimisprotsessi mudel ja rakendused. Lisaks keskendus osa uurimistööst kõnealuse ettepaneku rakendatavuse empiirilisele uurimisele ning tuvastas täienduuenduste prioriteedid, et saada informatsiooni täisvastutustundliku uuringukava koostamiseks.

Lepinguteooria ja äriõiguse piiratud võime tabada uusi suhtlemisviise ja tehnilisele innovatsioonile adekvaatselt vastata on laialdaselt tunnustatud ning on ajendanud alternatiivide ja interdistsiplinaarsete vahetuste juhtimismehhanismide uurimise. Siiski needsamad vanad probleemid vahetuste juhtimises viiakse üle digitaalsetele turgudele, jäetakse unarusse ning neid ehitatakse/lukustatakse automatiseeritud tehingutööriistadele.

Õigussüsteemidelt oodatakse äärmist vastupidavust muudatuste suhtes ning mõnedes alades sisuliselt immuunsust innovatsioonile. Sellest hoolimata toetab institutsioonilisest perspektiivist vaadatuna avalik poliitika juba praegu alternatiivsete, relatsiooniliste vahetusmehhanismide kasutuselevõttu õigussüsteemis. Kontrastina on üllatav, et ettevõtted ei ole oma äristrateegiate õiguslike komponente ümber kujundanud. Õigustehnoloogia poolt pakutavate digiteerimisprotsesside populaarsus võivad tähelepanu eemale juhtida õiguslikult relevantse vahetuse põhilistest düsfünktsionaalsustest. Käesolev töö eeldab, et äritehingute alal suurim muundav potentsiaal tuleneks innovatiivsetest muudatustest õigusliku sisu koostamises, kättesaadavuses ja esitamises mitte ainult digiteerimisest ja/või automatiseerimisest.

Tegelikkuses on lepingute koostamine ja teised juriidilised tegevused mõned erinevatest strateegilistest tugisüsteemidest, mis aitavad äristrateegia rakendamist, kuid

juriidiliste toodete ja teenuste esitus ja kvaliteet ei ole tänapäeva nõuetele vastavad. Lepingute koostamise ja rakendamise kõrged hinnad on hukka mõistetud kõikides tööstusharudes ning on olulised probleemid ettevõtete juhtimises. Enamgi veel, lepingute koostamine ja lepingutest tulenevad kohtuvaidlused on ettevõtetele kõige kõrgema maksumusega võimalikkused – seda globaalselt. Juriidiliste tegevuste väljundite, toodete ja nende liidestel on ülimalt madal kasutatavuse kvaliteet – nad on ebapraktilised, keerulised, ebameeldivad ja madalakvaliteetsed, eriti digitehingute tarbeks. Seda põhjustab osaliselt informatsiooni ja teadmiste arhitektuuri mõju nõusolekule tarbijalepingutes, mida ei ole tugevalt käsitletud. Käesolevas dissertatsioonis väidetakse, et ettevõtte tulemuslikkuse parandamine peab hõlmama mitte ainult reguleerivate mehhanismide nagu lepingute ja tehingute ümberkujundamises, vaid ka eetilisi muutusi koostöö ja kasutajasõbralikus suunas. Kuigi võimalikud muudatused on olulised ja seotud lepinguliste kokkulepete kehtivusega seotud, ei pea olema vaenus kehtestatud normatiivsüsteemidega, kuid võivad olla võtmeks, mis elavdab digitaalsed turud.

Eelnevat silmas pidades, pidi uurimine toimuma etappidena ning kasutas interdistsiplinaarset ja sega-metodoloogilist, kuid suuremas osas kvalitatiivset lähenemist. Esimeseks etapiks oli metateoreetiline ja fenomenoloogiline uurimine koostöö institutsionaliseerimise kohta vahetussuhetes tehnoloogilise revolutsiooni tulemusena. See käivitas töö ja uuris traditsionaalsete regulatiivsete süsteemide võimekust kohanduda digitaalse ja võrgustatud ajaga. Tulemused sisaldasid ka esialgset printsiipide sõnastust omavahel ühendatud digitaalsele ühiskonnale ja kriitilisi mõtteid kollaboratiivse vahetuse tehnika meetodite formaalne institutsionalisatsioon efektiivsuse kohta, mida toetab juhtumuuring.

Teine etapp hõlmas kontseptsioonide väljatöötamist ja sõnastamist, teoreetilise baasi loomist ja platseerumist, ning empiirilist selgitavat uuringut uue ettepaneku rakendatavuse kohta mis tugineb üldise publiku valmisolekule. Tehti ettepanekud SC tüüpi lähenemise ja elementaarsete vahetuse disaini faktorite kohta õiguslikus UX-is ja UXI-s ning koguti tõendeid publiku valmisoleku ja eelsoodumuse kohta. Äriorganisatsioonid kutsutakse üles muutuma tõhusateks institutsionaliseerimismehhanismideks eesmärgiga kõnealust lähenemisviisi levitada. Mõned teadusuuringute kava prioriteedid UX testimiseks ja uuendusteks tuvastati empiiriliste uuringutulemuste publiku taju tehingute sõbralikkuse kohta.

Kolmanda etapi jooksul vaadati SC kontseptsioon täies mahus üle ning see kirjeldati ümber relatsiooniliseks vahetuse teooriaks ning kontekstiks määrati Euroopa Liidu Digitaalne Turg, kus kõnealune lähenemisviis on võimalik ning kus selle levitamine saaks olla institutsioonilise raamistiku poolt legitimeeritud. Lisaks sellele, korrektse spetsifikatsiooni eesmärgil on eeldatud, et SC pakub sujuvat kuid ülimalt vajalikku üleminekurada üldlevinud trendidele õiguslikus automatiseeringus, mida peetakse kõige tõenäolisemalt ja kõige tõsisemalt õigussüsteeme lõhastavaks jõuks. Kõnealune osa taaskord kinnitab, et õiguslikku innovatsiooni ja SC peaks kõige tõhusamalt edendama ettevõtted ja eramõjutajad äristrateegiates. Koostööl põhineval ja strateegilisel lepingute kirjutamisel on võimalik ümber määratleda eraagentide valitsemisjõudu, mis on tänapäeva kohustuslik pädevus. Selles jaos seotakse töö taaskord aruteludega digitaalse juhtimise kohta ning paigutab selle praeguse akadeemilisse arutellu sotsiaal-tehniliste süsteemide rakenduste üle.

Jätkuv huvi kõnealuse uurimisvaldkonna vastu on kindlustatud ning SC kontseptsioonil võib olla oluline roll kiirustatavate digitaliseerimistrendide maandamises, samal ajal

uuendades, kuid kooskõlas lepinguliste vabaduste ja doktriiniga. Kontseptsiooni ettepanekud ja uurimise väljundid, mille üle käesolevas uurimistöös arutatakse on ühed esimesi panuseid selle eesmärgi suunas.

Appendix

Article I

Solarte-Vásquez, M. C. (2014). Reflections on the Concrete Application of Principles of Internet Governance and the Networked Information Society in the European Union Institutionalization Process of Alternative Dispute Resolution Methods. *Regulating eTechnologies in the European Union* (pp. 251-283). Springer International Publishing.

Reflections on the Concrete Application of Principles of Internet Governance and the Networked Information Society in the European Union Institutionalization Process of Alternative Dispute Resolution Methods

Maria Claudia Solarte-Vasquez

Abstract This chapter represents an effort to link concepts that appear to be and are commonly placed in distant theoretical areas but belong much closer together in practical terms: the principles of internet governance, and the networked information society converging in rules on one hand; and self-regulation competences required for collaborative and alternative conflict management on the other. They condense the public and the private roles in compatible regulatory models that could match sociability, economics and technologies of the times. It is an essay on competences, public policies that are not preceded by standards and principles that do not seem to have been captured by the laws. The institutionalization strategy on Alternative Dispute Resolution (ADR) and Online Dispute Resolution (ODR) for cross-border consumer redress in the European Union will be the reference to assess regulatory impact and argue for consistency. Legislating ADR and ODR aims at supporting electronic commerce as an essential component of the digital agenda; the flagship initiative that establishes the digital single market according to the European 2020 Strategy. Questions must be raised considering the marked emphasis placed on promoting social changes merely by passing new laws. The importance of understanding that the European Union is not capable of supplanting its members in turning institutional formulas into operational strategies is underlined, as well as a reflection on the need to support the social and economic transformations that have followed the remarkable developments in telecommunications and other digital technologies. Conceiving a European dispute resolution culture, enabled and mediatized by technological solutions is a viable solution to prevent more of the perceived shortcomings of public actions, and a truly innovative ODR systems design, could support the transition. This text invites the integration of concepts, disciplines and practices, respect for principles

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and their consistent application to solutions that could improve human transactions for a sustainable digital economy where empowered private actors can efficiently contribute to the ongoing collective transformations of the global governance.

1 Introduction

The internet is a mature technology, not the only one in the information and telecommunication technologies catalogue, but the first reference that led to the configuration of a global communication network.[1] Few nowadays are interested in answering more questions about whether it has to be ruled or not, and who could do it; the focus has shifted towards resolving issues on the how, to which effect and on whose behalf? Traditional formulations are being redefined with the adoption of new technologies by the networked information society, while others, and new ones are created to protect emerging structures and institutions. This describes a pragmatic revolution on values. Information, for instance, is at the top of both lists.[2] This section of the book departs from the premise that information is a right that ranks at the level of life, freedom and property, featuring strong in the hierarchy among other fundamental rights.

Information and Communication technologies (ICTs) and cybernetics are components of an "assembly" process between products and intelligent life that associate human capacity and people's identity with technology. Some could argue that this represents the beginning of a symbiotic relationship between humans and machines, starting with the handling of rights traditionally defined by personality laws being transferred and delegated to networks, recorded in virtual storage databases and administered by cluster managers.[3] Put in a less dramatic way, not a sector of the society is immune to the impact of the internet and other Telecommunication Technologies; in as long as "connected." ICTs have demonstrated power to transform societies, communities, groups and people in their most intimate affairs; they link the world efficiently and distribute data in massive quantities at a negligible cost, resolving many important institutional governance

[1] Mobile technologies are leading the expansion of the digital economy and interconnectivity in the world; their use continues to raise, and its platforms replace rapidly some of the services that the personal computers used to provide. The figures that the International Telecommunications Union publishes on its webpage speak by themselves: http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx.

[2] The value of information is not as disputed as it has been theorizing about it in the human rights context. Information could be also seen as externality to fundamental rights such as dignity and equality or an indispensable mean to achieve the exercise of rights that are affected by the internet and other telecommunication technologies. For an instance on how this discussion is proposed see: Tiilikka (2013).

[3] The rights of the personality (as defined by the civil law tradition) that are being compromised include the following among others: honour, reputation, identity, authorship, intimacy, privacy, etc. Electronic databases and registries, especially when handling sensitive information are not neutral containers exempt of worth, as the section written by Kristi Joamets explains.

difficulties (responsiveness and transparency), but not all; and most logistic problems that the world faced allocating resources in a not so distant past: the cost of innovation diffusion and spreading (copying), distribution, reach, and delivery. It is in this light that ICTs are drivers of development and at the same time the cause of great concern. These technologies are at the service of the networked information society and constitute the promise for a sustainable economic growth sourced on knowledge and information. The digital economy represents an expectation of continuous innovation and generation of immaterial resources that are available to all willing and competent innovators and entrepreneurs, to be exchanged and commercialized at large scales. At the same time, institutional arrangements of the past are challenged through a newly established dialog that has intensified in recent years around topics on global governance, laws and technology, digital rights, and cyber security and defence, mainly. Traditional roles of states and governments have shifted, governance processes became reflexive and at all levels interaction and collaboration have intensified.[4] Academics and technical experts, activists and institutional representatives, have been advocating in favour of institutional capacity building and the development of responsive and effective regulatory structure for the cyberspace.[5]

While awareness is raised, strategies that could effectively reduce the struggles focused on hierarchy and control are still missing. Technology management is problematic at best, especially for legislators that regulate to attain and sustain policy goals by laws that address human problems with technical solutions; technologies enhance people's capacities but do not deliver on their own. Nonetheless, they provide us with numerous supporting affordances, some of which remain undetected or unexplored. Part of the difficulties are caused by the restrictive conceptualization of the ICTs governance. Unlike most of the literature in the field, the study of their structural governance here is not viewed as orthogonal to the field of applications, content, users and interfaces, but integrated to it. It follows that private regulatory capacities and responsibilities of all private actors are acknowledged. Viewed this way, ICTs governance would be an extended notion, including the activities of private entities that are not associated to the technological sector, and all ICTs users.

It could be said that there is an adequate amount of technical digital wisdom to move on and proceed with innovation in governance and regulation for sustainable growth and human development. Many of the disputes about internet governance patterns are already settled and its most general principles have crystalized. The same applies to the Information and internet society. A combination of institutional formulations compete for a position in legal and political doctrine but few classifications capture the deeper sociological and political features that characterize human organizations of the networked information age. The European scholarly

[4] Look into: http://www.intgovforum.org/cms/2012-calendar.

[5] Some of the panels of the Global INET 2012 are recorded and available online at: http://www.livestream.com/inet2 One of them discusses the rule of law and Internet.

environment is enriched by the experience of its own integration process and the economic experiment that has translated in numerous political, social and cultural innovative adjustments. This so to say "experiential regulatory process" (formal and informal), could also turn into a paradigm for association, collaboration and co-regulation (multi-layered governance and subsidiarity principle). Most importantly, Europe has become a forum of great consensus, commitment and political responsibility and at the same time the only fully functional regional organization in the world. However, with the addition of the digital layer as critical resource, enabler, medium and environment, the European action has met considerable challenges.

In this book, the digital agenda, one of the flagships initiatives of the agenda 2020 for Europe, is on focus, and this chapter looks deep into one specific aspect of its e-commerce strategy: Alternative Dispute Resolution (ADR).[6] Conflict management and dispute resolution are not the core of any policy but merely instrumental to some, despite of how revealing they are known to be in diagnosing society tensions and the interplay between informal institutions and the legal system. On the other hand, it is a field that has enjoyed independence, where its actors could find the space to thrive and develop at the personal and organizational levels. Hence, the importance of attending these micro-spheres where institutional influences could effectively unleash a manifold of constructive interactions that multiply as people act at the upper organizational levels. In the aggregate this genuine development could be considered more stable and reliable than one based on statistics and compliance with external prescriptive controls. These reflections draw from self-regulation theories that also emphasize the importance of autonomy (freedom) and confidence.

Below, an expanded view of the current European ADR rules will be proposed, arguing that the global economy of the networked information society, packed as is with opportunities for interaction and gain for those who possess the appropriate skills, is incompatible with formalism, rigour and constraints. Transactional models based on the evolution of the ITCs should favour integrative gains, understanding, collaborative global action and dynamic institutional structures.[7] Implementing a new conflict resolution culture the world wide is too ambitious, but considering the EU success in other fields, a regional initiative could be successful. The most

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[6] See for more information: http://europa.eu/rapid/press-release_MEMO-14-194_en.htm and http://ec.europa.eu/justice/effective-justice/files/cepj_study_scoreboard_2014_en.pdf with facts and figures about the Study of the functioning of judicial systems in the EU Member States. ADR has been closely linked to the justice system function and could be relevant for its improvement. Indicators on this respect are included in the Digital Agenda Scoreboard (2014), addressing the training of judges, evaluation of court activities and availability of special resources such as Information and Communication Technologies and ADR methodologies.

[7] Dynamic rules that could be adjusted according to further and faster technological advancements and the differing capabilities of the many possible actors would represent a step forward in the disentanglement of the socio-political labels of the times. Such flexibility is not compatible with regulatory systems affected by the constraints of the rule of law doctrine. On this respects, consult: Baldwin et al. (2011) and Levi-Faur (2011) on regulations and regulatory governance in general; Gibbons (1996) on different types of regulations depending on their agents; and Trubek (2007) reflecting on the transformations of the legal rules and new patterns of governance.

recent regulations on ADR and ODR have a signalling value. They must be coupled with efforts on the non-normative consolidation of values, practices and traditions of collaborative dispute prevention and resolution, and conflict management. It should also be made extensive to all fields relevant. Otherwise, expectations on their economic and social impact will continue to be unmet.

In sum, the present qualitative and interdisciplinary assessment of doctrine is combined with a critical assessment of the European regulatory policy and its legal developments in the field of dispute resolution. It considers sociological, political, legal and economic aspects that link the preventive legal approach, conflict management and ADR methodologies. It starts describing the wider context were this discussion begins to shape: the networks. Then, the information society that has evolved with ITC technologies and also participates in the formulation of rules, attending to its needs, interests and emerging principles. Next, self-regulation and other conflict management competences are connected to ADR methodologies to continue with a summarized review of the European legal and policy frameworks on redress and ADR applicable to cross border disputes. An assessment of the continuous institutionalization process and its direction towards the use of electronic solutions and Online Dispute Resolution methods (ODR) is left for last. The chapter ends with implicit proposals, to replace overregulation with informal institutionalization; and the trends of exaggerated protection/control with support for the empowerment of human self-determination. Parsing these issues could contribute to the formulation of a -*collaborative*- European dispute resolution culture, where issues of system design linked to the increasing mediatisation of communication could be the next range of topics to be highlighted by research.

2 The Greater Context of the Digital Economy: Internet Governance

Responsible regional governance and the comprehensive integration process in Europe are not estranged from the global governance evolution. These arrangements develop with the internet and other telecommunication technologies. The two are part of the networked information society, where every player has a stake and becomes an actor of differing capacities, and according to their own interests, priorities and responsibilities. The European Union is but one more of the global stakeholders and the leading agents of the reflexive governance prevailing at the regional level.[8] In an interconnected world mediatized by technology expansion and resonance take place; the concerns of some become the worries of all. Every "node" of the network has the capacity to influence all others.

[8] Reflexive governance is a recent concept that refers to a self-critical and iterative form of inclusive and participative administration of affairs. It questions static and rigorous roles and goals and implies that the institutions that apply it are constantly transforming through learning. This represents a concrete strategy in the field of laws and government for the creation of better rules. Consult Hendriks and Grin (2007) and Voss et al. (2006).

Internet governance is concerned with a diversity of objects, corresponding to its layers, the technical composed by its infrastructure or architecture (including all critical internet resources)[9]; and its applications and the social and organizational that relates to its content and management. The architectural layer is not immune to policies and regulations, but relate very little to the aspects of social interaction that this text aims to highlight. Internet governance can be studied from the institutional point of view,[10] and its social impact, particularly in the fields mediatized human development, intercultural interaction and communication.[11] The information society concept relates to these last aspects in particular and deal with priorities that the World Summit of the Information Society (WSIS) establishes.[12] Technology, applications and content together compose a broad view of interrelated and fundamental issues that call for regulatory attention, in the same way the laws and politics of the analogous words penetrate practically all aspects of human interaction. Internet governance could be seen as the background policy making and regulatory development of the information society, which implies interconnectivity via any of the ICTs available technologies.[13]

In earlier stages of scholarly debate, discussions differentiated the layers that compose ITCs little, Nowadays much more sophisticated reflections are available, allowing for more precision and insight on the capacity of the actors and effectiveness of evolving regulatory systems regarding each. Furthermore, extreme positions in regard to ruling and governance are now rare; Mueller explained well the polarization between cyber-libertarianism and cyber-conservativism of those days.[14] On one hand, it is recognised that the early success of the nascent ITCs technologies was possible because of their "unregulated" or rather "non-intervened" nature. On the other, the internet, one of the two most popular ICTs, organized from its beginning oblivious but not entirely detached of structure and regulations. These are still progressing towards a complex and dynamic regulatory framework. In other words, regulations have always applied to the networks even if, as in any innovation cycle, specific institutions did not exist and its evolution was informal and independent.[15] This could have been the first agreement on inter-

[9] Electronic resources including to level domains, IP addresses and the Internet root zone. On Internet layering and its regulatory implications see Solum and Chung (2003). Solum was one of the first authors conceptualizing in a cross-disciplinary way on the ICTs engineering aspects affecting regulatory systems.

[10] Institutions is used in this context in its organic meaning, referring to entities with different degree of involvement and power influence and control the networks, including the Internet Corporation for Assigned Names and Numbers (ICANN) and its supporting organizations.

[11] By mediatized it is meant the use of tools, mainly ICTs as mediums in human interaction.

[12] See details on the WSIS 2014 online at: http://www.itu.int/wsis/implementation/2014/forum/.

[13] See Sect. 2. According to Marta Poblet (2011), mobile technologies are critical enhancers of this participation, scoring first in the range of solutions to bridge the digital divide. This could be the reason why the public sector focuses so heavily in the engineering part of these processes.

[14] See Mueller (2002). See also DeNardis (2010) on the controversies and issues that were the most controversial at the time.

[15] Taking place in all innovation cycles according to Utterback's (1996) reference work: *Mastering the dynamics of innovation.*

net principles ever settled. The issue now is not whether regulation is necessary or desirable, but on its qualitative effects: What type of rules are needed and how should they be created? All other matters with relevance for the global and international policies related to Internet governance, are redundant or rapidly changing, but could eventually become additional principles.[16] For the purposes of this chapter, the following simplified classification would suffice:

The *first general principle* of internet governance is regulability; it operates based on normative and other regulatory capacities, and has become in fact one of the most organized components of the global digital environment.[17] More *specifically*, *on its architecture, important principles* that could be identified *are interoperability and internationalization*. The first implies that technologies are compatible and support each other's components and services into one integrated system that rather differentiates at the level of applications, but also has to do with standardization. The second means that the design of specifications, applications and content should ensure usability or adaptability regardless of cultural or regional contingencies. *On other layers* principles manifest on the networked information society interaction, but the most important are *cooperation and increasing self-regulation*.

The *second general principle is transparent and democratic –inclusive-multi-stakeholderism*, summarizing all existing ranges of participation and views on the distribution of power, control and action,[18] attending principally to the challenges

[16] Other so-called principles have been issued in declarations by multilateral organizations and other independent entities interested in raising awareness about their goals and interests. Among them for example, The Internet Engineering Task Force (IETF) that oversees internet standards development processes; The International Telecommunications Union (ITU), a United Nations agency involved with internet governance functions that include developing of standards, quantitative assessments (statistical) and research (Internet Governance Project, 2004); the Internet Systems Consortium; the United Nations Educational, Scientific and Cultural Organization (UNESCO); etc. The list of public, private and mixed organizations that work on this area and perform functions of Internet governance at the national, regional, and international levels continuously grow. For a detailed overview, see Internet Governance Project, 2004; see also Mueller (2004).

[17] The Internet is a partial approximation to the digital world as a whole. It refers only to some of the Information and telecommunications technologies, but also invokes the presence of the Information Society. ICTs and the Information Society cover areas outside of the strict domains of the internet and its protocols but the expression "internet governance" will continue being the reference to all activities resembling but not equivalent to governing the network of networks. The internet protocol (IP) is the most important of the communication technical standards. Mobile technologies compete with it, and expand rapidly, but have not yet displaced the importance of the Internet. On figures concerning these issues consult documents and publications online at: http://www.internetsociety.org/igf?gclid=CNTdguL-lr0CFcuWtAodjgEAAA and statistical databases in the ITU website.

[18] The requirement that internet governance should be conducted according to multi-stakeholder principles was first stated at the WSIS summit of 2003; despite its wide acceptance it is not clear to what extent it shoudl constitute by now a norm of customary international law. See for a current publication on its development: http://www.internetsociety.org/sites/default/files/bp-msfinal-report-20132010-en.pdf. See also *Infra* note, 22.

in regulatory practice identified by abundant academic literature.[19] A formula of success should resemble a compromise between traditional normative systems and cyberspace rules; centralization and decentralization; protection of old values and consideration of the new[20]; geographical and virtual jurisdictional options; and formal and informal institutionalization processes, including the capacities and competences of actors that may become most useful.[21] Multistakeholderism should continue to speak of participants and their entitlements, but also include reflections on their commitment and skills, for functional accountability. Ample documentation describes the ways in which scholars and other private actors were the initiators of dialog, validating the importance of self-organizing operational patterns for the early networks and their establishment. Only after the commercialization of the internet, its exponential expansion, and growing interests vested in the potential of a global digital economy, governments and intergovernmental international entities claimed a voice.[22] The extent of the role of the public sector in deliberative internet governance still attracts controversy. Governments as "newcomers" have operational difficulties in adapting to their position in the global scenery where regulation by laws, the most prevailing tool of governing functions, is of limited capacity, legitimacy, validity and effectiveness.[23] Stakeholders in IG are the civil society with action at community levels, the private sector committed to the economic and technical maintenance of the networks (ICANN belongs here), International Governmental Organizations (IGO) in charge of coordination of policy, International Organizations (IO) that propose technical standards and their policy support, and states, that retain mandate on

[19] The formulation of dynamic rules, and innovative normative solutions that could combine adaptability, flexibility and openness is preferable to attempting to force regulatory uniformity, and even coherence of rules in a context so complex, polycentric and changing.

[20] For instance information pairing life, freedom, and property in the catalogue of human rights doctrines or/and the construction of a social order of the networks with their own description of public goods, etc. These reflections are owed to a multitude of authors from an interdisciplinary background on laws, politics, sociology and economics. From classic texts such as Mill (1859) on liberty; to very recent essays such as Misztal's (2013) about trust and social order.

[21] In here, the references to formal institutions regard laws, statutes and all normative options that follow the rule of law doctrine. Informal institutions in contrast, are all other regulatory systems that condition, affect and influence human behaviour. This approach is presented using expressions that resemble sociological, organizational and managerial terminology, with a purpose. Their use is explained in detail by Solarte-Vasquez (2013) in *Regulatory patterns of the internet development: Expanding the role of private Stakeholders through Mediatized "Self-regulation"*.

[22] A summarized primer on the history of internet was also proposed by Solarte-Vasquez (2013). *Supra* note, 20. But many more are available in popular and academic literature.

[23] The rule of law in democratic systems operates through legislative development, controlled public policy and laws as equalizers of legal systems (to comply with the material requirement of legal integrity, that laws must be general and abstract, and prevent fuzzy, arbitrary rule). See for a recent publication on the rule of law: Barnett (2014).

policy making and legal authority.[24] This global partnership began shaping with the WSIS and the creation of the United Nations (UN) Working Group on Information Society (WGIS) and the Internet governance Forum (IGF) for policy dialogue. These groups engage on an ongoing formulation and revision of the most important issues in internet governance.[25] New topics and principles could emerge, as was the case with the critical internet resources that in 2007 became a category on its own.[26]

Multistakeholderism had to be recognized for a system of interconnected networks of global proportions that promised the advantages of development, growth and knowledge dissemination. It still has a widespread impact in the sphere of the information society, placing extraordinary strain on traditional human organizational patterns, transactional models based on competition and exclusion, and cultures. *The information society* follows a logic premised on a *fundamental principle* that interdisciplinary research admits "must distance from the concepts of efficiency, operational effectiveness, and Pareto-optimal allocation applicable to hierarchical systems and markets[27]:" that is, *collaboration*.[28]

The third consolidated principle of internet governance is *neutrality*. Its discussion escalated as it evolved and subdivided in derivative institutional developments connected to open access and security, debates on human rights protection, inclusion, etc. In the European Union, adherence to this cornerstone principle is fundamental in all it purports in regard to all technical and political components of ICT governance. It involves transparency, non-discrimination in traffic management of information and content. In 2011, The Netherlands pioneered, enacting the first law ever establishing net neutrality, followed by Slovenia. At present the Commission is taking bold steps to legislate in the same direction, with the promise to set up net neutrality rules by July of 2014.[29] Keeping accord with an understanding of these technologies as critical and indispensable for human development, their protection from ideology, politics, economics, and other unaccountable influences compares to some of the components of the rule of law. Academic research could explore this analogies much further.

Other so-called internet governance principles have been issued in declarations by multilateral organizations and other independent bodies interested in raising

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[24] The text of the Tunis agenda for the Information society is available online at: http://www.itu.int/wsis/docs2/tunis/off/6rev1.html.

[25] In Gelbstein and Kurbalija (2005). Issues of internet governance used from the late nineties are like clusters that infrastructure and standardization, legal aspects, economy, and developmental and socio cultural.

[26] *Supra* note, 14.

[27] On Sørensen et al. (2012). Where the authors assess in detail meta-governance tools for institutional design, strategic planning, methodologies and process management, and direct participation.

[28] Consult the social theory for the information age by Christian Fuchs.

[29] EU open Internet Action: http://ec.europa.eu/digital-agenda/en/eu-actions.

awareness about their goals and interests.[30] But for the most part efforts are comparable, forming a rather consistent global system of governance, this is why the UN-sponsored IGF provides adequate context for any analysis. European Organizations and the European Union endorse the same principles, running parallel processes.[31] To keep raising the levels of mutual recognition by all actors in the global regulatory process is necessary for validation. This stages a productive dialog and becomes a precondition for effective associations and cooperation as it occurs to all human relations, no matter how complex might be.[32]

Parsing the problems of internet governance could go through a regression towards theoretical discussions on normative, economic or social choice, but the pragmatic perspective that has prevailed on the web 2.0 would be lost; anyway, most participation models that coexist share and mix conceptual justifications. Progress could better be achieved if keeping general postulates simple and focus on functional matters. The ICT issues that differ most from those in other policy contexts are unique; most of them this approach will claim, are more deeply connected to human capacities and development than to political ideology or legal science.

3 Principles of the Networked Information Society and the Vital Role of Private Stakeholder's Activities in Institutionalization Processes

Internet and ICTs governance is not only a political economy topic, and although is rooted in longstanding public policy discussions it is intimately related to society. Objective considerations such as its global scope and factual observations on the predominant character of its management are not enough assessment tools to justify formal institutional initiatives or explain informal institutional changes.[33] Enough has also been said about reviewing a simplistic conception of technological determinism. Instead, a perspective that offers the most generous analytical

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[30] See from the Council of Europe the "*Declaration by the Committee of Ministers on Internet governance principles* (Adopted by the Committee of Ministers on 21 September 2011"available online at: https://wcd.coe.int/ViewDoc.jsp?id=1835773 for an example of engagement of other bodies concerned with the same interests.

[31] In the international aspect of the digital agenda for Europe, the commission explains its endorsement of the multistakeholders principle. Read on Action 97 online at: http://ec.europa.eu/digital-agenda/en/international/action-97-promote-internationalisation-internet-governance. See also Da Silva (2007) on what the future of ICTs was envisioned like according to the EU public policy of the time.

[32] Conflict management theory is extensively referenced in ADR literature, for instance by publications of the Harvard Negotiation Project and associated scholars. Visit their webpage for further information at: http://www.pon.harvard.edu/category/research_projects/harvard-negotiation-project/. Also see: Ramsbotham et al. (2011) and Deutsch et al. (2011).

[33] Laws and social development of practices, habits, etc. See also *supra* note, 19.

possibilities departs from the social theory.[34] This section explains a choice of viewpoint that is themed on the skills revolutions that transcend information and knowledge, based on some of the postulates of critical theories and calls nowadays' society the information and/or networks society.[35] Presented this way, it is possible to reach further towards the individual levels where the interplay between technology, and the possibilities of engagement unfold an enormous range of opportunities. What could be missing to enter an age of the person, so to say, seems to be authentic empowerment.[36]

The raise of the information society resulted from a quantitative rapid and exponential increase in circulating information, and qualitative transformation of social practices and human interaction affected by the apparent chaos of a dispersed authority model.[37] The information society could be seen as an umbrella term containing more specific definitions such as the internet society. Both apply to interconnected human organizations that experience a pervasive technological mediatisation and participants in the digital economy. Manuel Castells has defined it in terms of network society rather than information society, placing the most emphasis on the fact that the construct appeals to interdependence and performance flow, without excluding economic aspects of production and consumption of information, but referring to the historical record on that all societies function on the basis of information and knowledge of their corresponding time, and that these determine wealth and power according to the given system of distribution. Consequently, the human capacity enhancement that contributes to the networks truly depends on their operational –*distribution*-capacity, much in the same way electricity made the expansion of the industrial society possible, that is, information technologies empower and enable; but people develop. "A network society is—a society—whose social structure is made of networks powered by microelectronics-base ICTs."[38] Castells extensively

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[34] Ideas about how societies change, ways to explain social evolutionary development, about methods of explaining social and behaviour, power and other deep structures. In contemporary social theory, some themes are of primary concern: socialization, social interaction, social institutions and the self, the possibilities and paths of social transformation. Look into the theory in Giddens work on *Social theory and modern sociology*, published in 2013. A prominent author is Jürgen Habermas (1987) who theorizes on modernity and contemporary problems (very interestingly assessing the doctrine of the rule of law in a critical "social-evolutionary context," and current politics, particularly in the German context). Habermas's theoretical approach emphasizes in the possibilities of reason and emancipation as human capacities.

[35] No strict and universal definition of society has been universally accepted. In literature and doctrine. Information or network society is a choice that suits the theories justifying the present analysis and the conclusions that it draws. The two are used interchangeably throughout this text merely for convenience, without negating the differences that some scholars like Castells have conceptualized on the matter.

[36] See Sect. 3.

[37] *Supra* note, 33. A marked degree of involvement, more regulatory diversity, co-regulation, consensus building, regulatory innovation and implementation, new partnerships, withdrawal of public intervention from some areas, self regulation, etc. These all require freedom, and discipline (self-reliance).

[38] Castells (2004).

discusses the matter in the context of globalization and social movements related to individual identity."[39] Christian Fuchs contributes with arguments about a dynamic theory of society that like every human system, he claims, is self-organizing in the sense that a new arrangement emerges from the old. This, in turn implying that the capacity and agency of its members are essential components of a permanent grass-roots movement of cooperation.[40] For contrast on the validity of a single notion on information society, Webster argues that the most popular definitions of the society affected by the ICTs portray unwarranted social discontinuities, and that they are too vague and copious in the use of references to aspects so different that escape a minimal sense of precision: He elaborates on the way it has been explained by proponents from the occupational, technical, spatial, economic and cultural perspectives, arguing that this last is the most popular approach while in the case of authors who deny its independent features explain society features as continuities of traditional theories such as in the cases of reflexive modernization (Giddens), Neo-Marxism (H.Schiller), or regulation theory (Aglietta).[41]

Besides the many theoretical models available, important institutional references are common and many, all referring in detail to initiatives on the engagement of society in global affairs, and promoting their participation. International, regional and national entities have identified their focus and priorities and formulated their own vision on the information society. The following are but illustrative examples: In the international level the UN and International Telecommunications Union (ITU) resolutions on the WSIS in general[42]; and more specific in connection to the digital economy (e-trade) like the Seoul Declaration that relates to developments in the field of customer engagement at different instances.[43] Regionally, among the principles of internet governance declared in the 2011 by the Committee of ministers of the Council of Europe is the empowerment of

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[39] His famous 1,200 pages publication on the information age has even been compared to Max Webber's Economy and Society by Giddens; the trilogy includes: The Network Society, The Power of Identity, and End of Millennium (Castells 1996, 1997, 1998).

[40] Supra note, 26. Fuchs on the Internet and Society, and a social theory in the information age. He is not a radical determinist but considers that new phenomena deserves innovative assessments in combination with traditional social sciences methods. He is a proponent of a critical theory in regard to ICTs and society. See also Hofkirchner (2007) on more of self-regulatory theories and critical theory in connection to the networked society.

[41] Find a complete reasoning in his article: Webster (2002).

[42] Texts and developments are available in the WSIS webpage at: http://www.itu.int/wsis/documents/background.asp?lang=en&c_type=res. Additional documents, reports and follow up reviews are also accessible on the same webpage at: http://www.itu.int/wsis/index.html. The WSIS declaration of principles can be found at: http://www.itu.int/wsis/docs/geneva/official/dop.html.

[43] See the OECD website for information on policy and recommendations on the internet economy: http://www.oecd.org/internet/ieconomy/, information economy: http://www.oecd.org/sti/ieconomy/measuringtheinformationeconomy.htm and consumer policy in context: http://www.oecd.org/sti/consumer/consumersinthedigitaleconomy.htm.

internet users.[44] The European Union has a much more sophisticated commitment the field of participation in regional governance and economic development, this last converging in the digital agenda for Europe, referenced more in detail below.[45] An explicit customer policy strategy was set even earlier to empower EU customers[46]; replaced by a new European Consumer Agenda, and complemented with numerous related commitments also on areas outside the economic context.[47] Besides, the formation of virtual and global communities, and a kind of "experiential governance" performed by digital activism disseminated mainly though social media, evidences the informal institutionalization patterns that are configuring collective, democratic and coordinated civic action. The society refines its participation style as it becomes more experienced, as in "learning in the making."

The information society participates in the internet governance system. Within the institutional framework that was proposed above, its activity relates most closely to the *regulability* principle on its applications and content layers, because it includes institutional cooperation practices and self-regulatory competences and *multistakeholderism* principle, which sheds some light about the nature of society's constructive and active roles. To integrate the diversity of understandings on the information society, some principles could be introduced. Most of them reflect the substance of the WSIS "key principles of the information society for all."[48] Agreement on these essentials would contribute to science with a theoretical, empirical and institutionally grounded approach that could embrace multidisciplinary and evolving understanding of social phenomena.

The information society principles that could guide the protection of a sustainable networked society could be summarized in three groups: The first would seek

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[44] The principle reads: "Users should be fully empowered to exercise their fundamental rights and freedoms, make informed decisions and participate in Internet governance arrangements, in particular in governance mechanisms and in the development of Internet-related public policy, in full confidence and freedom." The full text is availableonline at: http://www.coe.int/t/informationsociety/documents/CM%20Dec%20on%20Internet%20Governance%20Principles_en.pdf.

[45] Information society as a concept was already mentioned in official documents a decade ago when the transition to the digital knowledge-based economy was starting to be a priority. In fact, the launch by the Commission of the *e*Europe initiative took place already in 1999, followed by the eEurope2002, the eEurope2005, and the i2010 and most recently the Digital Agenda (DA). This last is part of the Europe 2020 strategy, aimed at the optimal development of the potential of information and communication technologies (ICTs), to promote innovation, economic growth and progress. One of the most relevant pillars on inclusion and empowerment is Pillar VI. Actions that support it are explained in detail online at: http://ec.europa.eu/digital-agenda/en/our-goals/pillar-vi-enhancing-digital-literacy-skills-and-inclusion. See also Sect. 4.

[46] European consumer policy strategy 2007–2013, available onlineat: http://ec.europa.eu/consumers/overview/cons_policy/doc/EN_99.pdf.

[47] The full text of the Agenda is available at: http://ec.europa.eu/consumers/strategy/docs/consumer_agenda_2012_en.pdf. Consumer empowerment, according to it, is based in four pillars related to safety, knowledge (awareness), enforcement and redress, and alingnment between policy and socio economic change. A working document on knowledge enhancement is recommended, also available online at: http://ec.europa.eu/consumers/strategy/docs/swd_document_2012_en.pdf.

[48] See *supra* text accompanying note 40.

to realize the ideological vision of the times: *participation*: all inclusive, deliberative, proactive, associative, reflexive governance (making extensive use of regulatory impact assessment tools); The second, *empowerment*, defining the priorities for the vision's proper development: freedom, trust in the own's other's and state competences, confidence in the system and processes, skills, knowledge, self-regulatory capacities, non-deterministic dependence of technology but control of the ICTs resources and solutions; and last, attending to the tactics and methods that are compatible with social processes, *cooperation*: promotion of the binding force of collaboration, trust, methodical, productive connections, networking. The focus on media, and technology must shift to one more balanced were the society can have control over those resources and its own processes, aware of its potential and preventing exclusion and the prevalence of disputes and division that have characterized recent societal manifestations, some of which are still resisting change.[49]

The extent to which a critical theory is implemented in this analysis of the information society is limited but valuable. The critical theory Fuchs has brought forward is convincing in its lack of conformity and desire for social change. It considers alternative ways to develop society by exposing its potential, departing from its essence and looking into bridging the differences between what it "is," and what it "could become."[50] His concerns on the unrealized –*democratic*-participatory possibilities of social arrangements are of chief importance; it could be added that they presuppose freedom and the institutionalization of civil liberties. Also cooperation and sharing for the public good. Critical information theory is much more complex, for example, according to Fuchs, it must guide a social struggle, heavily drawing from the Marxian approach.[51] But the most relevant contributions to this section is that empowerment is needed to achieve social goals, and these, could be realistically measured by the potential of society. The struggle to succeed would be the most efficient if it takes place through enlightenment of people, along with the development of ethics more

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[49] This would be the case, for instance of the property law structures that are deeply challenged in their formulation, legitimacy and applicability by the new digital economy logic of abundance, difussion and egalitarian forces. Authors like Fuchs consider that networks oppose ownership and compel the atomization of captalism, as networks are expansion and redistribution of resources and with them, of power. Information being the most important comodity in this context and the content that provides the mediums with meaning. Networks are in essence a negation of individual ownership and the atomism of capitalism. Global economic networks and cyberspace.

[50] Fuchs *supra* note, 37.

[51] Marx's works [in particular reflections from his economic and philosophic manuscripts: Marx (2012), interprets Fuchs, talk of cooperation as the concerted use of resources and socialization for the purpose of liberation. He also explains that cooperation could be an objective dimension of an ethic that strives for self-realization and inclusion through self-determination, instead of competition and abuse that would lead to the gain of some at the expense of others. In this sense, Marx ideology indeed suggests that competition separates men from their essence. Although cooperation at least theoretically would maximize the chances for success, collective action can also degenerate, and so the benefits of leaving collaboration to the hope of being inherent to society is dangerous. It also denies individual competences and characteristics. Cooperation can be taught from a very pragmatic point of view of convenience and sharing of risks and responsibilities like it is proposed in the field of Conflict Management and Alternative Dispute Resolution, but cannot be imposed. Collaboration, as most legal systems of the world establish, is voluntary and manifests through instruments like agreements.

consistent with the networks. Movements on cooperative information society, and cooperative cybernetics have proliferated in the past decade. Capurro, for example, also grounds his theory on the social sphere and assigns to the networks ethics a primordial task of advancing freedom for the digital world.[52] The Convergence Model of cooperative cybernetics that Bradley developed exhibits additional values. She has argued that a good ICT society is one that seeks equality and the common good, develops from the bottom-up, performs integratively and is humane.[53]

An ideological view of the layers of the internet and ICTs that are in contact with the end users is present in contemporary new media discourse because of the management of access, flow and identities that converge on the Web 2.0 concerning all players and combining all stakes. Governance actors should incorporate this approach and institutionalize accordingly. It is at this level, very close to all users turn into producers that the democratization of society can take place, but in as much as a transformative power could be applied to technologies, before the semantic Web 3.0 unfolds in a social "regression" process where it would effectively place all control on the networks.[54] Without complete empowerment of all stakeholders, it would be difficult to reach a stage of value that is both powered by self-structured and generated information and enhanced human participation.

4 Information Society Empowerment Though the Enhancement of Self-regulatory Capacities and Its Practical Applicability in the Field of Conflict Management

The global network society changes at a different pace if to study each of its dimensions separately: the tools provided by technologies of the times are unevenly distributed. Many institutional agreements on *economic structures* (production, distribution and use of resources) appear to contradict some *political structures* (governance), and advancement tends to disregard the differing capacity of *cultural structures* to absorb change. Scale is one of the most obvious reasons why homogeneous and coordinated development is challenging. Nonetheless, the logic of the networks gradually penetrates all, to a different degrees of success. The contradictions that arise in the assessment of global and regional social institutions makes proposing new institutional formulations by policy or legislation convenient. There is a clear incentive to regulate, and a high risk to overdo it.

Social change is too affected by resistance, a natural attachment to the "old ways" as well as to the corresponding competences that are already acquired by

[52] Capurro and Hjørland (2003).

[53] For a complete look into the social informatics field consult Bradley's convergence model in: Bradley (2010) and (2006).

[54] This evolution signals the integration of data that presuposes the semantic web 3.0, highly collaborative, proactive and constructive. It would lead to the management of content by the web, enabled to recombine data and information and understand it, in a way an "smart" entity capable of processsing content intelligently using data mining processes. For an accessible explanation of the semantic web, consult: Yu (2007). On the future of an integrative Web 3.0 see: Gruber (2008).

experience. Laws and policy could prevent fragmentation with more careful consideration of these factors, to help a smooth transition where the bonds of society could be strengthen or at least preserved. A bottom up approach has always been valued, it is a pragmatic and effective way to influence compliance with laws and appreciation for policies. This is especially true in Europe where the governance scheme is founded on reflexive processes, and the regulatory action seeks to take place at the closest possible distance to the subjects and their problems or interests.[55]

To focus on what would constitute effective social empowerment, the role of private internet governance stakeholders must be reviewed in detail. This takes place at the intersection between the social and behavioural sciences and ICTs. In accord to the principles proposed above on ICTs governance and the networked information society, the way in which this analysis propose coordination requires that public institutions endorse and promote freedom of contract, self-reliance, self-regulation and cooperative skills/competences. These aspects may be partially resolved with a drastic return to basics in legal theory as in the doctrines on freedom of contracting when it was first conceptualized.[56] This, for the creation of a private order that goes beyond merely organizing the production and distribution processes to where it seems most needed: an order that can integrate differences, manage conflict and resolve disputes effectively. Conflict management features resulting on ADR methodologies are purely based on voluntary engagement, and effective as long as they are practiced according to their integrative principles. Self-regulation competences are recognized by the legal system and most recently acknowledged as a fundamental component for the success and sustainable development of the digital economy in Europe.[57] They influence conflict management styles and the effectiveness of ADR methodologies. The same could be said of ODR schemes if these are not solely mediatizing traditional formal processes.

4.1 Self-regulation and Human Competence

The notion of empowerment that is presented here is a buzzword in the general public policy debate about ICTs governance. Gaining control, power, helping our selves, achieving describes the meaning of the word. Empowerment has become a precondition to be active in the highly cooperative networked information society that places much more responsibilities on private groups and individuals than other forms of social, legal economic and political systems existing before. A way to institutionalize new interactions is to innovate with rules and practices. New

[55] The principles of EU conferral, subsidiarity, proportionality are some of the Union's founding principles. Read more in the EU webpage at: http://europa.eu/scadplus/constitution/competences_en.htm. See also *supra* note 6 on reflexive governance, and the writings on political communication: Jessop (2003).

[56] Recommended classical reference books on freedom of contract, among the many available are: Mensch (1981), Kessler and Fine (1963) and Pound (1909). With a more recent application of perspective in: Reichman and Franklin (1999) and Haufler (2013).

[57] *Infra* note, 81.

rules should be dynamic, adjustable, and new practices could begin from the adoption of preventive, reflexive and proactive legal and political principles.[58] If to solve new problems with older tools instead, recognizing the dangers of overregulation is especially important. The benefits of predictability and stability should be balanced with the need for flexible and effective governance.

Empowerment is a concept that has to be evaluated much further, grounded on the different fields where it is required. Here it is going to be framed within the broader theory of self-regulation, and linked to personal autonomy and motivation. Cooperation, which logically would refer to more than one individual or group does not exclude but compels the contribution of independent parties towards achieving same goal. Similarly, participation is essential when describing associative interaction considering that it is about involvement and engagement, becoming part of a collective process. Thus, capacity is a component for any agent to be meaningfully linked to regulatory processes.

Self-regulation is also the root of the civil law systems, the clearest explained through the laws and principles of the law of contracts and obligations reflected in constitutional level provisions on individual freedoms.[59] Freedom to contract being of paramount importance to define the extent to which a person in the legal

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[58] The proactive law approach is an innovative vision interested in integrating preventive law philosophy, ADR principles and contract management. It develops by influence of the Nordic School of Proactive law (http://www.proactivelaw.org/) that supports its theoretical and practical developments. Consult the works of Helena Haapio, and also, for instance: Sorsa (2009).

[59] Examples of the principle of contractual freedoms are explicitly established in legal systems around the world, and in particular in constitutions and civil codes and legal acts that are based in the Napoleonic code of 1804 (Spanish, German and Swiss legislation have their roots in the Roman Law tradition of the 19th Century just as most of the civil law codes across Latin America that uphold to the maximum the principle of freedom of contract). Article 1134 of the French Civil Code, reads: "Les conventions légalement formées tiennent lieu de loi à ceux qui les ont faites. Elles ne peuvent être révoquées que de leur consentement mutuel, ou pour les causes que la loi autorise. Elles doivent être exécutées de bonne foi." See also some examples on the Spanish Constitution Art.8 and art.53, and art.1255 of the Spanish Civil Code; German Constitution art.2(1) and its law of obligations (albeit its dramatic changes in favour of a new consumer protection oriented policy to modernise a civil code first enacted in the year 1900. The reforms entered into force in 2002, marking a path in the direction determined by supranational legislation); Chilean Civil code art.1545, Colombian National Constitution of 1991 articles 13 and 16; Colombian Civil code art.1602 (valid contracts constitute law between the parties); an example of jurisprudencial reasoning on this respect is also available online at: http://www.corteconstitucional.gov.co/relatoria/2008/c-1194-08.htm.), etc. Doctrinal development of the principles can be found in classical reference texts such as in Ourliac and de Malafosse (1969) and Pothier et al. (1839). Robert H. Small. T. Jurisprudencial sources and doctrine have also developed the theory in connection to the economic system of free markets where commerce is expected to flourish auspiced not by the state but by private agency and the market forces. In Europe, most recently, the law of obligations and contracts has found a harmonizing option in the so-called consumer protection laws. These specific developments aim at restating and diffusing precisely what the traditional values that were already present in legislations of member states guarantee on individual freedoms and the co-regulatory power of private persons. Only, that consumer protection laws establish limits and specific protection measures that aim at empowering the population and enhancing their trust in the system. In sum, in a legal system where economic freedom is promoted, the state must facilitate private regulatory activities through legally enforceable agreements that permit an efficient exchange of products and services.

system is entitled to create and modify rights and duties that are enforceable.[60] This topic deserves a deeper -*but brief*- reflection that can be explained by exploring self-determination theories, the importance of which resides in the extent of the impact that legislation can realistically have on people's behaviour. Legitimacy of rules and effectiveness of regulations have everything to do with the degree to which subjects can identify with norms, and how institutional formulations can or have to be incorporated to behaviour. People are more prone to comply with rules that are "their own," rules that match with their individual or collective sense of obligatoriety. In the organismic dialectical perspective of Deci and Ryan, it is only when the environment supports autonomy that integration of behaviour and relevant regulation is conducive to effective and constructive self-regulatory action. They also explain the relevant causalities between formal and informal institutions and self-determination, taking into account different theories such as the Basic Needs Theory, that connects action with wellbeing, and mental health supported by the works of Kasser, Sheldon, Ryan and Reis, Roscoe, Chirkov, Hayamizu and Tanaka, etc.[61] Drawing from their work, one could deduct that restrictive institutional arrangements could undermine people's sense of competence, autonomy and relatedness. As a result motivation for compliance and performance can be—*proportional*—the direct consequence of the capacity allowed by a social and legal system and how much it achieves a sense of competence.

Empowerment, thus, acquires meaning only if it translates on allowances to exercise free will and self-determination; the acknowledgment of the importance of free will is to recognize an ontological reality of human beings and the existence of subjective rights. ADR Methods do that in the field of conflict management, one that contributes the most to a peaceful, harmonious society. The ICTs have heightened and increasing interest in ADR methodologies, especially for economic agents. First, commercial transactions in the open geography of the networks pose jurisdictional challenges that ADR can solve, but most importantly, they promote integrative, collaborative solutions consistent with the spirit of the times. In Europe, where all the focus has been placed on economic arguments and emphasis is so explicitly reduced to consumer and trade, the potential of the field in terms of human and social development seems to have been trivialized. On one hand, any institutionalization of ADR is welcome and useful, if to call attention about its benefits. On the other, the confined space where it has been developed and the formalities assigned to its practices could be misleading. No empirical study is available on that people in general will embrace unfamiliar forms of dispute resolution just because they exist; not even when formally institutionalized. Furthermore, in the cyberspace, people and institutions could be less inclined to trust systems that are not common, as well as incapable of implementing the tools necessary for their successful application.

The 2007–2013 EU Consumer Policy Strategy, sets as its main objective "to empower EU consumers." It also assigns importance to understanding consumers'

[60] For a contemporary analysis consult also the doctoral thesis by Soro Russell (2012), and in connection to ADR, Julio (2012).

[61] As referenced By Deci and Ryan (2012).

behaviour and promoting autonomy by advocating free choices, accurate information, transparency of the markets, and the institutionalization of their rights and their effective protection.[62] Although these priorities are set to be based on indexes for qualitative assessment, first they are limiting, and second, they do not consider the overall capacity of society to respond to such expectations, reflections of independence and freedoms.[63] Outside remained the fundamental dimensions on freedom, self-reliance and confidence from the side of the institutions and the population on their self-regulatory power. In addition, one more challenge for public policy and legislative development is over institutionalization, or the excessive reliance on that regulations can significantly alter human development and social behaviour on their own. The capacity of rules is much more limited whereas the possibilities of a constructive conflict management culture diffusion through indirect public action and informal institutional development could be much greater.

4.2 Applications of Private Regulatory Capacities

ADR methodologies belong to the study and theory of conflict, where most of the most reputable and well known scholarly work can trace its origins to (Menkel-Meadow 2000). Negotiation and mediation are the most collaborative and independent types whereas conciliation utilizes the law as the primary standard for decision making and arbitration closely resembles traditional adjudicatory processes. The use of ADR methodologies is anyway based on free will and consent because at least in their purest forms, they can be used only when the parties voluntarily agree on their application, or on an outcome that results from their methods (to include the cases where mediation and conciliation are integrated to judicial processes and they are compulsory). Negotiation is a universal activity; all people negotiate, on daily basis, with or without noticing. It takes place in disregard of skills, awareness or acknowledgement. Negotiation is the core collaborative method in the conflict management and ADR fields. Gerard Nierenberg discussed the importance of attending to negotiation styles in everyday life from the late 1960s.[64] His views included a comprehensive description of negotiation explaining that it includes any exchange aiming at transforming relationships. From his time, and after the ADR movement re-emerged four decades ago, it has been agreed by scholars and practitioners that the skills that effective negotiators

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[62] Consult the Monti report, available online at: http://ec.europa.eu/bepa/pdf/monti_report_final_10_05_2010_en.pdf.

[63] The Directorate General of Health & Consumers and the Directorate General Joint Research Center created a unique measure of consumer empowerment named the Consumer Empowerment Index. It considers three main dimensions: *Consumer skills*, *Awareness of consumer legislation* and *Consumer engagement*, claiming that it encompases the concept.

[64] Gerard Nierengberg (1968) is considered to be the father of the art of negotiation, his book "The art of Negotiating" popularized the discipline.

should possess are not limited to the cognitive but most importantly related to the emotional and conative transferable social abilities that could influence relationships. Thus, this understanding speaks of competences, rooted on personal development that cannot be transformed without critical efforts at accepting certain ethics, adopting its models and revising personal attitudes, and beliefs systems.[65] A twofold argument results from here: first, it is not likely that the more we use alternative methods, the better we perform; second, formal institutionalization of ADR methods per se has no power to affect society and conflict resolution styles positively. It follows that to develop a complete (in the operational meaning, sustainable) legal system linked to people, besides the use of its regulatory capacity it has to reflect sociological facts. Conscious adoption of ADR principles is also possible, and could be supported by policies and general civil laws.

The regulation of ADR processes is the subject of debate. Proposers argue that it compliments consumer protection legislation, preserves important principles by the establishment of deterrents and sanctions, and protects other legal rights. Opposers believe that it not possible to impose non-adversarial forms of dispute resolution against their own ethics of voluntariety, stiffing the process and reclaiming authority over an arena that is and should continue to be managed privately. To preserve the essence of integrating and associating methods for dispute resolution, the logic of adjudicatory processes, certainty, formalism, and focus on the outcome should be kept distant. Until very recently the legislator had little incentive to intervene, or did it as a co-regulator to back up when required, for instance by providing remedies to the breach of contracts or allowing avenues to action for liabilities in the absence of agreements.[66] Some societies have been acquainted with these methods, and states very supportive of their functioning. Countries with long standing tradition of ADR are the United Kingdom, Sweden, Netherlands, Canada, Australia, etc.[67]

The convenience of ADR methods has been measured in terms of cost, efficiency, preservation of vital relationships, close control of the processes and outcomes, flexibility and confidentiality. They match the innovation requirements of the times, with their constant generation of responses to conflict. Although they have been around for long, they could be considered to belong to the group of regulatory innovation. Others are for instance the movement on preventive law, dynamic/reflexive law and the proactive legal practice. All of which share a spirit much more consistent with internet governance and networked information society principles than traditional processes, in that they are collaborative, flexible, seek to satisfy the self and common interests (by integrating instead of distributing) attending to the core of conflicts, have the capacity to resolve rather than solely settle a dispute, are associative and are not affected by the constraints imposed by the doctrine of the rule of

[65] Thompson (1990) and Gelfand et al. (2011).

[66] Extra contractual responsibility or its equivalent in the Common Law Legal Tradition: tort. See the two approaches in the following texts: Schlechtriem (1988) and Tolsada (2001).

[67] These are the places where theoretical developments have also been most prolific.

law. These methodologies overcome the flaws of competitive dispute resolution mechanisms and focus primarily on reaching a common understanding.[68]

4.3 *The Influence of Conflict Management Styles and the Information Society on the Effectiveness of ADR Methodologies*

ADR methods are procedural solutions but are not reduced to the designation of a simple sequence of neutral events.[69] Besides their methodological relevance, these processes are rich in substance, and communicate identifiable conflict management styles.[70] Countries with ADR tradition also have a sophisticated conflict management approach that commonly embraces a principle based negotiation -also called collaborative, associative, or integrative- style.[71] In contrast, it is common that competitive negotiation styles prevail where no ADR tradition exist or when ADR is institutionalized by law or through mimetic organizational efforts. Nonetheless, the skills and competences required for transformative conflict management can be learned, much more so when people are growingly interconnected, exposed to constant cross border interaction and realizing the convenience of collaboration over competition in negotiating their transactions and resolving their disputes. ADR is trendy, gaining popularity as word on its benefits spreads, in particular because it can accommodate differing social, legal and cultural determinants and overcome the same type of barriers.

The real value of ADR resides in its transformative power by creating a sense of self control (empowerment) and the effect of recognition (participation). Individuals are restored their independence to gain confidence and strength to solve their problems and decide on their personal affairs. Well guided and informed collaborative ADR processes can produce stable, friendly and efficient outcomes; it is a truism in the conflict management field that these characteristic define a successful result (which could be an enforceable agreement or a peaceful disassociation) and facilitate compliance.[72] This describes non-intrusive methodologies that could eventually incorporate the use of technical tools so that the

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[68] Explained in detail in Solarte Vasquez (2014).

[69] *Ibid.*, 66.

[70] For a recent approach on the specifics of assisted negotiation consult Wall and Dunne (2012), and on the relativizing the influence of style in the field of assisted negotiation, a study by Wall and Kressel (2012). See also Ross and Stittinger (1991) writing on the wiser context of dispute resolution

[71] In the conflict management literature from the Harvard negotiation project and on, the terms, adversarial and associative, positional and principled and destructive and constructive are also of common use.

[72] Essentials on the negotiation theory studied and proposed by Ury and Fisher. See also *infra* note, 77.

mediatizing effect of technology is put deliberately at the service of ADR processes not only in the sense of a medium or platform but also to increase understanding. It is necessary to research further, from the technical and the social and behavioural sciences perspectives, whether progress in artificial intelligence, and the replacement of some human activities by algorithmic chains, would help to prevent disputes and resolve conflicts.[73] Staging ADR online is not enough, in this sense the very fashionable ODR of recent years is not equivalent to ADR, unless it excludes the traditional formats and constraints of adjudicatory and adversarial methodologies.

4.4 Online Dispute Resolution

It was discussed above how the internet and other ICTs governance has evolved from its conceptual origins a decade ago, together with the WSIS. However, it has been emphasized that its "official" working definition still stands on that stakeholders of all sectors, in their respective roles shape the development and use of internet (according to this text, all other ICTs too). It is difficult to find a more proper public participation forum for civil engagement and empowerment than e-governments; and for the private exercise of transactional and relational freedoms than e-commerce and the social web.[74] ODR could be part of both environments and progress with the rest of the web towards its semantic stage.[75]

ODR comprises all dispute resolution processes that are mediatized by ICTs. All methodologies can be included in this category as it strictly refers to the medium or platform that supports human interaction. The increasing use of ODR, especially in the United States, and its formal institutionalization in Europe has an effect on the conflict management practice in general. It suggests that ODR should be a concern of policy makers and practitioners. The first documented ODR scheme was available in 1996, but only after the year 2000 the service passed from being experimental to become an entrepreneurial activity.[76] It could be said that in

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[73] Replaceable and instrumental support would be software for legal informatics, visualization tools, data mining, retrieval and systematizing of information, translation services and virtual meeting environments to record sessions and progress during proceedings. One project of the last sort is being the subject of research by the faculty of Industrial Engineering at Aalto University in Finland. For detailed information access the URL.

[74] "Internet governance is the development and application by governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures and programmes that shape the evolution and use of the Internet". Consult documents of the WSIS webpage and the sections above developing the concept of ICTs governance principles.

[75] *Supra* note, 51.

[76] In Woodley (2012). A section with the history of ODR is referenced in detail. And for a review on its evolution see: Schultz (2011).

the EU, ODR is also going through a serious institutional stage with regulations against the ADR framework on cross-border disputes and consumer protection legislation.[77]

All ADR mechanisms could have a mirror online, in addition ICTs specific solutions have tried to innovate on services such as in fully automated negotiation sites, incorporating artificial intelligence components.[78] Mediation and arbitration have been the most prevalent forms of ODR. Facilitation, mediation and negotiation are part of the integral business strategy of online companies such as eBay, Google, and Amazon.

The E-government presence could also expand its influence to the judiciary, if only to go from the electronic filing and management of documents towards the virtual courtroom for any possible court dispute. In this context to resolve the problem of distance only, not to delegate control of the judicial process or to impart procedural justice. In the private scope, at least so far, negotiation continues being a human activity and it seems reasonable to state that inert technology cannot be expected to transform conflicts without human intervention.[79] Innovative technical solutions could facilitate cross cultural exchange if they temper positional attitudes affected by prejudice, distrust, resentment and similar barriers to constructive transactions, or be a logistic support when distance is a barrier.

5 ADR and ODR Institutionalization Processes in the European Union and the Digital Agenda

The ADR movement is sufficiently old for experts and practitioners in the conflict management field, to have become a "traditional" approach already. The integrative dispute resolution and lawyering style that ADR methods support has also been

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[77] EU legislation should also be compared with the broader UNCITRAL developments on ODR aiming at establishing international normative standards on these processes and their practice. See: Preamble 2 draft Procedural Rules and A/CN9/WG III/WP112 UNCITRAL Working Group III (Online Dispute Resolution) Note by the Secretariat 28. February 2012, These rules do not focus on harmonization or subject matter i.e. consumer protection legislation but with a much more pragmatic vision intend to have the most applicability to high volume and low cost disputes in general.

[78] See: Bellucci and Zeleznikow (2005).

[79] To create a cooperative relationship, improve communication and influence people's perceptions positively. In transactions mediated by technology in particular, where the human factor is reduced, more objective interaction is possible reducing strain, reducing negative emotions and diminishing the positive as well. Technology can also distract if the user interfaces are not transparent and well mapped but this belongs to the field of human-computer interaction in the computer science domain. All those converging disciplines actively explore applications for conflict management support, in the search for solutions beyond the mere replication of analogous processes in the internet or the mobile technologies. For a contrasting perspective, look in Alexander (2005). Blurring the disctinction between diffusion and mere reach.

theorized long ago.[80] However, the formal institutionalization trend and regulation efforts in the EU to formalize these methodologies is recent, and very much connected to the interest in supporting the development of the digital economy and the emergence and increase application of ICTs technologies to human exchange in trade. Rules on ADR -*and ODR*- in Europe are part of a broader range of supranational actions that seek to support the Digital Agenda for Europe linked to a consumer protection aim.[81] This is one of its most overlooked weaknesses. Not only is the scope limited to certain aspects of cross border commerce instead of expanded to any field and addressing issues of people's empowerment in general, but also limiting in the way it minimizes the transformative potential of collaborative ADR in practice.[82] The Digital Agenda was announced in 2010, the re-launch of the single market in the same year, followed by the Single Market Acts in 2011 and 2012; both key strategic objectives of the EU within the threefold Agenda 2020 European Growth Strategy.[83] The Digital Agenda is one of the seven flagship initiatives, the first of the priorities for smart growth; and although it is together with these efforts that ADR and ODR institutional developments occur, they could have been considered in connection to other targets and about different flagship initiatives, especially if the purpose was not only focused on economic considerations. The goals of the Digital Agenda are summarized in 7 pillars and two additional areas: scoreboard (to report on progress assessment, a very important feature demonstrating a mature level on the EU reflexive governance evolution) and the international nature of the European progress on all the fields considered.[84] These last 9 dimensions are further subdivided into actions, a total of 125 from which the following can be said to have relevance in the field of private participation in the ICTs governance model of empowerment and social development if the emphasis was put on preventive regulatory development instead of on a defensive and limited model:

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[80] ADR was long unregulated, separating it from adjudicatory processes and increasing its popularity in fields that need the most agility such as commercial law and international trade. This is also believed to have favoured a continuous, undisturbed evolution. On integrative and principled conflict management a classic text, explaining the core strategy of the Harvard Negotiation program, is Getting to Yes: Fisher et al. (2011). In perspective: Schneider (2013). Also consult the work of Louis M. Brown on preventive law for applications of perspective, for instance in his classical publications: Brown (1956) and Brown and Brown (1975). Preventive law proposes a problem solving and creative lawyering style that aims at practicing a less adversarial legal profession.

[81] Available Online at: http://ec.europa.eu/digital-agenda/digital-agenda-europe.

[82] Consumer Protection Policy Strategy for Europe 2007–2013. Available at: http://ec.europa.eu/consumers/strategy/index_en.htm#intro.

[83] The Monti Report: A New Strategy for the Single Market: Report to the President of the European Commission is available Online at: http://ec.europa.eu/bepa/pdf/monti_report_final_10_05_2010_en.pdf, on the Single Market Acts I and II consult: http://ec.europa.eu/internal_market/smact/index_en.htm. Details and documents on the Agenda 2020 can be found online at: http://ec.europa.eu/europe2020/index_en.htm.

[84] See the section defining these goals online at: http://ec.europa.eu/digital-agenda/en/our-goals/international.

Pillar I Digital Agenda:

Action 1: Simplifying pan-European licensing for online works Action 4: Wide stakeholder debate on further measures to stimulate a European online content market, Action 9: Updating the eCommerce Directive, Action 10: Member States to implement laws to support the digital single market, Action 12: Review the EU data protection rules, Action 13: Complementing the Consumer Rights Directive, *Action 14: Explore the possibilities for Alternative Dispute Resolution*, *Action 15: Consult the stakeholders on collective redress*, Action 16: Code of EU online rights, and Action 103: Adopt and implement the key digital single market proposals of the Digital Agenda.

Pillar III Trust and Security:

Action 28: Reinforced Network and Information Security Policy, Action 37: Foster self-regulation in the use of online services, Action 123: Proposal for Directive on network and information security and Action 125 Expand the Global Alliance against Child Sexual Abuse.

Pillar V Research and Innovation:

Action 54: Develop a new generation of web-based applications and services.

Pillar VI Enhancing digital literacy, skills and inclusion:

Action 57: Prioritize digital literacy and competences for the European Social Fund, Action 58: Develop a framework to recognise ICT skills, Action 59: Prioritise digital literacy and skills in the 'New skills for jobs' flagship, Action 61: Educate consumers on the new media, Action 62: EU-wide indicators of digital competences, Action 64: Ensure the accessibility of public sector websites, Action 66: Member States to implement digital literacy policies, and 126: Grand Coalition for Digital Jobs and Skills.

Pillar VII ICT-enabled benefits for EU society:

Action 84: Support seamless cross-border eGovernment services in the single market, Action 89: Member States to make eGovernment services fully interoperable, and Action 91: Member States to agree a common list of key cross-border public services.

These were steps taken by the Commission to boost the economy and promote prosperity in the region. In the field of ADR and ODR initiatives were effectively developed within the digital market priorities connected to e-commerce. E-commerce belongs to Action 9, and justified on the promise that the digital market reprents for the European Economy. An e-commerce directive was issued in June of the year 2000.[85] The goal is set to at least half of EU consumers

[85] The full text of the directive is available online at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0031:EN:NOT, to consult in detail policy, legislative process and reports visit the corresponding page at: http://ec.europa.eu/internal_market/e-commerce/communications/2012/index_en.htm, including the updated e-commerce Action plan 2012–2015 accessible online at: http://ec.europa.eu/internal_market/e-commerce/docs/communications/130423_report-ecommerce-action-plan_en.pdf where explicit references to ADR and ODR are made in detail.

purchasing online, 20 % of which should be doing it across borders by 2015. E-commerce, according to the reports submmited to the Commission, is poorly developed, and the conclusions on extensive research and consultation revealed that the main problem is lack of trust in the market; the consultation included a section on ODR which showed that people are unaware of its existence and benefits.[86] The EU adopted in 2008 Directive 2008/52/EC on certain aspects of mediation in civil and commercial matters with the purpose of building trust in the process of mediation within the EU. The directive did not propose any other form of ADR but lists well known advantages of asssited negotiation over adjudicatory processes. A short implementation period followed, and for the most part resulted in strict compliance. Mediation is enshrined in supranational and member states legislation eversince and awareness on its formal aspects is growing. An optimistic interpretation of these processes is that opportunities to spread ADR and preventive law principles in a large scale have become available to complement access to justice strategies and in general a healthy conflict management system for the whole Europe. Unfortunately their formal adoption, lacking in cultural meaning and appeal has failed to deliver the expected advantages.[87] The interpretation of country reports after the transposition clearly revealed the cultural resistance to change and lack of identification with mediation. Countries where no ADR tradition existed did not benefit in the least from the new laws on mediation or conciliation. This was the case of Bulgaria, Italy, Lithuania, and Estonia, for instance.[88] Where increase on trade or mediated dispute resolution indexes were recorded, mere correlational evidence was found. Sweden and the UK have and ADR culture strongly established. The interpretation by the EU, however, detected weaknesses on the fractioned schemes and the lack of use of latest ICTs technologies alone. No section of it assesses comprehensively the cultural obstacles for the incorporation of ADR into the European system except than the problem of language. Country specific factors, embedded in the conflict management and dispute resolution culture should have been studied in dept.[89] Solid institutionalization of principles does not follow the passing of laws, or the

[86] Revise the summary report online at: http://ec.europa.eu/internal_market/consultations/docs/2010/e-commerce/summary_report_en.pdf.

[87] All reports and documentation on policy making supporting records, consultation and impact assessments are available online or linked at: http://ec.europa.eu/consumers/redress_cons/adr_policy_work_en.htm. This is a revealing test of society's readiness: http://ec.europa.eu/public_opinion/flash/fl_299_en.pdf. For an author's view on the potential of ADR in the field of e-comercein particular, consult Brannigan (2004). Revise the summary report online at: http://ec.europa.eu/internal_market/consultations/docs/2010/ecommerce/summary_report_en.pdf. Also find a complete doctrinary analysis of the EU consumer legislation and its current challenges in Weatherill (2013). EU consumer law and policy.

[88] See: http://ec.europa.eu/consumers/redress_cons/adr_study.pdf.

[89] The European Commission states that in the EU by now, more than 750 institutionalized ADR schemes are currently into place. See: http://ec.europa.eu/consumers/redress_cons/adr_odr_eu_en.htm and the source report again: http://ec.europa.eu/consumers/redress_cons/adr_study.pdf

establishment of convincing public policies, even at the national levels.[90] The proportion of consumers who order goods or services using Internet ranked highest in the Netherlands and the United Kingdom, 58 and 55 % according to the Eurobarometer analytical report from 2010 on Consumer attitudes towards cross-border trade and consumer protection in the EU.[91] These countries, before the EU initiatives on ADR were issued, were acquainted with ADR methods and a wide spectrum of dispute resolution methodologies were already available, and appreciated. In Contrasts, the study concluded that Bulgaria and Italy showed the lowest occurrence of both domestic and cross-border e-trade. The data interpreted the same way confirms that their institutional systems had little or no tradition in the use of non-adjudicatory resolution methodologies.

The latest legislative provisions on ADR systems were enacted in 2013. The Directive 2013/11/EU on Consumer ADR and the Regulation (EU) No 524/2013 on Consumer ODR were issued with the purpose of unifying the regime, and to improve the functionality of the system.[92] Again, with a normative approach, the EU is attempting to reach full ADR coverage, and better ADR services provided by specialized and professional entities. In terms of technological advancement the regulation is modest in requiring the formation of a single European ODR platform where to submit and resolve all relevant disputes electronically. The directive is more general in that it seeks to benefit consumers and traders, online and offline, in domestic and cross-border situations. These rules are anyway responsive, steaming from policy assessment mechanisms and a step ahead in assigning relevance to a subject that would have advanced at a much slower pace outside of the EU Digital Agenda. It is possible that they will promote a more committed integration process through exchange. They clearly push states to allocate resources for training, education, and consumer awareness programs, another pillar of this legislative development.

A concerning aspect of this institutional path is that little if any empowerments is encouraged by policy or legislation. Personal competences are not tackled and will not been enhanced in the absence of deliberate efforts to formulate policies that are fully in accord and consistent with the vision about new governance structures and the existence of new patterns in the relationships and exchange naturally emerging form the interdependence and generative power of the networked information society. These considerations should at least create more interest and invite research.[93] The arguments that will be most compelling can derive from the direc-

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[90] Consult The Directorate General for Health and Consumers reports for comparison between Estonia: http://ec.europa.eu/consumers/redress_cons/docs/MS_fiches_Estonia.pdf And the United Kingdom: http://ec.europa.eu/consumers/redress_cons/ecc_united_kingdom_en.htm, for instance.

[91] Read online at: http://ec.europa.eu/consumers/consumer_empowerment/docs/report_eurobarometer_342_en.pdf.

[92] The policy development and preparatory works can be consulted online at: http://ec.europa.eu/consumers/redress_cons/docs/adr_citizen_summary_en.pdf.

[93] See the data collected in this statistical report: http://www.idate.org/fic/revue_telech/462/C&S43_UDEKEM-GEVERS_POULLET.pdf on measures of engagement of customers in the EU.

tion that technology is taking and the increasing role of smart technology in everyday life. Perhaps for tech-savvy societies ODR and artificial intelligence combined will be more convenient solutions to the slow increment in the use of ADR, but many other variables can play important roles, such as ICTs penetration, just to mention one. No conclusions can be drawn in the absence of well designed, behavioural sciences research.

6 Concluding Remarks; from the Thread of Consumer Protection to the Definition of an European Dispute Resolution Culture

In previous works it has been already stated that "Formal institutionalization efforts in the European Union, are proven insufficient to benefit commerce, improve the accessibility to justice and/or enhance the collaborative human interaction that the adequate use of ADR and ODR methodologies could bring about."[94] On one hand, public policy and other regulatory expressions that are basic in design allow the implementation of corrective measures; room for these actions anticipates the possibility of failure. But on the other, assigning value to temporary rules is difficult and implementation is costly. The balance between flexibility and an output for long-term systemic effects of public intervention, it is not easy to achieve but it is facilitated by the practice of reflexive and participative governance models that match the social requirements and competences of the times.

This book chapter has attempted to connect the global governance reality effectively influenced by the ICTs and its effect on society and the role that individual empowerment and competences reflected in self-regulatory capacities could play in it. A field where these qualities could thrive is conflict management. The European Union, a leader in reflexive governance deals with both aspects, ICTs and ADR development but circumscribed to a policy field, missing on the potential of fully integrating principles of the two to advance human capital and the realization of regional political, social and economic goals through constructive association and cooperation. The virtue implicit of the networks self-generated arrangements could be expanded to many other fields of public life to promote the formation of a dispute resolution culture compatible with complexities and uncertainties of a working process of making sense of our globalized world.

Concrete proposals that this chapter has developed are: to depart from a broad and inclusive object when invoking concepts of ICTs governance; in this way, referring also to topics on applications, content and behaviour; to accept the influence of ICTs in all governance instances and relationships, redefining power,

[94] *Supra* note, 66.

public interest and political intervention as much as private affairs and interaction, and institutionalize general collaborative principles in the concerned fields; to share the control on the ITC resources and exploit their potential without reducing human development to the adoption of technical solutions; to regulate wisely, with general and less intrusively public policy and normative proposals that could validate and incorporate private contributions in the classical format, agreements, co-regulation and concerted action; and to commit to implement all of these understanding at all levels so the ICTs really can become generative of data but also of substantial content and social development.

In regard to ADR instruments to support e-commerce and the digital market, disillusion could continue if a holistic implementation of their philosophy is not implemented. In this chapter different arguments have been proposed to consider nowadays collaboration and association essential components of a good conflict resolution strategy so that the developing ADR and ODR systems of the EU do not turn into meaningless rituals for replicating more of the same old competitive conflict management styles. Technology is an enabling medium and a growingly supportive mechanism to expand human abilities, but it still requires control. For this reason a priority for public policies should be education and human competences development in as much as a sustainable economy has always been, including consideration of variables affecting the changes and according to determining factors such as culture, access, and capacities.

Responsibilities should not be all assigned to the supranational entities. The European Union members must take the priorities set by policy seriously and engage in understanding their meaning, potential and implications. Compliance alone is a hollow action. In the area of redress mechanisms, even if formulated restrictively within the customer protection field, it offers innumerable opportunities for social progress, confidence in the electronic single market and the promotion of cross border e-commerce only scratching the surface of possibilities.[95] Constructive conflict management and ADR have practically no detractors. They are applicable to all organizational levels. The administration of procedural justice prevalent in all legal systems would also benefit from methodologies of administration of justice of other kinds. The logic of the networks and ethics of the interconnected information society can change the conflict management culture of the most developed states. This could be set to be another deliberate integration policy for the EU guided by the values of cooperation, empowerment (self-regulation), self-reliance (freedom), effectiveness and regulatory dynamism.

[95] Four to five decades ago the ADR movement became popular because it sought to resolve the problems of unsatisfactory dispute resolution practices and alleviate the costs of adversarial litigation endured by society and the public institutions. In the European Union nowadays, their normative consideration attends to very different motivators. The spread or e-commerce urges legal development to adapt to technical and social innovative practices as part of optimizing and expediting transactions through incremental deregulation.

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Article II

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Usability Factors in Transactional Design and Smart Contracting

Maria Claudia Solarte-Vasquez, Natalia Järv, and Katrin Nyman-Metcalf

Abstract This book chapter contextualizes the origins of the proactive law movement to explain its current developments and advance its conceptual underpinnings towards applications of the perspective closest to the digital economy and electronic trade with regard to transactions and contracts. It aims at proposing transactional design as an expression of smart contracting practices, explaining its scope within the principled conflict management and dispute resolution collaborative culture. Additionally, standards of efficiency, effectiveness, and satisfaction are taken from within the computer sciences and the law to present an integrated taxonomy of usability parameters for the planning and assessment of sustainable business and other human transactions consigned in electronic texts mediated by technology. It is argued that the applicability of such integrated cross-disciplinary models is ensured given the growing reach and range of digital services and also because their formulation reflects the interconnected society principles, needs, and capacities. While featuring innovative aspects in alternative contracting practices, it refrains from addressing visualization in depth. However, the complexity of engaging with semiotic analysis of visualization techniques in legal interface design is signalled as an especially worthy field for further research.

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1 Introduction

Private transactions and contracts are among the most important governance expressions of the interconnected society and possess bonding, not merely binding, power across all forms of social organizations while giving structure to the digital economy. The dynamics of the networks have determined the future of contracting and transacting. Security and efficacy concerns give rise to two chief subfields steaming from the opportunities and challenges that technology mediation and mediatization pose, partially being addressed by research on smart contracts and proactive contracting and design, respectively.[1] This book chapter focuses on the second area because of its humanist dimension with transformative potential and integrative cross-disciplinary origins.

The digital economy promise realizes slowly. Within the European Union, practical, sociocultural, and regulatory barriers to cross-border e-trade fragment the pan-European market.[2] For instance, consumer protection, redress mechanisms, and dispute resolution schemes are not unified or effectively implemented.[3] The segmentation of the existing methods may impose higher costs to business transactions, but harmonization by formal regulatory means has not proven efficient.[4] The frequent deployment of innovative technology solutions and continuous upgrading of the laws and public policies may play an important role enabling social development, but social institutions will adjust at their own pace, gradually. To facilitate the adoption and exploitation of new technologies once the initial enthusiasm has passed requires readiness, awareness, understanding, capacities, trust, practice, and time.

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[1] Mediated and mediatized are terms referring to the use of devices as intermediaries between agents/users, and in electronic exchange that fills content online (public or accessible), respectively. Digital, self-enforcing "smart contracts" were proposed by Nick Szabo in 1993, when the economic and communications infrastructure were unfit to support them (Szabo 1997). Technical and economic conditions are now available, but the issue of trust in fully automated services and artificial intelligence is not well resolved yet. Trust is of fundamental importance for the accomplishment of any e-strategy such as e-health, e-finances, e-government, and the expansion of the Internet of Things. Legal systems can easily adapt to smart contracting practices, whereas as for now, smart contracts could impose insurmountable ethical, legal, and safety constraints as they demand a very significant allegiance from the human to automated agents.

[2] One could interpret the *regulatory or social evolution* lag as an opportunity for iteration, revision, and adaptation. If the digital market was to deliver too fast the economic growth it is expected to produce, exhaustion would follow, together with the depletion of all of resources available to maintain social and economic organizations afloat. Mismatch between formal regulations and the so-called slow-moving institutions embedded in social practices and cultures is common.

[3] See the study report on Cross-Border Alternative Dispute Resolution in the European Union online at: http://www.europarl.europa.eu/meetdocs/2009_2014/documents/imco/dv/adr_study_/adr_study_en.pdf.

[4] Solarte-Vasquez (2014).

For the networked economy, connections and relationships matter as much as the exchanged goods are the object of transactions, or at least become intertwined with these. The sustainability culture where collaboration takes precedence over competition and exclusion emerges then, as a self-preservation mechanism, preventive and proactive. Smart contracting becomes a feature of the business and legal world that contributes with more than effectivizing and securing pacts and dispensing self-executing clauses like smart contracts could do.[5] A transaction well designed is also smart when it does not only seek at establishing rights and duties but also procures a satisfying contractual experience that precedes the agreement and engages the parties for compliance. It departs from looking at contracts as relational tools (technologies) and functional products that the legal services could "produce." All other regulations could also be seen from this utilitarian point of view where optimality is a serious concern to determine the ease of use or utility of any object.

The transformation power of the networked age has also begun to be embedded into the legal practice, products, and services, incorporating its main governance principle: collaboration.[6] Many are the arguments that favor this transition. Collaboration is an inexorable phenomenon of the times as emphasized in the works of Castells and Fuchs, just to cite two examples by sociology experts of recognized influence.[7] The networked society is empowered to exercise freedoms that formerly existed only on paper, or were long forgotten. It is the effect of increased political engagement, less restricted self-organization power, growing interest in cocreation an innovation, and the reactivation of self-regulatory competences, all enabled and supported by technological solutions. In trade, now more than ever, collaboration is essential for growth and key for value creation.

A notable shift towards sustainable goals (both ecological and corporate) inspires the business models and strategies' collaborative trend, which in turn has questioned the capacities of organizations that hold a single focus on profitability, normally associated with short-term business agendas. Underlying the problem of sustainability is the precarious balance between profit goals and mission. Companies are now expected to help maintain the availability of resources in the interest of their own continuity and committed to ethical and social development goals. Information and communication technology (ICT) development relies on the

[5] Norta et al. (2015).

[6] Collaboration is a human competence, an asset that amounts to social capital; it is necessary to achieve corporate and social missions and determine the sustainability of the organization in itself (long-term operations) and its activities (impact). Social capital is generally understood as the economic value of networks and social cohesion. The concept is much better explained by Portes (2000, p. 45).

[7] Read Castells in general and: "The rise of the network society: The information age: Economy, society, and culture," in particular (Castells 2011); and Fuchs' contributions in: "Internet and society: Social theory in the information age" (Fuchs 2007).

stability of both layers of the networks, their structural composition, and their social dimension as well.

In the following, two sections will explain the ontological and epistemological dimensions of the transactional design proposal. The first will focus on its contextualization as an interdisciplinary concept and its origins in the conflict management and dispute resolution field. The second will explain the combined criteria of usability and the parameters applicable to prescriptive electronic texts such as contracts or administrative regulations in online repositories. The chapter ends with concluding remarks that include reflections on the challenges and opportunities that this line of research reveals.

2 Smart Contracting in Transactional Design

2.1 Antecedents and Background

In transactions of the traditional type people are "bound" to do, to refrain, or to transfer things of value. For the networked society and in the digital age, it can be said that transactions create not merely a binding link but also a complex bond or several, some of which may refer to rights and duties. On a more practical account, the creation of rules nowadays needs to focus on the protection of immaterial things of value and control the actions of people and noncorporeal entities in an environment that is basically borderless. Tangible goods and manufactured products are no longer the most valuable; instead, more worth is being assigned to intangibles or things intimately linked to nonphysical processes, relationships, networks, information, and knowledge.[8] A most critical legal challenge is then to determine to which extent the traditional theory can explain regulatory coverage to entities that are composed by bits, not atoms, and to those that did not qualify as resources earlier but emerge in the aftermath of shifting global governance, social and trade patterns.[9]

The laws of obligations and contracts have not cared for relationships beyond those that create, modify, or extinguish rights and duties. No traditional rule seeks to maximize anyone's ends in particular and much less to campaign for attitudes or promote any sort of behavior in the field of commerce and trade where competition has been a key driver. Sharing, cooperation, and collaboration have in times even been associated with extreme ideologies and stigmatized as if in contrast with the

[8] The rules of the analogous world, specially procedural ones, are limited to some extent because they predicate on physicality and jurisdictional borders. The substantial laws on the links between persons and between goods and persons (natural or legal entities but not artificial intelligence agents) are well developed and refined but revolve around one chief goal: the creation of enforceable catalogues of rights and obligations.

[9] Conte et al. (2012).

liberal ideals. The interconnected society self-organized around an ample spectrum of values, old and new in an environment where the roles of parties are expanded and dynamic as they can be global consumers, technology users, network stakeholders, global citizens, and so on.

In scenarios of the past, because the doctrine of equality prevents states from formulating rules for or against any agent, and the jurisdictional system can only guarantee procedural justice, avenues for the satisfaction of individual and collective interest and the reduction of adversarial interaction were proposed.[10] The alternative dispute resolution (ADR) movement awoke in the second half of the past century, and a whole culture of less antagonistic and self-sufficient governance models began forming.[11] ADR methods were the most used to prevent and administer employment- and commerce-related conflicts in the beginning, but soon they were extended to all private affairs and later even applied to the public sphere within the public administration and in criminal law.[12] Academics and practitioners pushed long and somewhat successfully for reforms in the legal profession, but the prevalence of traditional formalities, formats, and mediums for transacting did not clearly concede to legal innovation until the advent of the ICTs when the interconnected society imposed it. Only then did arguments for preventive and collaborative legal services as the ADR culture promoted for nearly half a century become of widespread concern for the legal profession and the legislator. Legal systems struggle to preserve their internal consistency while becoming responsive to the needs of other systems that are more dynamic, less formal, and human centered.[13] The proactive law approach, which evolved from its origins within the conflict management and dispute resolution, has contributed to the unification of collaborative models.[14] This includes considering all the stakeholders (situational),

[10] Political economy considerations are not legal enunciates or necessarily have to conform with the pure theory of law. Policy makers create exceptions and use other governance strategies but cannot act upon ideological and other priorities by affecting core propositions deriving from the rule of law.

[11] -*Indigenous*- Conflict prevention and resolution mechanisms have been historically in use by every society long before the contemporary methods where introduced. Even more broadly exercised, freedom of contracting has been a practical (rather than moral) principle inspiring constructive action for centuries, as it is intrinsically related to free will that can be put to the service of any purpose.

[12] The ombudsman's role is that of a dispute manager/administrator. Depending on the context and the level of institutionalization of the figure, it can intervene to a different degree. Mediation in criminal matters intends to implement restitution and reconciliation processes from the conflict and peace studies in the criminal system. See Lahti (2000).

[13] Consult, for instance, the latest EU Initiatives on ADR and online dispute resolution (ODR) and related documents regarding consumer disputes at: http://ec.europa.eu/consumers/solving_consumer_disputes/non-judicial_redress/adr-odr/index_en.htm#related_documents, and the Opinion of the European Economic and Social Committee on The proactive law approach from 2009 available online at: http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52008IE1905&from=EN.

[14] Groton and Haapio (2007). Proactive law has grown from its therapeutic beginnings into a philosophy for better private and public regulations and still can be placed into a conflict management and dispute prevention continuum.

their relations, and human interaction as the direct object of any given transaction, focusing on shared benefits and collaboration and encouraging empowerment and self-regulation. These ideas are consistent with the principles and values of the networked society.[15]

2.2 *Evolution of the Conflict Management Concept. The Context*

The evolution of recent thoughts on conflict can be explained as a continuum that reveals a gradual transition to a responsive and engaging legal practice, like the proactive law movement.[16] All alternative proposals (to traditional methods) of the past 60 years have to do with ways to minimize the impact of crisis, resolve, transform, or prevent conflicts and disputes. The most influential recent peace and conflict theory born in the years after the second World War can be described as liberal, rational, and humanistic and has been applied to the practice of private law and used to develop lawyering and negotiation methods and techniques for inside and outside courtrooms with growing sophistication.[17] Figure 1 illustrates the process and suggest interconnections that link the specialization areas within the conflict management and dispute prevention domains, as well as the place where to fit a novel proposal on transactional design.[18] The scheme below covers only the most general denominations and trends of practices of the past 60 years.

The figure begins with the emergence of conflict resolution as an object of research coinciding with the post-World War II period when the era of human rights and the relevance of individuals and groups over states began to outline democratic activism. People and states were to be protected from the horrors of violent conflict and the economic catastrophe that wars create. At the same time,

[15] The proactive proposal spoke of legal knowledge as a competitive advantage although the result of an associative work during the planning stages of commercial contractual relationships. See *infra*, notes 22 and 46 and Rekola and Haapio (2011).

[16] Pohjonen (2010), among other publications of the same author, provides an excellent explanation on the origins and fundamentals of the proactive law movement with implications on her research in the field of collaborative contracts.

[17] The humanist life stance trusts the cognitive and emotional capacities of the human being to preserve views in which the human dignity, interests, and values predominate and to solve their problems with epistemological (rational in the sense of systematic) proficiency. It is liberal in that it endorses autonomy and promotes self-determination.

[18] On the original proposal on the preventive law practice, read Brown (1951); on proactive law as first conceived, read Siedel and Haapio (2010); on ADR, find distinguishable stands in Barrett and Barrett (2004), Schneider (1999), Henry (2000), and Lieberman and Henry (1986) and an overview in Sander (1985). Daicoff (2005) speaks of a comprehensive law practice. An interest study by Jasperson et al. (2002) reviews power, one of the main elements in conflict studies and its relationship with technology, and on general conflict and peace studies read "The Handbook of Peace and Conflict Studies," edited by Webel and Galtung (2007).

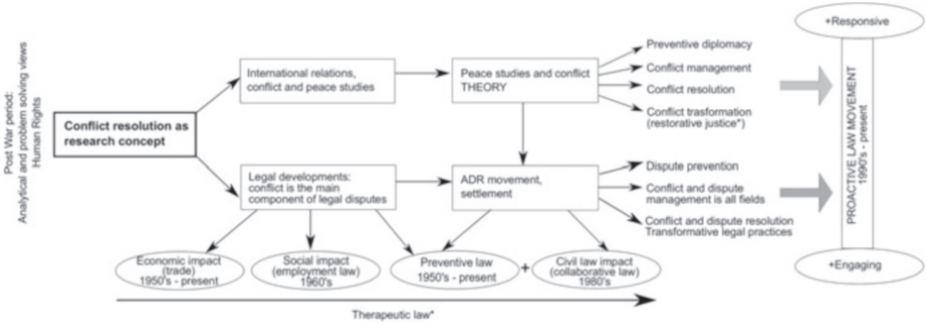

Fig. 1 From conflict resolution studies to the proactive law movement

analytical problem-solving methods were applied to conflict analysis focusing on human motives and relationships (and soon were seen to apply at all social and political levels).

The appeal of the ideals of peace, justice, and dispute prevention was obvious to two general lines of research, public affairs, and political studies on one hand and law on the other. International relations took over the field of conflict and peace studies and by the 80s had developed theory with application not only to the international sphere. In the practice of law, it meant that the conflict underlying legal disputes began to be addressed as the core component of any relationship with legal relevance and most clearly in the case of structural social conflicts such as employment relationships. The study of conflict had an enormous social and economic impact that caused a revival of ADR and the emergence of new views on the role of law and legal experts in the administration of disputes.[19]

Steadily, the roots of a postgenocidal humane consciousness, combined with a practical approach to managing social vindication movements, created new schools of thought and therapeutic legal practice.[20] This amounts to a value revolution as explained by the main proponents of all movements, the most inspiring of which continues to be Brown with his preventive law philosophy.[21] By the beginning of the 90s, ADR and the field of conflict studies were already developing sophisticated techniques or creative self-determination for a peaceful management of conflicts, the prevention of disputes, and reparation and reconciliation. Access to justice did no longer rely exclusively on legal procedures and court rulings. Collaborative, principled, and integrative strategies were found to produce more than settlements do; increasing the rate of efficient, durable, and amicable resolution of disputes adapted to the need of their users/parties. The theory of interests and needs has been in fact the most influential in altering the political, social, and legal philosophies linked to conflict, on all expressions that try to modify traditional adversarial institutions.[22] At the end of the spectrum in the chart belongs the proactive law

[19] Menkel-Meadow (1985).

[20] Stolle and Wexler (1997).

[21] Brown (1951, 1956).

[22] For a complete overview, consult Burton (1985), and Burton and Sandole (1987).

movement that draws from those techniques, links them to the institutional shifts that society experienced with the influence of ICTs, and places a renewed therapeutic law practice on the spot for lawyers and policy makers.[23] The fundamentals of the line of research on conflict and peace make proactive law more responsive, while ADR resources and techniques make the proactive law practice more collaborative and, therefore, engaging.

As unusual as it may seem to define the scope of these reflections on improved transactional competences and better contracts from the perspective of conflict management, it is a fresh view that seems appropriate to underline its foundational discipline. Collaborative Transactional Design is a function within the proactive law practice, whereas the proactive law movement is an advanced conflict management development or a subfield that also holds nontraditional power views and uses analytical interdisciplinary tools to balance adversarial political, legal, and industrial institutions (which remain a challenge despite the advent of the ICTs). Charting the conflict resolution continuum is neutral to legal traditions; conflict management and resolution skills are highly transferable, always relevant and applicable to all domains that share concern for transactional efficiency and effectiveness, as well as for the vitality of organizations and relationships that transactions govern. In addition, conflict is pervasive and may afflict any level of social interaction regardless of its format, and/or if they rise to become a legal dispute.

The intermediation of technology (software in computers and mobile applications, for example) characterizing social interaction and the digital economy does not promise to improve transactions by itself, but it does prompt the consideration of arguments long brought forward in the social sciences and the humanities regarding the way in which humans relate to one another. Technology has exposed the strengths and flaws of human nature (and legal systems) in ways no social movement or school of thought before could do with critical discourses, research, publications, and campaigns. Human nature, relationships, and interaction are the core objects of conflict studies. Conflict management competences are fundamental to assess and influence the structural bonding of society and its parallel constructs with legal relevance and of economic value. Conflict has been a topic of undiminished relevance and growing popularity for many decades now, which has allowed the accumulation of vast amounts of knowledge from a diversity of disciplines, and now is applicable to digital human interaction. Platforms staging transactions proliferate (computer, mobile devices and with the Internet of Things, everything), becoming crucial factors in all communication processes. Conflict management considerations are the unexplored path in design thinking and systems planning. If *dispute prevention and conflict management principles* were premises of consideration for engineering and design, in law making and practicing, and in organizational development and management, better products and services could be

[23] On the past and future of proactive law, read, for instance, Berger-Walliser (2012).

offered: software, applications, interfaces, laws, regulations, contracts, business strategies, etc.

The proactive law approach was first proposed as a preventive law derivative that combined legal expertise with a promotive business orientation and focused on contracts. The main proponents sought to capture value from an association of fields long distanced by the adversariness of stagnant legal systems (law and business). Proactive law thinks of conflict management and preventive law and also incorporates the principles of interest-based negotiation and other alternative dispute resolution methods developed in the past 50 years. Proactivity closely connects with the collaborative law practice as well. In general, it could be seen as the summary of all the "alternative" wisdom developed on transactions, aligned with legal substantive and procedural rules and with economic relevance and a humanistic glow. Collaborative transactional design steams for the proactive law movement and seeks to engage in further interdisciplinary dialog.

In sum, *conflict management and dispute prevention* is an all-encompassing notion that should be preferred as the general classification or mother discipline for the proactive law. The understanding of conflict "management" is not misleading when it is clear that this denomination does not exclude the transformation, resolution, and proactivity functions or any technique of the therapeutic kind.[24] Moreover, proactive law is not a theory but a number of quality attributes translated into methods and techniques that draw from conflict management theories, as well as from others, and therefore continues to be a school of thought. Lawyers have administered and sought to remedy controversies from ancient times by applying legal standards and mastering the handling of legal disputes with focus on their settlement. Other professionals, often more concerned with resolution, address controversies using organization development techniques, management strategies, psychological tools, expertise, and criteria that are more flexible and are not constrained by authoritative rule. Transactional design is a proactive collaborative practice that smarts up the lawyering practice of contract management and can update the interfaces of legal texts.

[24] The literature on conflict management and resolution is vast, discussing expressions that were commonplace already in the 1970s, each referring to different frameworks, skills, and interests on the administration of disputes and heuristics to lessen the damaging impact of crisis. Any expression could be said to fall short of the possible applications of the understanding of conflict as a phenomenon, inherent to human association and a recognized catalyst of change as Galtung (1996) has explained. Most descriptions fail to explicitly include a preventive dimension. However, any functional approach can become useful to designate the many possible interventions that in different moments could be aiming at various effects as conflicts may long remain latent or extend over long periods of time.

2.3 Collaborative Transactional Design

The latest proactive initiatives use advanced facilitation techniques to turn regulations and business transactions into user-friendly texts and begin to explore knowledge visualization techniques from the design and management engineering field to enhance legal documents.[25] These human-centered considerations, uses, techniques and in general the heuristics of smart contracting practices such as usability checks, which will be enunciated later, are what transactional design is all about. According to Ramadier, creating seamless conceptual transitions across disciplines is first initiated with the use of dialects and the creation of communities of speech.[26] Transactional design accurately describes the incorporation of usability and contract drafting principles into the creation of extended schemes of collaborative contractual relationships, aimed at minimizing frictions and preventing disputes while aiding compliance.

Transaction is a legal category, generally understood as an exchange of things of value, material or immaterial.[27] The format could be any (unambiguous) conventional shape: a pact, contract, clause or a provision, an agreement, etc. More than one text may be involved in digital transactions.[28] One is of the essence where rights and duties formalize/enact, and the other could be a layer or several of the same text made available in interactive environments when transactions are mediated by technology.[29] These can be called interfaces. Traditional contracts can be assigned new "interfaces," one on its content, and when displayed on a screen device (mediated by technology) placed or not online (mediatized), another. In the design of legal interfaces, three special kinds of knowledge are required: on the technology (contracting); on human aspects, including some principles of communication, basic interaction, and mental computation; and about the goals to be accomplished. Because transactional design recognizes that relationships develop in time, the "coverage of service" is extended and transactions become much larger that the expression that embodies them. Design can be a rational engineering process that results in the creation of functional and ergonomic products, the realization of conceptual model that could be tasked with the humanization of

[25] Rekola and Haapio (2011).

[26] On articulation of new languages, see Ramadier (2004). The proactive movement has opened the space for interdisciplinary research and intellectual engagement by working very hard on terminological choices, resorting to metaphoric arguments and the careful articulation of shared renewed meanings.

[27] Domestic legal systems, statutes, codes, or legal acts define terms such as transactions, obligations, and contracts.

[28] In communication theory, text can be content or outcome of an interaction, no matter what format. Consult the Encyclopaedia of communication theory (Vol. 1), p. 148.

[29] In texts with augmented reality (the indirect view of a real world environment, like a sound and a shape, superposed on images for a composited view of displays), textured contracts (in layers), and so on.

technologies.[30] Consequently, when the contact between the parties to a transaction is indirect, their contact sporadic or very short, the "provider" of the legal service commits to design and stage a memorable (positive) transactional experience for the client/user that is efficient, effective, and satisfying.

Macneil and Paul Gudel saw contracts also for what they are, of a very limiting access to what they actually register about the humans that subscribe them.[31] On the importance of and extended view of transactions, Haapio also spoke, pointing out a vision not new but never made available as a pedagogical resource to managers and other business specialists, certainly not in terms of a mission. Three stages are of the interest of a transactional: the precontractual stage of planning and negotiation of the terms of the agreement, the enactment and formalization that must observe the requirements established by the laws for the creation of valid and enforceable contracts, and the postcontractual stage when the parties perform their dues. The collaborative nature of transactional design stems from the proactive thoughts on early engagement and teamwork but most importantly from principled negotiation techniques and conflict management theory developed by the Harvard Negotiation Project.[32] Collaborative transactional design is a novel legal practice that similarly to other types of social innovation could be hard to introduce but could reach sufficient dissemination levels if helped to institutionalize with practice and continuous research. In support of informal institutionalization via self-regulation mechanisms, it could be argued that transactions are guided by the principle of freedom of contracting and the context where this proposal belongs seeks to empower the private regulatory capacity of the networked society, rather than encouraging further state intervention on its affairs.

The transactional outcome should be binding if valid, and a bonding if a solution that can reach beyond the mere establishment of rights and duties onto mutually beneficial exchange.[33] Satisfaction can be perceived as a sense of control, accomplishment, and engagement strengthening the bonding factor. In the interest of compliance, the bonding aspects of the transaction should prevail.

There are no modifications to the contract theory in this transactional design proposal. From a legal standpoint, and to the extent explained, contracts for the digital market are not fundamentally different from analogous world agreements, but their interfaces might be. Validity is a precondition of existence and

[30] Verganti (2011). On ethics and sustainability of design see: Felton, Zelenko, Vaughan (Eds.) (2013).

[31] Macneil and Gudel (2001).

[32] Haapio presents the principled negotiation essentials in her publication with Groton, *ibid.* 30. Further references are available at the source of the Harvard Negotiation Project at: http://www.pon.harvard.edu/category/research_projects/harvard-negotiation-project/.

[33] Valid contracts submit to the requirements of the law as the civil theory of contracts summarizes at least the existence of elements of a contract, namely licit object and cause, capacity, formalities, and the meeting of the minds. These elements coincide in all civil codes of the civil law tradition. More on the Roman Tradition of contract formation in Cohen (1933) and Ghirardi and Crespo (1996).

enforceability but does not imply usability. Usability is a design question apart, closely related with information and communication technologies, and in the past years correlated with visual displays. Usability is achieved through better communication and also has a collaborative dimension in that to maximize clarity and understanding, the message has to appeal to an audience that can be reached in as much as needs and interest of people are taken into consideration.

2.4 Contracts in Global Trade

Global trade continues to rest on the assumption that exchange is secured by valid and enforceable agreements, but subscribed not only by well-established traditional agents such as transnational corporations and states. Cross-border trade relations now involve all kinds of entities and organizations of different sizes and nature, as well as individuals. With the boundaries of markets being open to such a large exchange, traditional, predictable, and well-studied contracting models, business operations, and strategies in human interaction/association have undergone a profound revision. The legal environment of business as for now appears to be more defined by digital means than by domestic laws. National borders, which traditionally have determined jurisdiction, do not matter much in the digital world where the ease of communication multiplies the amount of transactions across legal systems, and with it the complexity of conflicts and chances of disputes. Attempts to determine how to deal with jurisdictional matters in the cyberworld are still inconclusive, compromising access to justice and diminishing, in turn, consumer confidence in markets. These problems could be overcome with good smart contracting practices as transactional design and ADR that is recognized to improve market performance when schemes are well established.[34]

The study of transactions in the digital age suggests a return to basics. Empowered consumers need no more than a lean institutional framework with broad classic principles and fundamental general rules. The updates to harmonize contracting with the technoeconomic paradigm of the times need not be of legal kind. Peeling off the layers of excessive regulatory constraints allows focus on the essential elements of transactions and clarity on how to deal with human exchange in digital formats with no intrusion to actively promote what is considered good at a given moment in time. What it is that actually needs regulation? How could legal frameworks enable the realization of the will of self-regulatory entities?[35] Better transactions and better regulations are the product of smarter regulatory practices,

[34] On the role of formal and informal, legislative and nonlegislative measures to strengthen the culture of ADR within the EU and a discussion on ADR as an empowering self-regulatory solutions contributing to the success of cross-border and electronic trade, read further in Solarte-Vasquez (2014).

[35] See Teubner (1983) on reflexive law.

private and public, respectively.[36] Many are the concepts that have to be addressed to convey the imperative need for a renewed logic on the role of law in society, particularly in regard to the handling of human exchange and transactions and contracts to increase business and organizational capabilities. To illustrate, in favor of consumers only, European policy and regulations have issued communications, recommendations, regulations, and directives concerning transactions in access to justice (legal redress and settlement of disputes), e-commerce, and consumer contracts, among others. In the European Union law database on this particular group, it is hard to find documents that could not be linked to an exchange of goods, information, and/or transactions.[37] A well-functioning digital market is expected to result in a boost of economic growth of the region, but according to Eurostat data, the increase of transactions online concerns mainly purchases within countries. Only 15 % of the population engages in cross-border commerce.[38] Increasing the trust in digital services, including transactions themselves, could contribute to a better market performance, and much more.[39]

3 Usability Parameters Applicable to Legal Transactions

3.1 A Combined Taxonomy of Usability for Transactional Design

Usability, a concept borrowed from Human Computer Interaction (HCI), well known in the ICT studies, has recently been added to the pool of traditional criteria to measure the quality of legal products. An overall purpose of the recent interest in usability applied to legal documents and regulations could be said to minimize their

[36] "Better Regulation" means, within the EU, good design of measures, formal and informal, that can be effective. More rules do not mean better regulatory environment but might mean the opposite. Consult more at: http://ec.europa.eu/smart-regulation/better_regulation/key_docs_en.htm REFIT (the European Commission's Regulatory Fitness and Performance programme) takes action to simplify the laws and reduce regulatory costs and is part of the EU governance innovation actions.

[37] Consult the EU directory/database on consumer legislation at: http://eur-lex.europa.eu/summary/chapter/consumers.html?root_default=SUM_1_CODED%3D09.

[38] The report and data source can be read in the European Commission ICT survey of Households and Individuals report of 2014. At http://ec.europa.eu/eurostat/statistics-explained/index.php/Information_society_statistics_-_households_and_individuals.

[39] The importance of this proposal on smart contracting and better transactions transcends economic considerations. Transactional design that could result in an improved contractual experience prevents disputes and reduces social and institutional tensions. For an introduction on the different costs of conflicts, disputes, and litigation in general, find: "Economic analysis of legal disputes and their resolution" by Cooter and Rubinfeld (1989), and "The intersection of therapeutic jurisprudence, preventive law, and alternative dispute resolution" by Schneider (1999).

complexity with the use of information knowledge management and visualization techniques. This chapter recognizes the importance of bringing into the legal informatics innovative conceptualizations of traditional notions, and schemes institutionalized usability standards in combination with parameters applicable in transactional design. A marginal reference to visualization is noted as a technique. Principled conflict management and dispute resolution techniques share most of their propositions with the human-centered design postulates.[40]

3.1.1 Quality Attributes of Legal Texts

The concern for the improvement of legal text is not new. Politicians and legal experts, practitioners or scholars, have always been preoccupied with the quality and efficacy of regulations. Normative components and concepts such as validity, enforceability, and legitimacy refer to rules that have been issued according to precise requirements or recognized by a system of very strict substantial and procedural standards. All prescriptions with regulatory power, including private contracts, are endowed with narrow "usability" properties (validity and enforceability). They can be made compulsory, grant certain allowances to the parties, support policy making, be traced to specific ideologies, promote doctrine, realize governance principles, etc. The legal system supplies its rules with deontological and teleological value in a way that their implementation always pursues the realization of ends higher than the rules themselves, but these are checks that a transactional designer should not be concerned with. Aesthetic values are not chief in law, so no methodologies are available to ensure that appearance will not distort the meanings of the law. The representation of nonpictorial concepts (like a precise causation and logic) and the introduction of new modalities of communication can be restricted by fundamental constraints that are not simple to overcome.[41] Usability, thus, appears to raise no complications in its applicability to legal "products," except from its visualization techniques.[42] These might not only involve matters of design but also call for proper expertise in the legal semiotics domain.

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[40] Principled negotiation is the name assigned to the method developed by Fisher, Ury, and Patton and popularized in their book of tactics Getting to Yes and developed under the auspices of the Harvard Law School. See a recent application of the perspective in Lens (2004). A complete explanation on human-centered design principles is available by Norman (1883) and discussed in Norman (2005).

[41] Clarity and consistency of regulatory frameworks are requirements of predictable legal systems, owing to the observations of the rule of law principles (strongly committed to rule out arbitrary decision making and interpretation). Graphics and visual elements that are not conventions cannot be interpreted with certainty.

[42] Reimann and Kay (2010). Research and knowledge on mediated trust and persuasive technologies from the legal perspective are still insufficient. For an introductory reflection on the impact of visual technologies in the law, read Sherwin (2011).

Forshey, Kimble, and Phelps represent thoughts of the many that have spoken on improving legal writing and contract drafting in particular[43]; Seidel and Haapio, on providing a more comprehensive legal service when managing business transactions[44]; and Passera and Haapio, on turning contract drafting into a collaborative process to produce tools for understanding, consensus, and compliance.[45] These last introduced the analogy of usability and explored the effect of visualization in regard to documents with legal relevance and most particularly in the field of business transactions and administrative law.[46]

Most notably, these authors have campaigned against scientific compartmentalization. Their activism, bridging disciplinary divides with the use of language, has been validated and recognized as most influential, creating a wide interdisciplinary community of speech. Their major breakthrough has been connecting discipline-specific knowledge from different domains and formulating a dialect of shared meaning, using simple and heuristic metaphors to simplify communication across different areas of expertise and suggest thinking in a new direction such as the use of the design thinking approach to drafting contracts.[47] Despite their growing popularity in recent years, the topics of usability and information visualization have yet to fully make an incursion into the legal sphere and establish a cogent theoretical framework.

Usability and visualization are no commensurable categories, but they are closely interrelated when linked to learning and comprehension. Whereas usability is a field of interdisciplinary studies backed up by the cognitive sciences, visualization is a technique that reinforces communication and cognition within the information technologies and the computer sciences, but not exclusive to that area. Graphic representations of complex numerical or conceptual information can affect the data usability and discernibility, and usability standards apply to graphic interfaces. Design principles that emerge from the study of both will continue to develop for the creation of improved human-system and human-artifact interactions, but caution is recommended. Within the proactive law initiatives, the power of constitutive metaphors is being explored, and scholars are slowly moving to a more interpretative terrain for the creation of new meanings. Icons, images, and drawings in place of calligraphic formats refer to the articulation of a new language, and to law it may lead to substantial affectation of legal categories and the very ontology of the legal science, in a way adding vulnerabilities to the contractual

[43] Forshey (1978); Kimble (1996); and Phelps (1986). Look also into a psychological perspective in: Comprehension of legal contracts by non-experts: Effectiveness of plain language redrafting by Masson and Waldron (1994).

[44] Siedel and Haapio (2010a); Haapio (2010); and, Passera and Haapio (2011a, b).

[45] Passera and Haapio (2011b). See also Berger-Walliser et al. (2011).

[46] Passera et al. (2013a, b).

[47] For instance, in the ongoing Fimecc UXUS and completed PRO2ACT – projects. More information on these is available in their webpages: http://www.mindspace.fi/en/uxus/ and http://tuta.aalto.fi/en/research/operations_and_service_management/simlab/projects/pro2act/in_finnish/, respectively.

practice and uncertainty and "flawed usability" attributes. The stakes for accuracy are too high in law, and the usability heuristics affecting decision making may misguide despite the best intentions. The articulation process of deconstructing specific knowledge and reconstructing understanding is possible but requires a profound grasp of legal semiotics. As said, while visualization seems a very complex process when applied to prescriptive and authoritative texts, usability analysis does not. Usability tools can improve the communication power of meanings that do not necessarily degrade by way of reinterpretation.

With more relationships being mediated by technology, the need for a coherent body of knowledge in respect of regulatory interfaces is necessary. Regulations will increasingly be defined by their usability and accessibility of users to information with legal relevance. Self-regulatory competences, empowerment, and autonomy are put to the test already, for example, in the context of e-governance solutions provided by the state. A remarkable progress has taken place in the past two decades in furthering accessibility to laws. Their readability is the first aspect that public and private legal formulations intend to improve. The visual interfaces of texts with legal relevance, especially in the field of business, have timidly identified a domain open to innovation and exploration.

The classification below stems from the concept of transactional design to encompass activities that precede and follow the act of contracting in an extended relational process that could be studied also as a series of experiences. When mediated by technology, two transactional layers and one or several interfaces should be considered, the interface text in view on a device and the underlying relationship on text.[48] The agreement is treated as a technology embodied as manual of behavior and the result of collaborative work and a legal service design but not necessarily a collaboration inducing text in itself.[49] The persuasive power of these documents must be much further explored: on one hand, the semiotic value resulting from visualization and other alternative techniques can fail or mislead (misrepresentation), and on the other, persuasion would require a much deeper revision regarding the responsibilities associated with the message and the recommendations it may contain.[50] A legitimacy assessment of the source of information and authorship, not only of the content, would also be required because of their accuracy and efficacy first and also to ensure accountability.

[48] Text in here is any message on any medium which includes imagery, film, pictures, words, and sound. Various interfaces can be designed to increment choices, for instance creating different layers and textures, as well as modules for selecting and mixing. On modularity, find: Smith (2006).

[49] Persuasive technologies are designed to modify human attitudes and conducts. Read more in Fogg (2002).

[50] That contracts are created for information and persuasion is assumed in this section, but only the cognitive enhancement is being discussed. Another important assumption is that in simplifying a legal text, adding more than what seeks to inform and persuade would be superfluous and add noise to the text.

3.2 Usability Taxonomies

For the effects of the unified classification below, the legal term "parties" (to an agreement) and the business management equivalent "agents" (in transactions and operations) are equaled with the word "user"; the objects to be tested are the texts or interfaces representing and featuring a contractual relationship (an interface or two when mediated by technology). Consequently, texts can be static such as a plain document, even when posted online or dynamic when interactive and/or textured. Usability, according to Nielsen, is a quality attribute defined by the ease of use of any artifact and refers to methods that improve the design of interfaces so they become more than utility objects.[51] Usability in HCI is also about simplicity of the systems of interaction and experiencing, analogous to the user-centered design. Usability does not look at acceptability out of this realm or in law where such considerations would be adjectival to the validity and legality of the contracts and regulations themselves. The slogans and heuristics of usability are founded on ergonomics and notably very similar to those of conflict management studies: knowing the user, allowing participation, association and collaboration, control of the processes or codesign, iterative processes, saving of transaction and other costs, friendly and satisfactory outcomes that match the expectations of the users, etc.[52] The institutionalization of usability standards has been progressing for the past 30 years, particularly by way of the establishment of principles and best practices that the literature discusses extensively.[53] Table 1 presents a basic HCT taxonomy of usability with parameters applicable to graphic user interfaces.

The primary level of usability consists of three traditional quality attributes in most system assessments no matter the field: Effectiveness, Efficiency, and Satisfaction. Each general attribute results from the verification of several components or factors, corresponding to a secondary level of specifications that are compiled from the well-known literature on usability engineering and HCI.[54] The components of attribution are or denote qualities too and are measurable according to defined (or definable) parameters. Effectiveness in this context refers to the degree to which goals or tasks could be completed or the intended results of an action achieved. It is placed first on the table because its components are themselves functional needs that have to be present. An operative even if not an optimally accomplished working interaction system, so-to-say, should preexist an evaluation.

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[51] Nielsen (1994).

[52] About the Harvard negotiation project find more at: http://www.pon.harvard.edu/category/research_projects/harvard-negotiation-project/.

[53] The International Organisation for Standardisation (ISO) and the International Electrotechnical Commission (IEC) have issued numerous materials that can be the reference for the development of usable products. Search on the database: http://www.iso.org/iso/catalogue_ics and refer in particular to ISO 9241. On a categorization of usability standards and a brief discussion on their applicability problems, consult Bevan (2006).

[54] Pearrow (2006) and Brinck et al. (2002).

Table 1 Taxonomy of usability components in HCI

Taxonomy of usability components for HCI		
Effectiveness	Efficiency	Satisfaction
• Relevant & up-to-date content • Clear information architecture • Completeness • Visibility • Understandability • Mapping with real-world conventions • Communication through design • Error prevention[a] • Navigation[a]	• Readability • Consistency • Information visualization • Learnability • Flexibility • Facilitating user control[a]	• Minimalistic design • Aesthetically pleasant design • Overall satisfaction

[a]Applicable to interactive formats only

Efficiency is related to the costs and efforts required for task completion or the relationship between inputs and outputs. Satisfaction includes user engagement with the overall design, agreeability, and acceptability of the interface. All the components in this taxonomy are included in reference text on HCI, but the measuring parameters are not absolute and can be adjusted according to the assessment requirements, the type of users, and other variables affecting context. A classification was made and presented in Table 2 to connect plain language criteria for contracts and lean contracting with general principles of contract theory and a preventive/proactive lawyering orientation.[55] The table proposes a basic taxonomy of criteria for good drafting and contracting practices with parameters applicable to all three transactional stages.[56]

In the case of transactions, usability would be a novel term assigned to long-standing negotiation techniques and quality contracting standards. What is added is the focus on collaboration for an experience that should satisfy all users, and the visual elements.[57] On the primary level of usability, the only difference is the order

[55] Language is believed to be the main cause of contractual inefficiencies, particularly in consumer protection advocacy circles where the plain language movement is rooted. "Plain" when applied to a written document could be understood in three ways: the text is legible, meaning that it can be perceived and then read; it has unity, that is coherency and consistency in all language arrangements; and it is clear, meaning intelligible and with semantic precision. These three main characteristics determine the degree to which readers can comprehend text. On lean contracting, read Siedel and Haapio (2010), p. 26.

[56] Looking at the whole relational context (Braucher 1990), contracts acquire a new meaning. Braucher speaks of the dangers of contractarianism and recommends more sustainable and productive contractual relations not to sacrifice factors such as fairness and sense of community.

[57] Criteria for effective contract drafting combine linguistic technical skills with being able to identify the building blocks of a relationship and producing a strategic document for compliance, as well as a positive transactional experience. The same, one could argue, applies to other types of text consigning the creations of rights and duties. Criteria for good regulation have always been discussed in the literature; see, for instance, on boiler plate and standardized formats Stark (2003); Hillman and Rachlinski (2002) about standard-form electronic contracting; Tan and Thoen (2003)

Table 2 Taxonomy of quality standards in contract drafting

Taxonomy of quality contract drafting standards		
Efficiency	Effectiveness	Satisfaction
• Readability; Standards of plain language, information visualization, information processing, and standardized terms. (The language used in contracts and regulations is used to inform and persuade (Phelps 1986). However, legal witting and communication is described as unintelligible, wordy, and abstruse.) • Consistency: Clarity and standard formats • Organization: Systematic placement of information, hierarchy, and flow	• Completeness • Collaborative • Communication effect for consensus • Pleasantly memorable	• Awareness (taking notice) • Understanding (knowing) • Consensus (engagement) • Compliance (action)

of the traditional attributes. The reason is for assessments to follow an inductive flow. Because the intrinsic functionality of an agreement would be a matter of enforceability, this feature does not need to be enhanced by design, if anything, just communicated more effectively. In short, by applying efficiency standards first, effectiveness is facilitated.

On the secondary level of specifications for transactional design, salient concerns on contracting capabilities according to scholars and practitioners are summarized under 10 components describing measurable qualities, characteristics, and results. The parameters that would apply to the factors grouped under satisfaction could be proposed in general terms for now while the practice evolves and a stable set of assessment criteria emerges. Experimental research could explore more precisely how to learn about more satisfying contractual relations depending on sectors, types of businesses, and the kind of users in question. This would be the link between transactional design, service development, and marketing, bringing into the picture the cognitive sciences and psychology in the development of products and services that enhance the user experience.[58]

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on a risk/trust model for preparing the contract; and the concept on contract as a technology explained by Davis (2013), among the many authors with similar concerns. Some initiatives of a much wider range have derived from the plain language movement that in the 1970s is consumer protection activism inspired; find, for example, in www.plainlanguagenetwork.org and in www.clarity-international.net for more resources. Some of the traditional principles combined with the selection of usability parameters in this chapter compose a practical checklist to be used in transactional design.

[58] As if coinciding with Susskind on his assessments about today's legal landscape and his predictions about the future of legal services (Susskind 2008), the proposals by Passera and Haapio (2011a, b) unpack the possibilities of at least three of the categories that Susskind describes: the legal "knowledge engineer," the legal "risk manager," and the legal "hybrid." (Susskind 2008, pp. 272–273).

The factors or components of attribution of the second level in Table 1 may be detailed and technical, whereas in the second the degree of abstraction is higher. Still, some of the factors are shared and can be grouped under similar categories and researched using similar methodologies. The most contrasting mainly under the attribute of satisfaction could be explored with subsidiary interdisciplinary techniques. That the interface design in itself is the efficiency factor number one in the usability of transactions could argue against a combined taxonomy at first. But this can be solved when separating the layers of the text from its display, emphasizing the role of visualization and formulating a selective roadmap of checks.[59]

Under Effectiveness usability standards in HCI, the factors listed are *relevant and up to date information* first; in contracts, documents are expected to be comprehensive, *complete*. The existence requirements of legal transactions and basic formalities are determined by the law, and the interface should represent the essentials such as the rights and obligations of the parties. The second factor listed is *clear information architecture* to mean that all contents must be arranged in a clear, understandable, and intuitive manner; *Completeness* refers to the integrity and wholeness of the content provided; *Visibility* is about accessibility of content and commands. If it is not in the display upfront, then it should be at reach, without undue restrictions. Visibility enhances usability.[60] In interactive interfaces, the user should know what is happening at any moment of use. *Understandability* implies that even a novice user can navigate the text and grasp the information it contains. *Mapping* with real-world conventions is defined by the way in which the display matches the users' world knowledge making navigation intuitive and effortless. The design gains when it is "metaphoric." Some aspects of this can differ from culture to culture, i.e. reading from left to right or the other way around. In legal texts, this characteristic belongs within "plain language" and organization and could be achieved by phrasing the text naturally, using everyday words arranged in an order that could seem the most logical. *Communication through design* would be to rely on data enrichment techniques like layering information graphically, with color, shape, textures, etc. *Error prevention* in interactive design is achieved through engineering and practice. By minimizing the possibility of mistakes with proper guidance, users do not need to solve any problem, or if they should, then feedback would be provided containing the error description and

[59] This argument becomes especially relevant in the case of Passera's work, which uses boundary object theory in her contracting enhancement proposal (2012). An "easy" way to skip the complex conceptual articulation phase when attempting these classifications could be to leave conflict theory and proactive and collaborative principles aside and concentrate on the fact that the illustration of transactions is preventive and promotive enough, requiring no evaluation on their own.

[60] The field of usability is replete with advice on characteristics that can be categorized (read, for example, in Lidwell et al. (2010)), but few are the principles that sufficiently guide a proper research design to improve the interaction experience such as the focus on user needs, choosing an experimental approach, and design thinking engineering tools. In this section, the usability factors included in the taxonomy can be said to be the basic and most widely applicable in the practice of usability testing as for now.

instructions on how to solve it. The last factor, *Clear navigation*, also applicable to interactive interfaces, can be comparable to mapping and making all functions visible with regard to dynamic content. For instance, clickable elements should be distinguishable from static content.

The first factor under Efficiency on the usability standards in HCI and most important in the improvement of contract drafting practices is *readability*, present when the content and system are intelligible. Techniques can be implemented to increase the *readability* on aspects of the use of language (plain, simple, and when needed explained), formatting (types and consistency, proper labeling, headings, and so on), layout (flow of information is facilitated, for instance, by the strategic use of spaces), and size and appearance (all features concerning the text, including color, can help in conveying meaning). *Readability* is also the first factor under the attributes of efficiency in contract drafting, for it is the chief condition for understanding the ultimate goal of any communication process. It can be explained as the degree to which users can identify information contained in texts or images and usually rests on conventions contained in the language. The law is a language with its own categories, which inevitably decreases the usability of legal documents by default, particularly because there are not many visual legal categories codified and/or widely accepted so far.[61] *Readability* for contracts suggests techniques of plain language (also lean contracting), information visualization, and information processing. *Consistency* is the second efficiency component in both tables. In HCI it bears on language, structure, navigation, layout, and design and translates well to contract drafting techniques to achieve clarity through the organization of concepts, ideas, and considerations of structure when composing texts and presenting information. *Information visualization* is a component apart in the HCT taxonomy, whereas within the taxonomy for contract drafting is nested within *readability*. This placement also shows that visualization is being ranked here at least a layer beneath in the design of legal texts because the theory that could support its relevance has yet to be developed. The incipient knowledge on the field of legal visualization has captured the attention of researchers and scholars, but that so far focuses on experimental design initiatives.[62] By *information visualization* is not meant the visual display of precise data only but any kind of graphic support regardless of precision or recall and tactics of composition involving pictures, icons, timelines, and flowcharts.[63] *Learnability* is related to the subtle acquisition

[61] Traffic signs and logos of the creative commons are some of the very few (search them on http://creativecommons.org/).

[62] Look at an experimental evaluation report in Passera (2012).

[63] Precision and recall are characteristics that are commonplace in information visualization and data representation in regard to information retrieval to indicate correctness and completeness. They could also apply to semantics, but the tensions between the degree of exactitude needed and the benefits of clarity in HCI and plain language in transactional design could detriment communication and raise more questions about the visualization of concepts. Whether the need for metrics in visual information analysis would be applicable to the visualization of the law cannot be ascertained in these few pages.

of the logic of the design. It rests on the familiarity that is crated with use or the ability to complete a task in one attempt.[64] The last for static text on the table is *flexibility*, which is attributed to a system that accommodates the users and not the other way around. The interface should be usable for any kind of user. For experts, the experience could be enhanced by modifying affordances and adding functionalities. Adding layers of information or options with differing complexity levels for novice and experienced users is also an option. *Facilitating the user's control* in interactive systems allows a sense of freedom and competence, so the system does not take over and users can correct mistakes or change their mind (undo function). Except some minor differences and the order of the quality attributes discussed, the two sets of factors determining effectiveness and efficiency are comparable. The same cannot be said on the components of satisfaction, given that traditionally the ultimate goal of an agreement is to ensure enforceability or create incentives for compliance based on the assumption that promises are kept mainly because sanctions are ensued.

Satisfaction is about the user experience in HCI, and partly in contracting, if collaboration (teamwork, association, and mutual gain) has been part of the negotiation strategy. HCI factors that could increase satisfaction are *minimalistic design* and *pleasant aesthetics*. The first consolidates a logic that considers content more important than style, tends to be lean and simple, and discourages distractions. Tufte's principle of data-ink ratio identifies with this.[65] Eliminating distractions does not mean depriving the interface from being attractive, agreeable, and if possible promotive of positive emotions while in use. *The overall satisfaction* with a graphic user interface can be measured by a mixed research methodology using the parameters that the discipline already recommends.[66] In contrast, the law practically assigns no validity to aggregates and being a closed system in times even disallows their use during interpretative assessment of concrete cases. In transactions, the fit of legal acts to the needs and interests of the parties makes all tasks associated human centered such as in the drafting of a good contract (except in the case of standard format[67]). The satisfaction that transactional design seeks to accomplish with its collaborative and proactive approach should result from a text that can raise *awareness*, *understanding*, *consensus*, and *compliance*. Effective information increases understanding of the terms of agreements and with it the trust in the transactional process, and the own competences in decision making. This in turn can persuade on the merits of a collaborative and principled transaction and engagement on the basis of authentic consensus, winning the parties with no need

[64] For a review of this feature in context, read Ziefle (2002).

[65] Data-ink is the nonerasable ink. If removed from the image, the graphic would lose the content. Non-Data-Ink is, accordingly, the ink that does not transport necessary information but creates noise Tufte and Graves-Morris (1983).

[66] Introduction to Human Factors Engineering by Wickens et al. (1998), and Interaction Design-beyond human–computer interaction by Preece et al. (2015) are recommended texts on research methods in HCI.

[67] Read further in Hillman and Rachlinski (2002).

for further prescriptive incentives. To comply with mutually beneficial terms of agreements is also a question of self-interest and can be expected in the frame of at least cordial business relationships or to consolidate them so. The *overall satisfaction* of the users will always be determined by the user's perceptions on how the system or the text is furthering their satisfaction of needs and interests. This evaluation should include qualitative research methodologies, using interviews and self-reported narratives on the experience of use of the product.

Table 3 regroups and combines the standards or principles listed above. It is to be expected that the significant improvement of efficiency factors of the legal interface facilitates working on effectiveness components, to produce an improved transac-

Table 3 Combined taxonomy of usability components applicable to transactions

Taxonomy of usability components for transactional design		
Efficiency	Effectiveness	Satisfaction
• Readability (perception, attention, memory, and mental models): Standards of plain language, information visualization, information technology, and standard terms • Consistency (pattern recognition): Clarity and standard formats • Organization: Systematic placement of information, hierarchy, and flow • Information visualization (mental models, affordances (Affordances are the allowances of action and manipulation of an object, which in contracting could be said to be analogous to the range of actions that a regulatory tool allows, including non-compliance. A designer of interfaces thinks in advance of these affordances, how to enable as well as how to disable users on particular actions. Sometimes the tools lend themselves for certain actions irrespectively of the designer's intervention, and these should too be detected; in legal relationships this is supposed to be analyzed during the stage of contract planning and risk	• Completeness (mental models) • Collaborative (emotions): Mutual gain as incentive enough of performance • Communication effect for consensus (perception, attention, memory, pattern recognition, mental models, and affordances) • Pleasantly memorable (attention, memory, and emotions) • Sustainability	• Awareness (taking notice) • Understanding (knowing) • Consensus (willful participation, engagement) • Compliance (action) • Overall satisfaction with the transacting experience and the sustainability of the agreement

(continued)

Table 3 (continued)

Taxonomy of usability components for transactional design		
Efficiency	Effectiveness	Satisfaction
evaluation. On affordances and control read, Turvey (1992), who also explains Gibson's original proposal.), emotions) • Learnability (memory, mental models, emotions) • Flexibility (emotions) • User control (perception, attention, memory, mental models, and emotions)[a]		

[a]Applicable to interactive formats only

tional experience and higher satisfaction levels. Indications are given as to what cognitive functions can affect or could be affected by HCI or usability engineering interventions. The study of human information processing and cognition aspects supply with valuable knowledge as to how to design optimal operational systems in technical fields. In the law, where a more intelligent and convivial flow of legal processes is badly needed, these considerations should not continue to remain neglected.

4 Concluding Remarks and Future Research

Collaborative transactional design and other smart contracting methodologies have the potential to influence the future of the theory and the practice of mediated contracts in the terms of conflict management and human-centered design. Proactive contracting and usability could be expected to correlate in the improvement of business and other human interaction also regardless of the use or not of devices and software applications. It is easy to envisage more visual contracts; after all, the inspiration for the articulation of this interdisciplinary proposal comes from the field of graphic user interface design. However, on visualization this chapter has urged caution. The normative ontologies of the legal system combine with common sense knowledge of the real world in very specialized epistemological structures. The articulation of visual legal categories requires therefore a very specialized combination of skills, expertise, competences, and preparatory research on disciplines such as legal theory and semiotics. This venture warrants a separate assessment and is beyond the scope of this chapter.

Transactional design practices can conveniently smooth the transition in the direction of smart contracts, and other systems of automated agency that cannot be ignored. In this interlude, the popularity of the proactive law discourse and the general enthusiasm for human-centered design could help the institutionalization of

collaboration in stagnant social structures such as the legal systems or within very competitive environments such as business and trade. Transactional design practices could convince business to transcend the competitive advantage fixation by formulating strategies with collaborative components that can contribute to the organization's sustainability. Based on usability slogans, a multitude of other innovative possibilities can be anticipated like the creation of multifunctional contracts of escalating levels of difficulty, different versions for different people with all tools and interface apart adaptable on its own but under the control of the users, the generation of functionalities, affordances, and visuals that would explain and clarify transactions automatically, generated not merely upon request but also because the system perceives the need. Could more sustainable transactional capacities be trusted to artificial intelligence agents when technologies are mature enough on the basis of efficiency considerations alone? To which extent should human interaction rely mainly on growingly smarter contract solutions? Could smart contracts render human agents superfluous in some or all fields of social organizations? Answers to these questions cannot be found in specialized fields through individual disciplinary lenses. Even if research and development work in the computer sciences includes the issue of how to understand the human role in a technologically driven world, answering needs input from other disciplines.

As contracts are important legal tools and different contract-related questions form a significant part of the work of many lawyers, the willingness of the legal profession to embrace smart contracts and the understanding legal research has of the issue are essential. ICT applications work for and against social interaction, so powerful tools are devised to understand the complexities of the current socioeconomic system. One of them is agentification, agent-base modeling methods with people and technology both in focus. Nevertheless, future research directions on the topic of transactional design should begin at the simplest and most basic level of technology-mediated interaction (individuals–individuals and individuals–entities) to understand what creates preferences and fosters effectiveness and satisfaction. It could continue with observations onto how interaction at other levels forms. Additionally, empirical tests can analyze ways in which transactional design may create or maintain collaborative features across cultures in self-organizing, collective, global, and subtle institutionalization patterns. The interdisciplinary view of proactive transactions and transactional design as presented in this text could fit into the computational social sciences, economics, and the digital humanities that assess these issues in respect to governance, legitimacy, legality, trust, privacy, ethics, development, contextual knowledge, and human ecology.

The whole spectrum of disciplines researching the digital phenomena converge at the issue of social interaction and, more particularly, electronic transactions. This chapter explained the impact of some of the ICTs and HCI principles and capacities onto the legal sciences and specifically in what regards contracts and obligations linking it, on one hand, with the evolution of the field of conflict management and dispute prevention and, on the other, with the principles and imperatives of the interconnected society. Further, the chapter reflected on the speedy shift in legal practice paradigms towards a preventive proactivity in all legal services and how

technology diffusion expedited the process. Definitional aspects were given chief importance to bridge disciplinary boundaries and represent the necessary theoretical crossovers. Usability (UX) was used as the reference term in good transaction design, UX parameters applicable to transactions were identified and conceptualized, and the visual law approach was presented as an efficient tool for enhancing the user/consumer experience and speedy institutionalization of the new transactional models. Better contracts and smooth interaction could be determined by the degree to which they reduce transaction costs, fostering compliance and satisfaction and diminishing the registration of disputes and/or increasing the resolution rate of disputes that have already been registered.

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Article III

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Perceptions on Collaboration Affecting the Viability of the SMART CONTRACTING Approach

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Abstract

Smart Contracting (SC) is a proactive contract management approach that highlights the value creation potential of collaborative contract negotiation and transaction design techniques. SC applies usability heuristics, expected to increase understanding and trust in legally relevant exchange and in digital trade environments. This paper reviews this proposal and reports on a mixed methodology study that addressed individual level understandings of collaboration, a key SC viability factor and successful deployment and dissemination condition. The data was explored performing a summative and interpretative analysis, which identified signs of public awareness and uniform disposition towards collaborative exchange. The results showed also aversion within a single group of participants, and marked the influence of cultural factors in attitudes and trust. Collaboration is understood to be a more intense commitment than other forms of associations despite the lack of explicit reference to precise terms. This acknowledgment of the merits of collaborative practices corroborates the assumptions of the SC and recommends adoption as well as continuous, more focused research. The findings on the viability of SC have cross disciplinary implications, stimulate integrative theory development and inform the managerial and legal practices on ways to smooth processes, operations and interactions, in context. This initiative is unique insofar as testing the grounds for legal innovation and preparing for a systematic application of user centered design techniques in strategic contracting within digital business strategies, a stream of research in its beginnings.

Keywords

Collaboration strategy, digital contract management, transaction design, Smart Contracting, contract based innovation, proactive approach.

Introduction

This paper aims at revisiting the proactive lawyering position and divulging empirical contributions to SC, an operationalized application of this perspective (Solarte-Vásquez & Nyman-Metcalf, 2017). The approach integrates business management, law and computer sciences concepts for the strategic transformation of legal interfaces and more agent/user centred transaction design pro-

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cesses. Electronic communication, mediatized interaction and digital exchange are the areas where these disciplines converge, defining the narrow private governance scope that SC addresses. SC builds around collaboration and self-regulation as prevailing phenomena of the times and is premised on two general assumptions: that viewing transactions as relational assets, products and/or services, is needed to smooth digital exchange, and that proactive human interaction can be upgraded with technical enhancements (Solarte-Vasquez et al., 2016). Proactivity involves collaboration by promoting transactional efficiency and effectiveness, while discouraging misunderstanding, and dissatisfaction, commonly resulting in non-compliance and legal disputes (Haapio, 2010). Empirical studies about the expectations of transaction agents help bring into the legal practice the notions of customer satisfaction and user centered design. SC argues that learning about these largely unexplored spheres is crucial to legitimate proactive theoretical propositions and anticipate mutual gain. The study at hand is concerned with the perceptions of ordinary customers about collaboration to determine the extent to which proactive theory captures people's disposition and latent value applicable to transaction design.

The mainstream legal practice is reactive, resists change, and is behind other domains in terms of digital transformations of substance. Contract drafting in particular is a specialized knowledge management domain, unresponsive and disinterested in other aspects than legal validity and enforcement. When addressing these shortcomings some proactive initiatives acknowledge that effective collaborative techniques should meet not only theoretical standards but also reach out and engage the public (Passera, 2012). In spite of their valuable contributions, these initiatives prototype very rapidly, thus the conditions needed to deploy durable proposals remain unchecked. The Public awareness and the readiness to understand proactive legal innovations, for instance, personal and collective dispositions towards collaborative contracting strategies, are not fully addressed. This study begins to fill in these gaps by recognizing that consulting the public on the preconditions of SC and other proactive proposals is required for the validation of proactive practices, and as important as feedback during later stages when testing specific contract interfaces. The readiness of the users should be the first consideration while composing standards and principles to upgrade experiences associated to legal products, services and/or their attributes.

This paper briefly restates the importance of the proactive shift in contracting to promote the research field consolidation, and reports on the perceptions of the public on collaboration. The disposition to collaborative offerings was obtained from the comparison and correspondences between people's connotations and the latest conceptual developments on proactive contracting, including an integrative definition of collaboration introduced in this text. Collaboration was markedly understood as a commitment more intense but closely related to cooperation. Goal sharing and other relational values such as understanding highlighted indications of value among the prevailing perceptions, differing only by country of origin. The efforts of proactive law academics and practitioners mostly resonate with the public suggesting that the SC approach could be welcome in practice. These outcomes emerged in response to the following research questions: Do the assumptions on collaboration of the proactive contracting, business and the ICTs' theoretical developments match the public understanding on the concept? Are the coincidences enough to determine collaboration awareness among ordinary customers and constitute a positive connotation on the concept, and can these be indicative of the readiness of the public to adopt collaborative legal offerings?

The SC viability conditions were explored using a mixture of methods. The data was counted and compared for a descriptive summative analysis (Creswell, 2016), and further

codified according to linguistic cues as in standard thematic analysis processes (Boyatzis, 1998). The resulting connotations were also processed using qualitative techniques. These reflexive and interpretative tasks relied on the researchers' multidisciplinary expertise and remained closely linked to theory and hermeneutics, imparting validity to the outcomes. The findings endorse the viability of SC, help reassure managers and other potential influencers on the soundness of proactive initiatives, and stir the research agenda towards refining and applying transaction design techniques across cultures and in different fields.

This text is divided into four sections, the first contextualizes the study and explains the theoretical framework including perspectives from the business, law and the ICT fields; the second addresses methodological aspects; the third combines the results and discussion of findings; and the fourth concludes and outlines the implications that speak in favour of continuing this line of research.

Theoretical framework

1.1. Research context

The study belongs to a larger research on legal innovation and the SC concept. The proposal involves an strategic information and specialized knowledge management approach that focuses on technology based interaction activities and transactions, the smallest constituents of current private governance models (Solarte-Vasquez, 2013). SC applies to digital business strategies to upgrade exchange interfaced with legally relevant information, for instance, negotiation processes, contracts, and dispute resolution online. Mediatization refers to the electronic transmission of interactions between agents via interconnected mediums and thus, self-contained in independent entities (computers, the cloud, files, etc.) (Schulz, 2004) that can be intervened (enhanced, distributed, augmented, etc.); interface is the concrete boundary or layer with information and knowledge representations, or for communication and shared meanings, that simplifies the complexity of an underlying system (Passera and Haapio (2013); legal relevance refers to content in purposeful interactions that could transform relationships by modifying the rights and/or duties of the parties involved.

The terms customer, agent and user are used interchangeably and refer to any person that is connected to others via ICTs. Agent is defined as a capable, independent person that can act in the capacity of consumer or potential consumer of products and services, or in the capacity of user, when interacting with a system through an interface. Those roles frequently coincide, for example in e-commerce transactions. The word selection would depend of pragmatics or the aspect under consideration with user being the most amenable to HCI, consumer to business and agent to law

Proactive contract management views collaboration as an organizational level dynamic capability that accrues advantages to firms and customers, because collaborative processes are amenable to currents governance trends and ease global trade complexities (Eisenhardt and Martin, 2000; Winter, 2003; Greer and Lei, 2012; and, Bagley, 2015). Collaboration has become a pervasive phenomenon of the times, a governance principle (Solarte-Vasquez, 2014) notoriously popular in the innovation, business and management literature (Miles et al., 2005; Pisano and Verganti, 2008; and, Dagnino and Padula, 2009), and a key resource to foster sustainable ventures in most related sectors, at all levels (Gueguen, 2009; Dell'Era and Verganti, 2010; Snow et al., 2011; Gnyawali and Park, 2011; Rohrbeck et al., 2013; and, Ebel et al., 2016). Accordingly, SC formulates collaborative techniques such as usability heuristics but to influence the strategic management of personal level interactions. Collaboration inspires SC, and at the same time is served by the approach, becoming a condition for effective implementation, but not the only one. Self-regulation capaci-

ties are also needed; agents in trade should be sufficiently empowered to transact using alternative tools, atypical contractual environments and formats. (Solarte-Vasquez et al., 2016; Hartlief, 2004). This paper focuses on the first condition and in the remaining will be referring only to perceptions on collaboration identified by the study, which can affect the viability of the SC approach.

1.2. Research problem

Despite decades of research on collaboration applied to business strategy, information and communication technology (ICT) fields (i.e. social informatics (SI), human computer interaction (HCI), social computing, etc.) and preventive law and conflict management, the mainstream quality screening of transactions continues to follow criteria based mainly on expertise about the properties and configuration of legal texts (essentialism), and efficiency (costs of drafting). The needs and interests of the public are presumed known and uniform, but remain largely uncorroborated as the agents' perception is not systematically consulted or people's feedback, when available, taken into consideration. Similarly, the public awareness and readiness to understand novel contracting strategies and interfaces as collaborative, and the potential value they may assign to this approach is still unclear.

The weight of the current social, commercial, technical and environmental conditions begins to wear down the reactive and unresponsive models of the legal tradition that stiff commerce and legally relevant exchange. However, introducing new contract management strategies can be a challenge for companies unaccustomed to alternative models for legal communication and information sharing (Nguyen, et al., 2007). This is a landscape unexplored likely to have organizational change impact, where the time between implementation and gains can extend long (Huy et al., 2014). Even if proactive contractual capabilities promise to align business and consumer needs, the risks and difficulties are not yet measurable. Interdisciplinary exploratory research can ease the way for scholars to enrich the theory building work already advanced. On concepts such as SC and UX related transaction design techniques empirical evidence of viability should also be provided.

SC applies the consumer centered approach primordially during transaction design processes, assuming the interests and competences of potential agents rather than on the basis of prior research. No empirical study regarding the awareness and disposition from the public's connotations on collaboration is available to suggest that this precondition is met as to conclude that the SC concept captures, creates some value and/or is sound for effective deployment and dissemination. Once acceptability and viability are established, spread use of the consumer centered approach to legal products could ensue (Solarte-Vasquez, 2016). SC practices can become successful if customers and other agents are able to perceive the benefits of innovative legal formats. In turn, organizations would be more willing to include the SC approach in their digital strategies and become institutionalization agents of the proposal.

1.3. Conceptual background

Collaboration

Collaboration, cooperation and coordination are terms often used interchangeably, denoting various interactions that only few authors differentiate (Wood and Gray, 1991; McNamara, 2012). This laxity leads to inappropriate use and poor inter-disciplinary understanding. These interactions are identified by popular sub fields of the disciplines under consideration, for instance as a component of corporate social responsibility, a phenomenon manifested by open source software applications or a principle guiding good private governance practices. In the general theory collaboration

is linked to empathy, care in the visions and missions of organizations, groups and firms, principled actions, relational capital, better relationships based on understanding of needs, and general wellbeing. The international standards on collaboration (ISO11000), issued by The International Organization for Standardization (ISO), speak of strategic business alliances and collaboration within networks (industrial and sectorial clusters) but without excluding interactions between other transactional agents.1 These standards are important because they may expedite the institutionalization of collaborative practices (Hawkins and Little, 2011) in a way the law and court decisions would not (Gilson et al., 2013).

The Collins English Dictionary defines collaboration in general as a noun denoting "joint operation or action, "assistance or willingness to assist," 2 using words that specialists would rather link to cooperation and/or coordination. Cooperation in turn is an "act of working with… others on a joint project," or "something created by..." cooperation, and "the act of cooperating as a traitor, esp with an enemy occupying one's own country."3 Both terms are explained with the word "joint." The meaning of coordination is: "balanced and effective interaction of movement, actions, etc."4 The many definitions for the word alliance, a related concept, use expressions like union, confederation, formal agreement or pact, and affinity.5 Other terms associated to collaboration are for example connection that is a cross referenced term with 11 dictionary denotative meanings like "the act or state of connecting"; union, link or bond, and "relationship or association."6; deal denoting engagement, transaction or agreement;7 team designating groups organized to work together and help, while help is a word that can mean the act of helping, being helped, or the helper, "means of remedy," assisting or aiding, "sharing the work, cost, or burden of something," and, "to cause improvement."8

Collaboration in the business management literature

Bryson et al. (2006) and Keast et al. (2007) suggested types of associations that could be explained in terms of a commitment continuum of increasing engagement where the closest, most intense of the connections would be collaborative (purposeful alignment of interests with an integrated adjustment of operations), based on shared and accurate understanding. The least intense would be a mere coincidence. Common efforts would suffice for cooperation as well as team making and timely undertakings, and when partners form alliances, adjust operations and work together (Bruns 2013) with aligned or at least compatible interests. Keast et al., who are among the few authors discussing the empirical differences between the terms, affirmed that cooperation is an "instrumental process" (2007 p.18). Cooperation and collaboration could imply coordination but this also stands alone, as one of the simplest forms of interaction based merely on logistic agreements where processes, not people are trusted. Operational and functional coincidences can also form opportunistically without trust, understanding or prior agreements, deprived of the interdependencies that define a true collaborative spirit. Oliver (1990) and McNamara (2012) wrote on these relationships at the interorganizational level; Gulati et al. (2012) on cooperation and coordination within collaboration in the field of strategic alliances; Himmelman (2001) about the dynamics of these interactions; and, Kilduff and Brass (2010) regarding collaboration as a strategic element in network theory as well as Kanter (1994) in her work about the managerial level strategic collaborative advantage.

1 The summary of the standards is available at https://www.iso.org/obp/ui/#iso:std:iso:11000:dis:ed-1:v1:en
2 Retrieved from http://www.collinsdictionary.com/dictionary/english/ on June 23 2016
3 Ibid 3
4 Ibid 4
5 Ibid 5
6 Ibid 6
7 Ibid 7
8 Ibid 8

Cooperation has been the most discussed type of interaction in strategic applications (Brandenburger and Nalebuff, 2011; Peng et al., 2012), resulting in the publication of a decent amount of academic work about co-opetition (combination of cooperation and competition) in recent years (Bengtsson and Kock, 2000, 2014; Ritala et al., 2014; and, Raza-Ullah et al., 2014). Co-opetition appears with the shift to sustainability in organizational theories without abandoning in any way, the search for strategic (competitive) advantages. Enduring associations are more sustainable in the long run; stability is aided by the connection's intensity and quality. Interfirm relational capital and assets were also linked to competitive advantage decades ago (Dyer and Singh, 1998), as well as the application of collaborative processes modelling from the customer relations management and marketing perspectives. The forerunner concepts of these smart contracting practices and techniques better known in business are co-creation and co-innovation for innovation and service design (Chesbrough, 2003).

Collaborative corporate governance and private regulation issues were also raised before the digital transformation wave began for businesses (Grundmann et al., 2015, p.44). Now it has almost completed with the collaborative imprint regarding services design. The MIT Center for Digital Business has emphasized that one of the building blocks for effective digital transformation and innovation is an enhanced customer experience (Westerman et al, 2014). Collaboration as survival factor for companies in the highly competitive and changing digital environment of business draws from the dynamic capabilities literature (Eisenhardt and Martin, 2000; Tallman, 2015), in the classical Teece et al. (1997), Winter (2003), and recent unfolding viewpoints in Leih et al. (2014) on business strategies, innovative business models in the way companies such as Airbnb, Blablacar, Crowfunder, Kickstarted, etc. illustrate (Allred et al., 2011), and organizational design (Arndt et al.,2014).

Collaboration in the ICTs literature

Collaboration is an attribute of the ICTs that steered the development of the networks, an internet governance principle (Solarte-Vasquez, 2013), and a phenomenon playing a prominent role in the global interoperability task of optimizing the interconnectivity and interdependencies of the ICT architecture. Miller (2000) placed interoperability close to collaboration in terms of a precondition, quality, and capacity of systems and/or activities to connect and integrate in a seamless understanding. In business processes, collaborative applications in human environments are already assisted by semantic agents and trending in business. These are technology based solutions for which workflow interoperability becomes necessary, as are other arrangements such as web service choreographies, and sometimes ambient intelligence, requiring enormous semantic interoperability capacities (cooperative interdependencies) and imposing regulatory challenges. Semantic web technologies have become the most promising direction for integration and collaboration in this sphere, realizing the internet of things and advancing machine learning capacities (Gruber, 2008). The rapid development of the semantic web prompts further integration and the strengthening of the networks, which cannot be completed in the absence of collaboration (Panetto and Cecil, 2013 and Mertins et al. (Eds.), 2014). Public policies recognize the fundamental role of these structural collaborative capacities as can be found at the supranational level, for example, in the framework of the digital agenda of Europe.9Another accepted notion of interoperability relates to standards and compatibilities for effective communication, integration, and cooperation, with universal validity; a concept that clearly determines the functionalities of collaborative systems (Alonso et al.,2010; Jardim-Goncalves et al., 2012; and, Daclin et al., 2016). Gong et al.'s posture (2006) reminds of Mason

9 Consult the Semantic Interoperability Strategy advanced by the European Commission http://ec.europa.eu/isa/actions/01-trusted-information-exchange/1-1action_en.htm.

and Lefrere's (2003, p.260) who affirmed that "collaboration and interoperability are identified as key organising principles in information-based and knowledge-based economies."

Collaboration involves in the ICTs sense rather cooperative and coordinated activities, indicative of which are the innumerable tools, applications, platforms and environments for work, social exchange and play. These have allowed the raise of so-called collaborative entities, self-organizing communities online, multi-contributor projects (Wikipedia), distributed systems, and even massive transnational movements like the creative commons, open source, the internet society etc. (Benkler 2003; Baldwin and von Hippel, 2010). Modular distributed systems design (Coulouris et al., 2005) reflects associative and collaborative work; modular architectures require a careful design of the parts and the whole, which integrates partitions on the basis of the cooperative and collaborative capacities of the agents. In the digital domain goods and assets are by nature not rival, facilitating sharing over antagonism over resources, enriching and preserving a common pool of supplies at everyone's reach.

A growing interest in social design within technical systems (Ackerman 2000; Booth, 2014) puts social needs on top of technical wishes in the process of building technologies. These priorities are clear for HCI; the user centered design approach transcended the cognitivist emphasis and values such as collaboration inspire all interfaces and user experience design projects (Rogers et al., 2011; Simonsen and Robertson, 2012; and, Friedman et al., 2013).

Collaboration within the legal sciences

The legal practice lags behind managerial and technical innovation processes but intense academic efforts attempt to redefine contract management and capabilities in a collaborative-proactive light, more in accordance to the requirements of the times (Berger-Walliser, 2011; Berger-Walliser, 2012; and, Siedel and Haapio (2016). Ian Mcneil introduced the relational theory of the contract in the mid-eighties, a view that drew on long standing positions on the broader function of transactions, and the projection into the future that exchanges may have (Mcneil, 1985). Campbell invokes Macneil's emphatic arguments on that the role of contractual interactions in the market could no longer be appreciated in terms of discrete transactions only, especially when contractual functions beyond economics are distinctively recognized in practice (Campbell, 2004). This relational view relates to collaboration because it expands the functional value of relationships regulated by contracts, including the empowerment of the parties, fairness derived from foresight, mutual knowledge (understanding), and reciprocity. Poppo and Zenger advanced on the concept of relational governance for formal contract management, introducing trust, cooperation and continuity to the study of exchange performance (2002).

Collaboration particularities acknowledged in legal theory are mentioned by Solarte-Vasquez et al. (2016 p.154-157) within the evolution of conflict management and dispute resolution studies. In this overview, collaboration is claimed to be a practical and virtuous competence, dynamic in nature, and distinguished by amicability and understanding, and for being principled, non-adversarial, responsive and inclusive. The Alternative Dispute Resolution movement (ADR) has been a meaningful helping force promoting needs/interest based standards in negotiations from within the legal practice. Currently in the proactive stage, ADR is the field that provides with greater innovation opportunities in Europe where political institutional support has reached functional levels (Moreno, 2016). For example, an Online Dispute Resolution Platform was implemented to service customers across the European Union, to increase trust in electronic trade and boost digital economy indicators.10

10 http://ec.europa.eu/consumers/solving_consumer_disputes/non-judicial_redress/adr-odr/index_en.htm

The promotion of "good and better laws" is also a collaborative enterprise that launches initiatives to reduce regulatory complexity and isolation (impact assessment). These persuade on the use of informal and alternative means to manage exchange, and warn against unclear and lengthy statutes and legal documents. One of the many instances denouncing regulatory disproportionate complexity, and championing better drafting efforts, is the set of principles of quality and performance by the Organization for Economic Co-operation and Development.11 A considerable step ahead at improving transactional processes and outcomes is to propose regulation as data that could be architectured for better representation and analysis (Butt, 2013; Passera et al., 2013; Pohjonen and Koskelainen, 2013).

The incorporation of computational studies into the field of law including visual and schematic representations of legal knowledge and information is taking place now, in view of that the legal information is useful only when precise and understandable. The SC category of proactive legal practices harmonizes these concepts, the relational views and the empowerment conceptions on contracts (Kar 2016). SC also promises to help contract law adapt to automation such as facilitating the use of self-executing block chain technologies (smart contracts), and to preserve human control through user friendly interfaces.

An integrative and principled definition is proposed and preferred in here, as follows: Collaboration is the deliberate organization of human effort aimed at generating long term value for all parties involved and at reducing the risks and disadvantages of competition. Such a definition communicates relational values, is amenable to sustainability, and can encompass a multiplicity of views and fields of interaction.

11 www.oecd.org/gov/regulatory-policy/

Methodology

This mixed methodology exploratory study followed a pragmatic research strategy drawing from Tashakkori and Teddlie (2010). A quantitative data collection method was combined with qualitative data analysis processes which suit better when the study object is embedded in the development of theory, especially if integrating multidisciplinary concepts like the present study does (Vafidis, 2007, pp.40-41; Dubois and Araujo, 2004, pp.221). Likewise, these choices fit the purposes of producing priming descriptive overviews, according to guidelines by Clark and Creswell (2011), Creswell, (2013 pp.16), Eisenhardt, (1989), and Silverman (2000). SC is a new proposal for which theory development is the priority. Traditional statistical analyses were discarded in the benefit of producing and early and broad understanding of the SC viability (Brown and Eisenhardt, 1995, pp.353), and in consideration of the data (unordered -none is better than other-, nominal categories) only a 'summative data analysis' was performed to the codified survey responses as explained by Creswell (2016). This included counting and comparing, descriptive statistics, and linguistic, comparative, and interpretative techniques. The coding stage was mostly theory-driven and partly data-driven (Piekkari and Welch, 2008), resulting on collaboration in eight plus not-available; on self-regulation six plus not-available and on transactional friendliness five and not-applicable codes.

Instrument

To collect perceptions and identify connotative meanings associated to the words collaboration (Q1) and self-regulation (Q2), and to learn about the most difficult and/or unfriendly transactions and transactional features according to the participants' opinion (Q3), an original questionnaire was prepared. In addition, standard demographic data was collected on gender, age, occupation, educational level and country of origin. The field of occupation was deemed more important than

the original academic background of the participants during the categorization process and allowed conjectures of interest for future studies. The segmentation of the variable country of origin was decided upon the sample composition, according to size, where at least 5 countries were represented meaningfully (by more than ten participants), and the rest were sub-grouped as "other." The type of data and the purpose of the research disallowed specific cultural considerations selecting variables and subgroups.

The questionnaires were distributed by one researcher in person, during casual meetings to provoke no resistance or stage the research, while promoting the maximum possible engagement. The questions to study linguistic-terms-perceptions-user understanding were open but transferred some of the coding and interpretation responsibilities onto the participants, who were expected to describe the terms provided in one word, deprived of context. On the third question these were requested to list the most complicated, confusing or stress producing transactions that first came to mind.

Data Collection

280 questionnaires were distributed between March 2013 and May 2016. The majority of responses were obtained in Estonia, and some in Finland, Spain, Sweden and Colombia. 55 respondents did not write but provided oral answers that were recorded by the researcher on paper and electronically shortly after, so the transcription was made according to the Eisenhard 24 h rule (1989). The process was planned to take place in the most efficient and unaffected way, using the resources available and causing no inconveniences or requiring preparations. The questionnaires were completed within 3 minutes in average. The researcher solved inquires with explanations considered in advance. For example, when participants asked on Q3 if they had to choose only a word like on the other two cases (11 people), the administrator stated that they could list as many instances as they wanted; acting as non-participant in the sense explained by Creswell (2016 pp.121). This involvement normally adds to the qualitative character of the research, but clarifications were not requested in regard to Q1 on Collaboration.

The participants were informed about the most general purpose of the study and explained that the data was going to be anonymized and used exclusively for academic purposes. Two respondents did not indicate their age; and four did not answer what was their occupation or profession, one of which did not state either or. Of the total amount of questionnaires, 25 mostly incomplete or unintelligible exemplars were removed, yielding a final sample size of N=255.

Sample

The resulting sample was composed by 255 adults out of the 280 that agreed to respond or volunteered to participate in the study. The size was much larger than in ordinary multiple-case studies, for the sake of a good overview, (Eisenhardt, 1989), which is not common, but still reported in the literature (Wang et al. 2004). Silverman admits this technique to be valid for cases were qualitative generalizability is weak, to resemble quantitative research criteria (2000, pp.102). The participants were 136 males and 119 females between 20 and 70 years of age; 226 had obtained tertiary education diplomas or were enrolled in university degree programs and 29 had received secondary education degrees or less at the time. The respondents were people from 57 countries to whom random access was gained during the duration of the study. Estonians, Colombians, Finnish and Spanish participants, followed by respondents from the United States of America and Germany formed the most representative groups (with at least 10 individuals). More participants than not were educated and/or familiar with business, law and the ICTs or CS, and their responses generated data pertaining to the terminology and features in question, which enhanced representativeness an com-

Table 1. Sample Summary

Segments	Numbers	Percentages
Sample		
Total	255	100
Gender		
Male	136	53.3
Female	119	46.7
Age*		
Under 25	20	7.8
26-35	69	27.1
36-45	68	26.7
46-55	72	28.2
56 and above	24	9.4
Field of occupation		
Business	68	26.7
Law	61	23.9
Information Technology	28	11
Other	98	38.4
Education		
Bachelor	65	25.5
Master	102	40
PhD	51	20
Others	37	14.5
Country of origin (57 countries)		
Estonia	47	18.4
Colombia	27	10.6
Finland	15	5.9
Spain	14	5.5
United States of America	11	4.3
Germany	10	3.9
Others	131	51.4

**4 people did not answer occupation or profession one of which did not answer either or

* Two reported no age

Source: random sample data collection on the Collaboration, Self-regulation and Transactions Survey 2013-2016.

pensates for the diminished randomness that may be said to afflict these sampling choices (Onwuegbuzie and Collins, 2007 pp.305, citing Miles and Huberman, 1994; Curtis et al., 2000; and, Kemper et al., 2003). The variety of the demographic data and the meaningful insights that most of the respondents had can be said to have increased the interpretative validity of the study (Maxwell, 1996). The sample resulted in the configuration summarized in Table 1. The size of the convenience sample (Bono and McNamara, 2011) fits standard requirements by far (Onwuegbuzie and Collins, 2007). This exploratory study is the first of its kind, with all respondents consulted as ordinary customers and every day transaction agents.

Results and discussion

More than 120 words were associated to the term collaboration of which 5 were repeated by at least ten respondents: 'help,' 23; 'understanding,' 17; 'cooperation,' 16; 'togetherness,' 15; and, 'agreement,' 12 times. A second set of recurrent words include: 'trust,' 7; 'teamwork,' 6; and, 'coordination,' 5; rather few despite their prevalence in the literature. Some expressions coincided with dictionary denotations such as 'work together,' 'coordination' and 'join' as well as with the mainstream descriptors in the business, legal and CS literature such as 'teamwork,' 'cooperation,' 'coordination,' and 'trust.' These became reference concepts which were reduced to 9 categories. Help, answered by 9% of the participants remained one, encompassing support and related terms; Connection was used to group answers that could express more than a neutral alliance were bonding elements could be detected, including 'understanding,' and 'togetherness,' the second and fourth terms most used by 6.7% and 5.9% of the participants, respectively. 'Cooperation,' repeated in 6.3% of the cases was placed under the category team with other terms suggesting union and non-essential commonalities, except 'coordination' that was considered to be qualified by purpose. 'Agreement,' the fifth most common term amounting 4.7% of the answers for collaboration, was covered by deal indicating consensus based formalized (orderly, structured) coordination, likely to give raise to duties. Additionally, for terms that could be linked to both team and deal, where no partic-

ular intent could be deducted and/or complex connections identified, the category alliance was selected, referring to unintended proximities underlying self-interest interactions. Three other categories organize the answers that expressed opinion: advantage, disadvantage and effort. The last category is important because of the transaction costs analysis that may be involved in the creation and maintenance of traditional connections, and required in the atypical and innovative formulation of texts. In addition, because effort cannot be said to have negative or positive connotations in itself, it remained an independent category. The rest of words that did not fit any criteria above were assigned to the category non-applicable.

3.2. Results description

The summary of results is described in Figure 1., organized from the most frequent overall category at the left to the least frequent to the right of each row, corresponding to each variable by group. The higher the percentage of recurrences, the darkest is the grey form the scale. Connection categorized most connotations correctly associated to collaboration followed by team and deal, respectively. Help, and advantage were popular categories unlike the rest which in the aggregate are less revealing than when taken separately and observed according to the groups where these arose.

The summative analysis revealed few standing values across variables and some discrepancies with the theory. Only a couple of the dictionary descriptions for the categories arose straight from the results such as 'cooperation,' 'coordination' and 'alliance' (Oliver, 1990 and McNamara, 2012). 'Cooperation' revealed itself much more concretely, in the way described by Bruns: "working together" (2013). Connection, team, deal and help were categories that prevailed consistently, except for the country subgroups, where disadvantage and advantage were important for the Estonian and the Spanish respondents.

The most unexpected findings regard the country of origin, despite the relatively small size of the subgroups. The strongest connotation of this section of the study is established

Segment totals	Total in numbers	Categories in percentages								
Sample	N=255	Connection	Team	Deal	Help	Advantage	Alliance	Disadvantage	Effort	n/a
Gender male	136	19,9	18,4	20,6	11,8	9,6	5,1	5,9	4,4	4,3
Gender female	119	21,8	16	11,8	16,8	10,1	10,9	5,9	4,2	2,5
Age 25 and under	20	25	20	5	15	15	15	5	0	0
Age 26-35	69	13	24,6	14,5	18,8	13	7,2	2,9	5,8	0
Age 36-45	68	23,5	17,6	23,5	10,3	4,4	8,8	4,6	2,9	4,6
Age 46-55	72	26,4	11,1	13,9	9,7	8,3	8,3	12,5	2,8	6,9
Age 56 and above	24	16,7	12,5	20,8	25	8,3	0	0	12,5	4,2
Occupation business	68	20,6	23,5	14,7	11,8	8,8	5,9	7,4	2,9	4,4
Occupation law	61	21,3	18	21,3	6,6	11,5	6,6	3,3	4,9	6,5
Occupation ICT	28	17,9	17,8	14,3	35,7	3,6	7,1	0	3,6	0
Occupation other	98	21,4	12,2	15,3	14,3	11,2	10,2	8,2	5,1	2
Education Ba	65	32,3	9,2	9,2	12,3	12,3	10,8	9,2	1,5	3,1
Education Ma	102	12,7	23,5	22,5	10,8	10,8	5,9	4,9	4,9	3,9
Education PhD	51	25,5	23,5	17,6	11,8	2	5,9	5,9	5,9	1,9
Education other	37	16,2	5,4	10,8	29,7	13,5	10,8	2,7	5,4	5,4
Country EE	47	10,6	12,8	8,5	4,2	6,4	2,1	27,7	17	10,7
Country CO	27	18,5	11,1	14,8	48,1	3,7	3,7	0	0	0
Country FI	15	40	13,3	26,6	0	6,7	6,7	6,7	0	0
Country ES	14	21,4	14,3	14,3	14,3	28,6	7,1	0	0	0
Country US	11	9,1	27,2	18,2	9,1	18,2	9,1	0	0	9,1
Country DE	10	0	30	30	0	10	20	0	10	0
Country other	131	25,2	19,1	17,6	13,7	9,9	9,9	0,8	1,5	2,3

Figure 1. Summary and seriation of categories on collaboration

*2people did not report their age

**4 people did not answer occupation or profession one of which did not answer either or

Source: random sample data collection on the Collaboration, Self-regulation and Transactions Survey 2013-2016.

by almost half of the Colombian respondents who consider collaboration a matter of dependency rather than mutuality; the most unusual, resulting from the negative meaning ascribed by almost a third of the Estonians to collaboration as disadvantage, unlike others; and unexpected, the distance of the answers by Germans and US respondents from the category connection, with most choices falling under deal and the cooperative oriented category team instead. No German answered with a word that could be associated with connection in the way understood by this study.

3.3. Findings and discussion

Significant matches with the theoretical proposals on collaborative exchange were found all across, and high awareness on the significance of collaboration regardless of gender. The deal orientation of males does not deviate from the purpose of mutual gain, sustainable relationships and the integrative logic that smarter contracting practices support. Instead, this could indicate a preference for structure and perception of responsibility that is present in traditional transactions and agreement based relationships. Females appealed first to the connotations of support, assistance and care that are grouped under the category help which may reveal a strength in the detection of needs and therefore are amenable to the user, agent or consumer centered design strategies that are in turn, founded on the satisfaction of needs and interests of all parties, rather than on competitiveness or formalism. Helping implies reaching out, consideration of others, enabling associations that are relational like in contracts that seek to strengthen and guide long term, sustainable bonds between partners and between companies and customers. Facilitating relationships, access, participation, and co-creation can be perceived as a collaborative activity at least primarily by females. Males, according to the results, may be first appreciative of information, meaningful contacts, predictability and cooperation.

These results give raise to questions to guide a focused research agenda, for instance: Does gender affect contract based relational capital? Would this apply to trade and any format of exchange and subject matter? Do females establish faster and deeper connections and how would this reduce or augment disputes? The cooperative and collaborative features of both sexes have been discussed within the context of the prevailing stereotypes on gender in the conflict management literature, with findings that could be also used for SC usability interventions (Kray and Thompson, 2004; Holt and DeVore, 2005).

The age segmentation was intended to allow detailed observations but did not yield meaningful results, possibly due to the highly codified data that the survey was meant to collect. Respondents in ages 26-35 were the most deviant in respect of the total average, leaving connection next to advantage far removed from the categories most frequent team and deal. The expectations of people of these ages per country could vary according to a diversity of social and economic factors affecting status and independence. To which extent these groups are required to handle their own affairs and emancipate, should be observed in context. These are identified to be active customers, and engaged users of technology and the networks for whom connectivity and interoperability should be of paramount importance socially speaking, for leisure, commerce and work. Secondary data such Statistics of ICTs usage at the global scale are available and recorded by the ITU (http://www.itu.int/en/ITU-D/Statistics/Pages/default.aspx), CIA (https://www.cia.gov/library/publications/the-world-factbook/rankorder/2153rank.html), and by the World Bank (WB) (http://data.worldbank.org/indicator/IT.NET.USER.P2?page=6&cid=GPD_44). Eurostat records a steady growth of European e-commerce and the rate of internet users, among which the most active in 2015 were between 16-24 and 25-54 years of age.12 The atypical subgroup of

12 Consult more at:http://ec.europa.eu/eurostat/statistics-explained/index.php/E-commerce_statistics_for_individuals

this study is composed by people who may be still building a career and therefore need to be more competitive,13 while able to cope with the cooperative logic that technology has popularized and familiar with the network principles. These should be with the group under 25 years of age the most engaged and tech savvy of the sample.

Old age, although not alone, sets an expectation of responsibility and care for connections indicating maturity, an identified catalyst of adaptability, appreciation and wisdom (Khatibi and Sheikholeslami, 2016). Age as predictor of collaborative competences should be studied in combination with behavioural, learning and organizational development theories (Botwinick, 2013; Thomas et al., 2014). To assess the impact of learning processes, age and maturity should be combined in the context of collaborative competences building with the impact of culture and education/degrees obtained. Do age and education correlate independently or together with transactional collaboration disposition and competences? And, to contrast: Can technical exposure and proficiency be linked to more transactional cooperation and efficiency irrespectively of country or region of origin?

Researchers have studied participation and trust in HCI for interfaces that could benefit older adults (Ellis and Kurniawan, 2000; Albert and Tullis, 2013; and, Lee and Coughlin, 2015) and trust as Uzzi has stated, a prerequisite for collaboration, is an issue (1997). People above 56 may be prone to distrust unfamiliar formats of exchange and technology mediated transactions but be collaborative in other areas like in relationships, within communities, families and other loyalty schemes (generational, attachment to certain places, event as traditions, habits and routines, etc.).

Occupation was estimated to be an influential variable assuming that in formal educational settings, and specific domains, certain dominant models of interaction and differentiated approaches to collaboration form. Team and connection were the most frequent categories, very close in recurrence. This suggests that words close to collaboration were provided without conscious consideration on the distinguished intensity levels established by the theory; cooperation and collaboration are concepts understood by the public similarly. The business subgroup did relate to teamwork and cooperative activities as expected, considering the long standing relevance of these concepts in organizational studies, their importance in contemporary strategic management, the growing need to devise sustainable business models, and trends on social responsibility. Business respondents also rated collaboration as a disadvantage the highest at first glance but at a closer look, age and country of origin could have been factors influencing that choice. Interviews with focus groups could corroborate if collaboration may have negative connotations within any given business community or by sector.

The responses from the participants with legal expertise were unusual. This subgroup preferred terms showing concern for relational aspects, meaningful interactions and integrative, principled exchange. These results contrast with widespread intuitions about lawyers and the legal practice about being adversarial and competitive at administering disputes (Solarte-Vasquez et al., 2016). Deal and the sense of duty drew close to connection; thus this subgroup appears to be predisposed to collaborative transactions. This points to an uncommon narrative about the purposes and functioning of legal procedures, given that excluding the well-known advantages of certainty and predictability, outcomes of legal negotiations are seldom reported as satisfying for all parties involved.

A large portion of the IT subgroup gave answers categorized under help instead of the expected categories, connection and advantage. Many of the relationships that are enabled by the

13 On employment in Europe, consult the statistics in the European database page at http://ec.europa.eu/eurostat/web/lfs/data/database

global interconnectivity and the technology this sector handles are about operational assistance. Thus, team became, unsurprisingly, the second most frequent category. People in IT are aware of the importance of the networks and interdependencies, often exposed to operate under distributed schemes. Cooperation and deals are distributive, unlike connections as defined in this context. Connection requires an integration that differs from the systematic, exact functionality in information technologies. The understandings of the rest under the subgroup "others" suggest that an average mass assigns value to more intense relationships regardless of expertise, and that the term collaboration is correctly internalized; these 'co-words' have been buzzing long enough.

On education the results indicated intriguing directions that warrant further inquiry. For the first subgroup, deal was one of the weakest categories of the nine along with team, so collaboration for these flows from less rigid transactions (informality) Effort was also regarded far from the most intense association in the collaborative spectrum by Ba respondents so this interaction should be effortless for these. Participants in this educational level are not necessarily the youngest. The demographic distribution tells that many of the respondents studied when the Ba level was the average reached by most professionals. The raise of master and PhD enrolment figures resulted from public policies (the 2005 Bologna system adoption in EU, for example) and phenomena such as universities for profit, social mobility and globalization (Marginson and Van der Wende, 2007; Vögtle and Martens, 2014). PhD participants gave unusual responses in that whereas connection, the category closest to the theoretical developments on collaboration, was the most frequent choice, the least frequent was advantage. Deal became a very close second, suggesting appreciation for structure and formality. The biggest subgroup of Ma, show an understanding of collaboration as cooperation, moreover, team applied twice as many times as connection to these responses.

More information is needed to allow conjectures about collaboration strategies and models in tertiary education institutions. It did not seem that differentiation in terms of degrees obtained, given the many factors that could also play a role is determining, which marks a gap worthy of further consideration. This goes to the formulation of hypotheses on whether collaboration can be, is, or should be learned in formal institutional settings.

Country of origin showed to be a factor that could ameliorate or aggravate aversion to collaboration for some users/customers in comparison to other users/customers. Disadvantage was unpopular except within this variable and subgroups where the category suggests a profiling possibility about Estonians who are the only subgroup of the survey who ascribes mainly negative connotations to collaboration and perceives this interaction is burdening. For Estonians, effort was the second most frequent category, and help, the eight. These choices do not resemble even closely the responses of the rest, with disadvantage being the least relevant for lawyers, people that reported no university degree and the respondents from the US and 52 other countries. The likely subject to perceive collaboration in contrast to the way the theory has conceptualized and not to value collaboration, according to the findings, is an Estonian between 46-55 years of age who holds a bachelor degree (probably from the old system of 4-5 years, the equivalent to a current master). Estonian participants also seem to link collaboration and team, which marks the most common terminological confusion in the sample.

Almost half of the Colombian respondents associated collaboration with assistance, resulting in the highest perception under help. The significance of these choices may be related to cultural peculiarities. Collaboration is promoted in highly collectivist societies and practiced to benefit others, caring for the well-being of the group. Verification and further analysis are needed to identify patterns and explain these insights with precision (Triandis,

1988; Peeler, 2014). Most Colombian respondents in this sample belong to privileged social strata and held prominent positions (military ranks, for instance) which is likely to have an impact on their perceptions. Connection was the second most frequent connotation, consistent with the same cultural attributes.

Collaboration was described by the Finnish subgroup with words of more intensity than teamwork or cooperative activities/ sharing, matching the theory. However, collaboration was said to be a disadvantage the second after Estonians (although still far in frequency). Germans did not use words signifying connection to refer to collaboration, but instead used descriptors linked to deal, team, and alliance. The German perception qualifies as pragmatic, structured and firm, contrasting with terms flowing from more emotional and integrated degrees of association. Nonetheless undifferentiated for this subgroup could be the words collaboration and cooperation, they do not appear to require any non-objective attachment. This helps disseminating innovation for collaborative purposes, with no obstacles among the population represented (there was no preference for the category disadvantage) that is likely to value structure and precision. Trust and commitment factors may seem fuzzy for some participants but this would not prevent collaboration from developing.

Collaboration was broadly described with intuitive consideration of the intensity levels that the theory uses to distinguish it from other forms of associations; one fifth of the single word answers categorized closer to the integrative and principled definition that this paper proposes. The overall results indicate that educational level and country of origin were the most persuasive indicators of differences in perceptions for the participants, on which claims for more focused research can advance, that ordinary customers show awareness connected to the most common terms associated to collaboration in the literature, if not academic terminological precision and that what is perceived as collaboration is an appreciated activity mostly considered advantageous.

Concluding remarks and further research

This paper addressed the Smart Contracting position on proactive contract management and reported on the first set of results of an empirical study about the perceptions of the public regarding collaboration. According to theoretical developments collaboration competences constitute one viability condition for the successful implementation and diffusion of the Smart Contracting Approach to strategic contract management. Collaboration is a fundamental transactional competence for individuals and organizations in the emerging private schemes of –digital- global governance. Empirical research was deemed necessary to determine public awareness and disposition on this conditions that can in part legitimate the value proposition of SC and other legal proactive initiatives. Collaboration awareness and disposition were regarded basic signals of competence for this analysis. The findings suggest that the collaborative features proposed by the theory correspond to public expectations such as mutual understanding, friendly relationships, ease of access to information, opportune participation, co-creation possibilities, clear information, meaningful exchange, precision and mutual benefit. These outcomes, combined with the findings on the remaining of the study will help identify the interfaces that require urgent upgrades, and the groups most receptive to the deployment of contracts as relational products or services.

The perceptions reflected on the terms and expressions used by the participants showed consistency with the collaborative ideas, trends, strategies, measures and proposals from the literature. Understandings of collaboration are comparable to theoretical counterparts mainly from the business literature, with some need for terminological adjustments

and precision that can be achieved through increased awareness, training, education and habituation or use. Collaboration and cooperation were described similarly but marked preferences showed for skills with more intense, committed and integrated connections, with connotations of understanding and the meeting of the minds.

Gender differences were insignificant. Age did not yield the results expected but other methods are recommended to investigate documented issues of trust and readiness in the adoption unfamiliar schemes of exchange in technology mediated transactions.

Educational level, occupation and country of origin were the most persuasive variables indicative of differences in perceptions, on which claims for more focused research can prosper. Awareness, readiness and interest in collaboration were midly affected by the Educational level variable. Occupation findings pointed onto an unusual direction about the legal system and the practice of law, challenging the notion about law being the most adversarial and competitive domain. Readiness and opportunities to implement collaborative changes were instead unveiled. Country of origin, suggested the most relevant predictors about propensity and aversion to collaboration among the respondents. The strongest connotation was established by almost half of the Colombian respondents that associate collaboration with good deeds rather than an integrative enterprise; the most unusual, the clearly negative meaning ascribed to collaboration by most of the Estonian participants, followed by the German and US respondents detached perceptions of collaboration and closer to a structured cooperative interaction. In this study, an Estonian, holding a bachelor degree, between 46-55 years of age is the subject less knowledgeable and aware of the meaning of collaboration in the fields of literature that matter to SC and a likely subject not to have a positive disposition to collaboration

SC and similar ideas on design transaction are becoming increasingly popular (Waller et al., 2016). They rest on collaborative strategies with focus on information architecture management and result on innovative interfaces. Current research on legal innovation started to explore the potential of visualizations for negotiating and representing contracts to help the public interpreting legal matters, contributing to a better understanding of pacts and improving the appearance of agreements, adding an aesthetic component to the transaction design (Berger-Walliser, et al., 2017). However, whether the public at large can find compliance with contract sand regulations less onerous and intimidating when usability adjustments are applied, is yet to be established. Much more research and commitment is needed for the transformation of the legal environment of business into a more collaborative and sustainable socio technical system.

The present study relied on a relatively small bilingual sample, respecting academic standards of validity but with several repercussions. The type of data collected disallowed the researchers' ability to examine in depth some of the variables' impact and interdependencies. Also, detailed cultural factors could not be explained, only indicated from the ways the combined perceptions were configured. This is a risk for any linguistic interpretation of single datasets, and requires verification and repetition. An additional difficulty in evaluating these perceptions was the use of a unified language in the semantic analysis of the terms. Most participants are not native and must settle for word/expression choices affected by their English language proficiency. However, before further endorsement can be declined on these accounts, it should be kept in mind that this study was a first exploratory approach, with no pre-validated instruments that would fit the aim and scope of the work, and that was designed to minimize the participants' efforts, but sufficient to achieve the goals pursued.

As in other consumer centered research the tasks of scholars and practitioner are continu-

ous. The investigation of specific properties of texts within target groups and other methods such as interviews is planned ahead and necessary to refine theoretical and practical developments, contributing effectively to the managerial practice. The ongoing investigation addresses issues across sectors on collaborative competences building in higher education, cultural and age constraints linked to the interdependencies between viability conditions (collaboration and self-regulation). The inefficiencies in transactional exchange should be priority concerns for private organizations as they are in the public sector factors affecting sustainable governance. These constitute an unexploited source of value that would not only benefit companies but customers and trade at large.

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Article IV

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Smart Contracting: A Multidisciplinary and Proactive Approach for the EU Digital Single Market

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Abstract: *Smart contracting (SC) is a proactive proposal to operationalize the relational contract theory for the upgrade and improvement of legally relevant exchange. The dynamic institutional environment of the European Union (EU) is a suitable framework for this proposal. SC addresses the interests of the business management, law and information technology practices with a perspective of influence in digital exchange, communication processes and other human and human-machine interactions. This position paper restates the advantages of the concept by highlighting the practical transition pathway SC offers to moderate the growing haste towards the embeddedness of exchange in automated and distributed models. This theoretical contribution supports the systematization of the proactive and legal design research field, and explains the characterization, operationalization and specification of the SC concept.*

Keywords: *digital exchange, EU digital single market, relational contracts, proactive contractual management, smart contracting, transactional governance*

1. Introduction

This paper revisits the smart contracting (SC) concept and expands it by explaining the foundational components of the approach, describing how and in what context it can be used, and clarifying the disctinctions between SC and 'smart contracts'. SC proposes a reflexive and strategic approach to contracting and contractual management processes, characterized by collaborative and proactive lawyering activities intended to improve the quality of transactions. In this way, it is possible to formulate a relational concept of legally relevant exchange, beneficial to all the stakeholders and more consistent with information and communication technology (ICT) progress. Such an approach would be valuable for managers invested in digital transformation and sustainability, and for the general public who must be offered more accessible legal information. "Smart" in relation to contracts is often associated with automated techniques, but when Solarte-Vasquez *et al*. (2016) first used the term, it was instead intended to label intelligent, ingenious, qualified, and resourceful contracting processes. These suggest new ways to use collaboration and a user-centred design, Usability (UX) and User Experience (UXI) in any other area of professional contracting, but can equally be applied to computational methods in law.

Differences in the interpretation of contracts and flaws in contract drafting have historically been known to be the leading causes of legal disputes. Dispute resolution and contracts have been identified as the most important legal risks faced by organizations and, in spite of the evidence, professional contracting processes and drafting techniques remain substantially unchanged. Studies also report that most corporate disputes are related to contracts, revealing the correlations between litigation spending and revenue. Furthermore, clients and businesses increasingly challenge the quality, delivery and costs of legal services, and begin to reconsider the need to hire legal counsel in areas where automated solutions could be implemented, for example streamlining and automating legal tasks and routines (Norton Rose Fulbright, 2016). Even when considering the most technically driven scenarios, the legal profession and the legal environment of business may not easily allow deep transformations (Posner, 2005). SC addresses these crucial issues in contractual management, via legal innovation, and from within organizations to contribute to the regulatory quality of exchange in the digital markets.

Terms that qualify SC are that it is relational, collaborative and proactive. It is applicable to transaction design and all interfaced exchange with legal relevance. This paper describes the proposal in detail, including how it can improve the

current legal environment for mediatized exchange and why the Digital Single Market (DSM) and the EU governance environment supply the most welcoming context in which to apply and disseminate the concept.

This text is divided into three parts. The first provides background information. The second discusses the foundations of SC and its contributions to the systematization of the research field in three self-contained sections with descriptive, discursive and conclusive reflections each. One section on the characterization of the SC explains the relational dimensions and the governance capacity of the concept; the next covers the viability conditions and the EU institutional suitability for the operationalization of the proposal, and the SC guiding principles, and transaction design factors recommended by the approach. The third section compares SC and smart contracts, to specify the status of the two. The last part presents few concluding remarks.

2. Preliminary observations

Perceptions on strategic contracting reflected in the literature are predominantly relational (Macaulay, 1963; Macneil, 1980), in part resulting from the powerful effect of the market expansion and exchange landscape, and the imperatives of technological progress. The social and technical systems, however, do not align smoothly. For example, despite the welcoming reception management scholars have given to relational ideas (McLaughlin *et al*., 2014), the implementation of this perspective still faces strong institutional challenges. This is the background to the proposal made in this paper about the value of SC during transitions, and the applicability of the approach to any legally relevant exchange, especially suitable in mediatized trade interactions and organizational digital strategies.

Solarte-Vasquez *et al*. (2016) explained how SC combines concepts from theories in law, management and ICTs, departing from an advanced conflict management and dispute resolution perspective, situating this proposal under a relational-proactive denomination. In conformity with that view, SC considers understanding to be the first and foremost goal of legally relevant human exchange. A systematic, principled approach throughout the contractual process and transaction design are the key guiding elements to this proposal, which is meant to be discrete enough not to pose contradictions to the legal and theoretical notion of a contract. Moreover, SC links conflict management and dispute resolution constructs to contract theory at the ontological and epistemological levels, in the interest of efficient, effective and satisfactory transactional—not

only contractual—experiences. Consequently, SC expands the scope of the alternative dispute resolution (ADR) field, as this area of study is commonly, if not accurately termed, to any manifestation of private and self-regulatory governance in exchange, including contracts, and other free expressions of consent with legal implications. Good contracting is an ADR matter because these activities share purpose.

The relevance of revising contracts and contractual management (Keskitalo, 2006), the general theory of contracts (Dalhuisen, 2013) and contracting under the ADR lens is further heightened by two factors. The first and most recognizable is the migration of most human activities to the global and interconnected digital networks, prompting organizational responses to new interactions and complex exchange. With the opportunities the digital transformation creates arise also tensions and difficulties that more encompassing theoretical constructs would address better than the existing domestic legal systems, and/or local standards. Second, turning to the most pressing factor at present, is the intellectual novelty posed by the growing control of human activities by artificial intelligence (AI) agents. The AI field progresses diffusing the boundaries between the physical and the virtual worlds, while blind to philosophical, sociological and organizational debates currently gaining momentum (Ebersold & Glass, 2016; De Cremer *et al*., 2016). Furthermore, the AI community has been reluctant to engage with the super-intelligence discussion in terms other than machine learning progress and the Internet of Everything (De Matos *et al*., 2017), leaving concerns on how to ensure this evolution takes place in people's best interest to other disciplines.

In business and governance, several schools of thought may accommodate relational views of legal exchange. Among these are the stakeholder's theory and the dynamic capabilities theory. Stakeholders' theories such as Freeman's (1994) see companies as a bundle of strategic interconnections between entities and individuals, opening ways to review value creation on the basis of interactions, taking into account the complexities of human psychology (Bridoux & Stoelhorst, 2014). The dynamic capabilities theory (Teece, 2007) allows stating that improved contractual management competences complement other capabilities of the firm (Bagley, 2005). Additionally, within the subset of organizational economics, institutional economics and business research have been fruitful to the point of providing new economic efficiency narratives such as the *contract theory* by Hart and Holmström (Izmalkov & Sonin, 2017). These developments have narrowed the gap separating economic thought from the dynamism of social and economic activities, and from the legal implications of the current entrepreneurial market system (Foss & Klein, 2016).

To end this referential background, a few more terminological details must be added in respect to contract and contractual management functions, or the administration and governance of contracting processes, respectively. *Contract management* professionalized an independent practice that popularized the treatment of contracts as assets, and of contracting as processes with decisive influence on industrial and project management models (Kähler, 2013). From this perspective, every phase of the lifecycle of a contract, from negotiating and drafting to execution, can be monitored and optimized for efficient risk management and costs reduction (Romzek & Johnston, 2002). Contract managers lead the dialog on the future of contracting from an assortment of academic, professional, and official platforms. For instance, the International Association for Contract & Commercial Management (IACCM, n.d.) has recently embarked on the promotion of digital transformations via automation and the use of computational methods for public and private contracting. Contract management, however, is not strong at the relational and strategic ADR levels, leaving aside much of the wider governance concerns now crucial for enterprises. Keskitalo (2006) formulated the *contractual enterprise risk management* theory adding other organizational goals, and expanding the capacities of contract management.

Similarly, the SC's conceptualization is not only about administration, but also about governance. SC can be applied to both contract and *contractual management*, adding principled components and a more concrete relational character to these complex processes without discarding highly routinized and so-called 'spot market transactions' (Argyres & Mayer, 2007). Contrary to what the authors stated on these, the SC approach claims that better understanding of transactions may have a significant effect on human dispositions and consent. Improved 'spot market transactions'—mainly low intensity consumer contracts—and non-specific transactions (Williamson, 1979) should be a most helpful intervention in guiding interaction and preventing consumer disputes between parties, especially in the digital markets.

3. Foundational components of smart contracting

3.1 Characterization

This section explains separately the relational and governance dimensions characterizing SC, although functionally the two are intertwined. SC pays tribute to Macneil's relational contract theory and emphasizes its far-reaching implications on private governance studies or the strategic regulatory role of wilful and collaborative exchange (Macneil, 1980).

Macneil (1999) presented four propositions according to which it is possible to determine whether a theory qualifies as relational. These propositions explain the suitability of the SC approach and justify the SC's overreaching goal of scaling up improvements in micro-level transactions in the interest of human interactions of the digital and mediatized exchange in particular. SC is also a private governance concept, enriched on two counts; one is the strategic potential of the approach, accruing dynamic capabilities for organizations, and subscribing to a multi-stakeholder principle; the other is the emphasis on non-traditional regulatory techniques (law by design) for the upgrade of organizational performance. This last feature reinforces the relational paradigm and opens up opportunities for innovation and cross-disciplinary exploration about information architecture in contracts, and contracting as knowledge management system. Macneil's general theory is said to have swept the contracting field in legal scholarship and added new dimensions to business studies, with strong impact on the evolution of organizational thought (McLaughlin *et al*., 2014).

Macneil's approach was influenced by Macaulay's exploratory research (1963), which provided empirical grounds on the inadequacy of the dominant assumptions about the realities of contractual governance. Both scholars challenged the chief contractual paradigms on transactions and exchange of the common law tradition, in a way closing the gap with the doctrinal legacy of civil law systems. The relational theory persuaded that "Contracting rests on moral foundations" (Campbell, 2004, p. 645), and thus, must become a principled process (Gunningham & Sinclair, 1999). The formulation of frameworks with relational components like SC may overcome the perceived ambiguity of the original relational theory denounced by critics (Barnett, 1992), and should help make a more realistic sense of the growingly complex and continuously changing models of exchange of the digital economy, at levels hardly discussed before. These levels are at the core of Macneil's contribution, referenced with undeserved simplicity for the sake of brevity, as composing a social matrix for meaningful exchange with ontological and

ideological aspects, and adding solidarity or social cooperation (Macneil, 1980).

The background of structured societal support for contractual relations, which in this case focuses on the EU institutional normativity, are the 'external rules' providing a framework, whereas 'internal rules' reflect norms or principles of action. The principles contain ten operational attitudes for 'proper exchange' and 'contractual solidarity' (Macneil, 1983). Internal rules represent the cooperative effect of relational contracts, and in close observation, they make it difficult to admit other kinds of exchange. These rules cannot be set out fully here, but may hold interest for sociologists interested in re-appraising the realities of exchange, one contract at the time.

3.1.1 Relational dimensions of SC

Macneil's contribution became an umbrella theory inviting adaptations, specification and elaboration. SC responds Macneil's call to complement the conception of the essential relational contract theory (as renamed in 1999) with context-specific developments, by considering transactional behaviour aspects within specific complex exchange environments, principally the governance models and opportunities enabled by the EU regulatory system.

The relational theory can be compared with subsequent ones according to concepts and criteria Macneil refined over time. He talked about contracts in general, and identified some elements common to collaborative exchange like cooperation, economic exchange, planning for future, potential external sanctions, and social control. (Macneil, 1969 cited in Campbell, 2004a, p. 7). From the original list (Macneil, 1980), four are easily identifiable in the SC approach, and compatible with EU policies on regulations: mutuality or a win-win logic providing positive incentives for compliance; contractual solidarity or the intent to preserve relationships affected by the exchange, as a sustainability factor; creation and restraint of power as contracts are strong governance tools in the digital governance; and, very importantly, harmonization with the social matrix, because the SC operationalization techniques are specifically geared to represent relationships according to the expectations of the institutional environment of the interconnected collaborative and multi-layered economy.

The criteria that characterize relational theories derive from four core propositions on recognition, awareness and understanding of the complexity of transactions, the relationships they regulate, and the context or web of relationships they are nested into (Macneil, 1999). The same assumptions can be identified in the SC proposal, which contextualizes and operationalizes the theory for practical applicability.

SC considers the complexities of digital markets and peculiarities affecting interactions of interconnected agents in trade, hence, the heuristic approach to transaction design regarding minimum standards for adaptability and flexibility: (a) any transaction is just one of many forms of exchange and represents only a fraction of the underlying relationship(s), and (b) even single and low intensity relationships are complex due to the environment where they take place and the enormous availability of competing choices of the digital markets.

The "enveloping relations" (Macneil, 2000, p. 881) between contracting agents are better understood, as well as the factors affecting these relations: (a) sustainable and proactive contractual management aims at quality based on standards of efficiency, effectiveness and satisfaction, which are accomplished only if a well-informed strategic planning takes place; (b) transaction design that follows a consumer-centered approach necessarily studies all relational layers as well as the institutional context of each; (c) exchange dynamics, rather than singled transactions are the main interest of contracting processes.

The built-in collaborative features of SC demonstrate solidarity and more compatibilities than differences between the relational character of the view and the classical–liberal theory of the contract, bridging tensions between the two (Mack, 1981). SC holds highest the value of freedom in contracting while at the same time commits to the empowerment of the contracting agents beyond the legal standards, by non-legal means. To accommodate the relational character of exchange, the classical theory does not need to be dismissed. Plausibly, reconciling the two could happen if applying the classical law of contract to the formation of agreements, and the relational theory to the pre-contractual and post-contractual phases as well as to other types of interactions with legal relevance.

Whereas Macneil may not have held consent so highly or admitted wilful agreement to have a too far-reaching and definitive extent, SC touches upon those issues, contending authenticity when resting on largely indecipherable and specialized text. Consequently, SC questions the validity of agreements when legal obligations are imposed on the basis of meagre expressions of accord, sometimes in disregard of other indications of intent (or lack of it). A typical example is the 'click-wrap' license agreement, which has been of interest to EU law-makers from a consumer protection viewpoint because of the distorted process in the formation of such contracts (Böhme & Köpsell, 2010).

SC went from transactions onto other forms of exchange, permitting a more complete analysis of human interactions, looking at a wide spectrum of

personal, social and community behaviours, expectations, trends and informal institutions. In terms of legislation and public policies, SC fits the EU participatory, reflective, and dynamic governance landscape, and may rely on the resilience of this institutional backup to safeguard innovative and alternative exchange models. SC seeks to transform traditional strategic contracting and expand the risk management aspects (securing enforceable bonds), upgrading the contracting experience of the parties by adapting to the requirements of the times and exploiting the opportunities technology offers. The characterization of SC as a relational private governance concept in strategic contracting and contractual management, marks its separation from rational choice theories and others with interest on competition, individuality and exclusion.

3.1.2 The governance capacities of SC

Governance can be explained as an organized system encompassing direction, control and management aimed at the collective wellbeing, exercised at various levels by legitimate sources of authority, and founded on formal and informal institutions. This broad perspective includes autonomous governing and self-regulatory capacities that support change and processes of regulatory adaptation, learning and experimenting (Stoker, 1998; Goodin, 1998). Rules and order are manifestations of governance activities, and the main subjects of governance studies, like the private regulation of trade relations as exercised through contracting, transacting and exchange. SC is a governance concept and a way of performing governance capacities that recommends improving organizational behaviour with the implementation of a responsive and dynamic evolutionary approach. What holds true as a good regulatory solution now to arrange interactions within a given organizational context, does not necessarily help accomplish the purposes of exchange in the future.

Contracting is a lawyering task commonly entrusted to contract management professionals interested in compliance, engineers, investors, and often in late stages, legal experts. ‘Transactions’ are understood as ‘legal acts,’ mostly in exercise of the rights and duties of the parties, and where the underlying deeds and deals are somewhat dimmed, whereas ‘contracts’ refer to wider, more complex processes that express, for example, how entitlements emerge on the basis of intentionality and consent (Barnett, 1986). Contracts create entities, shape organizations, establish all legally relevant connections, and formalize the commercial activities that support trade. The term governance could be further attached to contracting as in the means of managing, steering and producing a normative order (Stinchcombe, 1985).

For the purposes of smarter contracting processes, transaction design standards and formats must be flexible, responsive to the socio-technical environment, and in support of agreements for mutual and long-term gain. In this light, SC holds genuine interest about the effects and affordances of novel technologies in contracts that could promote real transformations in the traditional governance of businesses and the markets. It considers that to support efficient, effective and satisfactory exchange, digitization of legal services is needed, but not enough. Simple SC adjustments such as the observance of principled guidelines during planning and novel techniques for transaction design can upgrade and transform traditional and digitized interactions. A relational contractual governance view and practices may diminish the negative impact of conflict, and legal disputes, which in fact concedes to notions on transaction cost economics. Negotiating, contracting, transacting and executing agreements, categorized in the ADR way, rely on more purposeful processes aimed at mutually beneficial outcomes to incentivize compliance and reduce disputes (Lumineau & Malhotra, 2011).

Excessive reliance on legal standards, litigation and other state-dependent procedures is discouraging because of the limited capacity of these mechanisms to provide satisfactory redress, their rupturing effect of adjudication upon vital institutions, and the disproportionate amount of resources that legal procedures consume (Marshall *et al*., 2004). However, the conventional wisdom in mainstream economics indicates that only some contracts could be designed to preserve underlying relationships and promote harmony and continuity. Others, the so-called non-specific transactions (Williamson, 1979), are supposed to be less affected by sub-optimal drafting; commercial contract management strategies still assume that simpler contract types mean less complex governance relationships and vice versa (Ivens, 2002). Proactive contracting instead expects major gains from better low-intensity consumer relations, where relational aspects are commonly neglected, and from interactions within organizations. Benefits could be made to outweigh additional transaction costs caused by longer contractual cycles or expenditures on specialized transaction design. No transaction is without a cost, but none is merely a cost. These could be seen to facilitate, directly or indirectly, certain relationships. For SC all exchange is relational, and when mediatized and digital, a prime candidate for enhancements and upgrades, in attention to values such as social responsibility, sustainability, participation and freedom.

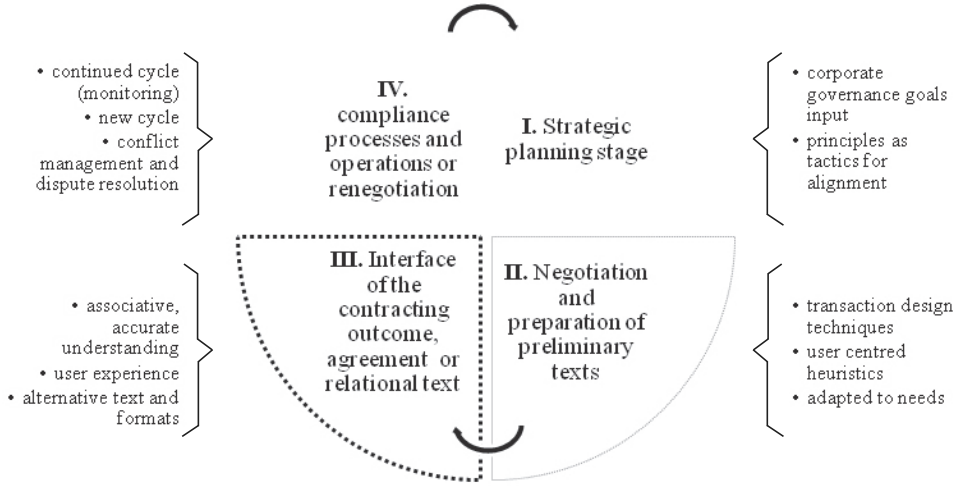
The governance capacity of SC embraces a principled approach to contracting upgrades with strategic value conveying a notion of collaboration (Solarte-Vasquez & Rungi, 2017) that is not entirely new. DiMatteo (2010), for example, explained the uses of contracts in the creation of value and the maintenance

of a sustainable competitive advantage, and stated that contracts provide the core mechanisms for interaction in transactional law, including dispute resolution. Also, Poppo & Zenger (2002, p. 712) identified improvement in exchange performance resulting directly from relational governance and contract customization. SC compares with few other proactive initiatives in the contractual management field and the legal design stream of practice. But in general, except for some instances of functional private governance micro-systems such as Ebay or Paypal, governance institutions/schemes are poorly equipped to enable alternative strategies or to deal with complex (Gunningham & Sinclair, 1999), wicked (Termeer *et al*., 2015) and emerging problems such as the challenges of legal automation and the use of computational methods in the interpretation of rules.

SC allows contract-based strategic collaboration and innovation, and promotes relational sustainability. Smarter contracts are adaptive and less rigid in order to resist the impact of disruptive change (Cruz & Marques, 2013). Responsiveness in transaction design processes adds to the flexible handling of exchange, and for doing that, the SC approach is reflexive across the entire contractual cycle. A proactive contractual cycle would include the stages shown in Figure 1: planning (in consideration to principles and corporate governance goals, to permit alignment); negotiation and preparation of texts (transaction design, prototyping and iteration); the text/interface of the agreement (mediatized in digital transactions); and compliance or post-contractual adjustments (renegotiation), monitoring, and conflict management and dispute resolution stages when needed. While the traditional governance based on transaction costs economics and the basic contract management focus on the fourth stage (Williamson, 1981), the SC proposal would have greater governance capacities and become the most valuable during the second and third stages.

Changes in technology and the digital transformation put the quality of the regulatory governance of organizations to the test and created sustainability issues. In this respect, the capacities to produce and adopt smarter regulatory products (responsive, as a result of reflective processes, and resilient due to their adaptive and dynamic nature) become decisive. Sustainable governance is an expression of the vitality of systems in developmental studies (Voss *et al*., 2006), but also appropriate to corporate governance strategies, from the perspective of the relational view of exchange. Sustainability is about stability and processes that can be maintained without causing harm to a system or its parts, so in strategic governance by means of private contracting, it requires the identification and reduction of stakeholders' tensions and the pursuit of the general well-being. Such business strategies involve additional corporate social

Figure 1. Contracting cycle in contract and contractual management



Source: Original synthesis of a contracting cycle drawing in part from Jaakkola's brief (2004)

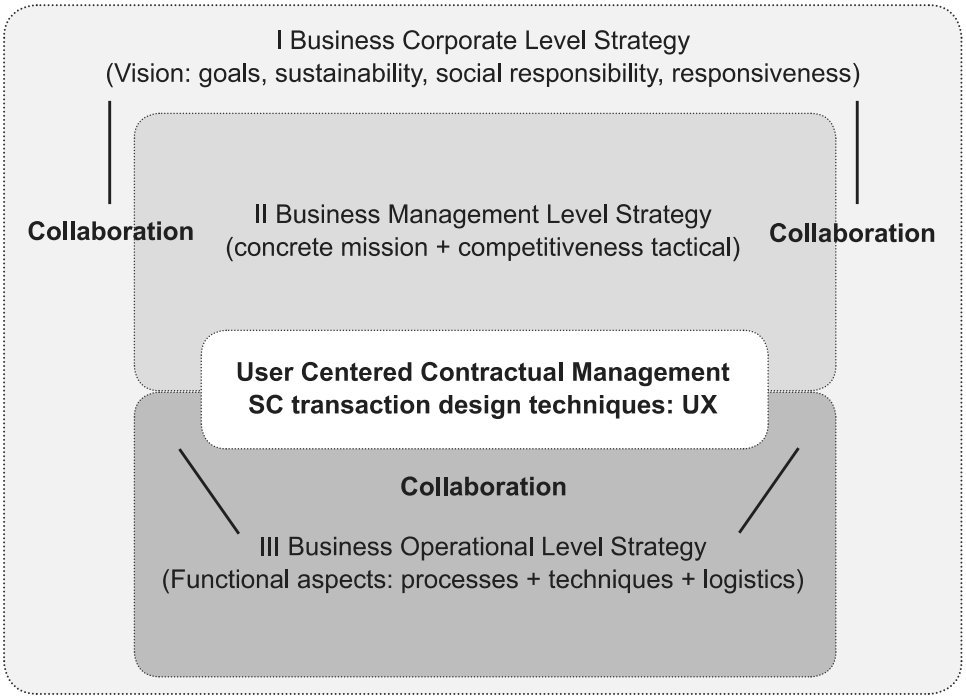
responsibility components, which support long-term viability of the socio-ecological trade system as well (Van Marrewijk, 2003). Corporate sustainability could also be seen to depend on collaborative, relational and proactive processes where better contracts could induce compliance in accordance with strategic corporate goals. The SC is a concept that contributes to reflexive governance concerning the values invoked by reflexivity: integrative judgement, careful justification of policies and goals, and legitimacy (Voß & Bornemann, 2011).

Legal innovation, interdisciplinary collaboration and professional contractual management are options for organizations to optimize the handling of operations while coping with external factors from the greater institutional and regulatory frameworks. Discarding the importance of these as proactive dynamic capabilities (Rindova & Kotha, 2001; Zahra & George, 2002) would be unresponsive to the requirements of the times, perplexing for some of the stakeholders, and can place companies at a disadvantage, at least in the digital markets.

Overall, under the dynamic capabilities approach, the corporate areas where SC governance capacities could become beneficial if embedded in contractual management processes are: risk management; transaction design for proper communication, association and engagement rather than control; and, intra-firm information management and coordination across strategic levels via self-regulatory documents. This integrated view of the whole regulatory system of an

organization reflects an instrumental and contractarian understanding of contracts (Van Oosterhout *et al*., 2006). In addition, to realize the potential of a smarter regulatory governance, the early participation of proactive lawyers is key, as it is to consolidate the legal strategic competences at every organizational level for internal relational alignment. Figure 2 illustrates where in the business strategy levels collaborative governance can be an advantage, and how it is initiated from above but nurtured by feedback from the operational processes at the bottom. Collaborative interactions between the organization and external stakeholders would affect consumer contracts at operational levels, alliances and partnerships at managerial levels, and investments and projects at the community at large from the corporate level. The governance capacities of SC can be said to be cross-disciplinary versions of the dynamic capabilities of enterprises (Nylén & Holmström, 2015).

Figure 2. Strategy levels and areas of collaboration



The transactional quality achieved by smarter exchange interactions may condition economic development, if synergies are achieved between normative systems, emerging contracting patterns, and technology. SC clearly is an integrative governance concept which can be applied to narrow interactions

and all components of purposeful exchange, in every organizational level, and culturally neutral, which makes it transferable. Contracts and transactions could be aligned with the values in policy and social discourse without interfering with the legal conditions of validity or the theories of contracts. Good contractual management is a capability that the emerging transactional governance by code such as the so-called 'smart contracts' cannot match, notwithstanding the enormous potential of these applications (Fairfield, 2014).

Private contracting may be the oldest self-governing activity to represent exchange and transactions and to engage agents in relationships where rights and obligations are created, modified or extinguished. Core to the function of contracts is to legally formalize these interdependencies according to a protective background established by the state, based on legal acts performed by capable individuals, voluntarily, and regarding licit and attainable goals (Mack, 1981). SC respects these rules and other limits set by law to the individual autonomy, but considers that empowerment rather than entitlement should guide the negotiation, formation, and interpretation of business contracts, especially if to impulse the digital economy and reduce the intervention of states in high volume and low impact exchange. At the same time, SC upholds the role of consent (freedom, self-governing, choice, and responsibilities) and mutuality (fairness, equity, and justice), as essential theoretical grounds to preserve from the legal doctrine (Mack, 1981).

Empowerment via functional governance competences is primordial now when the ICTs and their derived platforms and applications increasingly develop an independent normative influence on businesses and people's affairs (Kar, 2016). The legislator is likely to react the only way it can: producing laws, imposing protective requirements, substantial or procedural, and establishing limits (the duty to document negotiations, legal locks, etc.). This justifies the need for novel private regulatory initiatives to reduce, in a timely manner, the impact of change and to help to adapt to new formats and procedures independently. The convenience of a 'soft' intervention such as the redesign of interfaces sufficiently tackles neglected aspects of exchange, updates and improves the quality of transactions and may have the much-needed positive effects on digital trade for it to thrive.

Computational methods in contracting, mistaken by empowerment, may shake the foundations of the law, by reconfiguring the notion of freedom, and disabling all advancement in terms of consumer protection and contractual fairness achieved in the past century in Europe (Wilhelmsson, 2004). Automation will not be contained for long, in spite of this and the relational contracting strongholds

within management. This urges for legal UX and UXI work and smarter exchange processes to improve understanding and informed control over transactions. Automation should not happen in the absence of fully informed and explicit consent, for which human participation must be enabled, verified and safeguarded from unfair and abusive practices. The deployment and diffusion of SC practices would provide assurances for a continued human involvement in contracting.

3.2 Operationalization

3.2.1 Social and EU institutional backup for the SC relational proposal

Responsive governance schemes at the contractual level respond to the trade and exchange needs identified by reflexive process, but are also proactive and resort to purposeful innovation when conditions are favourable. Good understanding of the institutional environment (social, technological, legal, and cultural) provides context and a grasp of conditions for the successful deployment and diffusion of innovative proposals (Malerba, 2002, p. 257). This strong institutional knowledge characterizes relational contract theories and permits a well-informed exercise of consumer/user centred practices in contracting. Also, an ampler view of the complexities of the institutional environment informs regulators about the opportunities and constraints available to formulate more effective and diverse forms of social influence and control. This subsection introduces a short contextualization of the SC proposal with an overview about the basic social preconditions of viability and the formal legal and policy instruments identified in the EU that legitimize the approach.

SC relies on two assumptions about people's interests and competences, sufficient understanding and appreciation for collaborative exchange, and responsible self-agency (Solarte-Vasquez *et al*., 2016). Collaboration is described by Solarte-Vasquez and Rungi (2017) in contraposition to exclusion and competition to indicate relational, sustainable and inclusive values, while self-regulation, according to Ryan and Deci (2006) is a motivated, autonomous determination and decision-making competence, linked to wellness, productivity, and quality performance. Self-regulation in industry and business draw rules closer to agents enhancing information and understanding levels; in addition, it has been found that self-regulation may help adopters become more competitive, raising industries' standards (Commonwealth of Australia, 2000). Both conditions reflect advanced personal agency competences that validate contract-based innovation for the strategic advantage of organizations. Regarding trade-offs, increased responsibility during contracting could be the most noticeable to result from the institutionalization of SC practices for customers. Organizations, in

turn, should give up control in favour of more open, participative and inclusive contracting processes, and possibly change resource allocations to cover for the re-design of legal documents. If collaboration and self-regulation are not part of the social and organizational culture, behavioural change measures are possible, but at higher and more intrusive costs (Bilz & Nadler, 2013). It may be so that contractual innovation in environments highly dependent on legal standards may succeed only with the acquiescence of the legislator, by coercive and/or normative pressure (DiMaggio & Powell, 1983).

Although SC focuses on private regulatory initiatives, international and supranational organizations, states and other public entities remain key stakeholders. These establish the formal institutional background to which exchange activities must conform, or from where traders can derive a greater comparative advantage (Ahmadjian, 2016). The EU is an exemplary evolving structure especially fertile for regulatory innovation where values can be generally implemented, scaled and realized within the system at relative ease (Van Ham, 2013; for contrast see also Kerikmäe & Särav, 2015). The theoretical contributions of SC get comfortably legitimized within this institutional context regarding, in particular, the opportunities arising from the business-consumer and other interactions taking place in the DSM of Europe (European Commission, 2015b). The most relevant formal institutions to SC are the policies and regulations on better rules, the digital agenda, ADR and about self-regulatory mechanisms, and consumer protection.

While the EU has paid attention to issues of empowerment, self-regulation, access to justice, private redress, accessibility of use of ICTs, and the simplification of procedures, it had not addressed the impact of consumer experiences in trade until recently. The digital agenda has focused on consumers, and with it the phenomena of exchange acquires a new significance (EESC, 2017). The interest on regulatory quality and effective governance is seen from the early 2000s in the various initiatives to improve legislation inside the Union to strengthen the single market, following the comprehensive assessment contained in the *Mandelkern Report* (European Commission, 2001). In 2003, the European Parliament, the Council and the European Commission (EC) concluded an Inter-institutional Agreement on better law-making to improve the quality of regulations and in support of alternative methods as a way to implement the principles of subsidiarity and proportionality. In the Action plan 'Simplifying and improving the regulatory environment' the Commission mentions self-regulation among the appropriate legislative instruments, referring to the practices, common rules, codes of conduct and voluntary agreements which economic actors establish to regulate and organize their activities (Communication COM/2002/0278 final).

The EC has also stated in the DSM strategy that the challenges brought about by new technologies and hyper-connectivity require cooperative voluntarism or the participation of the community to sharpen the regulatory performance, create new relationships more apt to produce smarter regulations and to deliver societal goals (Communication COM/2012/746 final). It has become clear for regulators that norms must be fit for purpose and adaptive so they remain applicable when social, technical and political priorities change.

Other special developments of the regulatory capacity of trade agents fall under the category of better regulation and governance, such as initiatives on EU contract law (Cafaggi, 2007; Hesselink, 2015); consumer legislation and policies (Schulte-Nölke, 2015); access to justice and ADR in direct connection with the digital agenda and the DSM (Cortés, 2016); and electronic commerce, to name the few that can relate to the SC proposal. ICTs are now used to achieve these supranational goals, in the field of ADR with the ODR Regulation (European Commission, 2016), for example, but in respect to the smallest components of the governance of the EU, low intensity and consumer transactions, a lot of work must still be done. Nyman-Metcalf and Täks (2013) find that several suggestions in the areas of legislative improvement and simplification qualify to various degrees for automation, and emphasize on that the use of ICTs can help in almost any domain (Nyman-Metcalf & Täks, 2013, p. 268).

More contracting and contractual management rules and policies are scattered across in normativity of various kinds but lately all connecting to the DSM, where implementing independent contracting models like SC would be swift and empowering (Kar, 2016). New self-regulatory and co-regulatory governance models emphasize the role of private rule-makers who may gradually become institutionalization agents in their sectors. Therefore, industry associations, standardization bodies and companies must be better equipped to manage legal issues, and to develop novel exchange strategies.

The EU has promoted *smarter* regulation and more intelligent governance methods, inspiring reforms across the continent. For example, in 2009, the European Economic and Social Committee issued an opinion on the contributions of proactivity to better regulation (Opinion 2009/C 175/05). The text includes suggestions about collaboration and self-regulation in terms of communication and participation adjustments, such as drafting rules as readably, comprehensibly and straightforwardly as possible, and in close collaboration with their users. To ensure the connections between regulation and real-life problems, the opinion recommends opportune and effective participation of stakeholders in a continuous dialogue, which closely resembles an exercise of reflexivity

(Baldwin & Black, 2008). In the same line, the opinion states that social and ethical aspects should be part of impact assessment processes during legislative procedures, with greater attention to the opportunities for the promotion of freedom of contract, self-regulation and co-regulation when adequate.[1] As promoted by SC for contracting, the legislator is supposed to run quality checks to make sure that normative information is well presented, accessible, and eases compliance, tying up with other simplification efforts supported by the EU mentioned above and rules on consumer contracts (Directive on electronic commerce, see Directive 2000/31/EC).

The EU agenda for growth, digital and more consumer-centered, aims at restoring confidence in the economy, helping the empowerment of consumers and their association with other economic agents to facilitate sustainable policy synergies. Novel contracting practices can provide impetus to the DSM, especially if the social and consumer protection focus is maintained (European Commission, 2015a; 2017). SC matches and complements EU legislation and policies, tackling some of the problems that gave rise to the consumer protection regulation in the first place such as the issues of information asymmetry. Creating trust in non-traditional contracting processes is a challenge, but this may be the simplest way to close the gap between the expectations of the public and the capacity of public and private governance schemes to meet them. Transaction design revises formal agreements to structure robust governance models representing the interests of the stakeholders, able to withstand the difficulties of change and uncertainty. Disputes and transaction costs about the interpretation of contractual provisions may be dimisnished as a result (Schwartz & Scott, 2010)

The complexity of the EU institutional environment system could limit the development of alternative contract formats, and SC, because of the contradictions that arise. One is the EU's excessive reliance on laws, which opposes the declared intent to build more self-regulatory capacities and means of governance. On the possible scenarios for regulatory improvement, the European Commission still highlights risks and the difficulties of enforcement and on the consumer acquis, promotes more consumer legislation. Instead, by SC standards, the most important ways to ensure consumers' rights, especially to optimize digital exchange, are empowerment, information management and mediatized human interaction, and contractual freedom.

The last institutional aspect to mention is the development of the legal profession.

[1] See more on the Report on The Current State of Co-Regulation and Self-Regulation in the Single Market (CESE 1182/2004), and the Opinion on The Priorities of the Single Market 2005–2010 (CESE 376/2005 of 7.4.2005, point 3).

Technology has affected the provision of legal services as it has all other fields giving rise to a growing legal tech movement which has succeeded like no other before in creating awareness about the need to transform lawyering methods. Greater digital skills, digitalization of routine tasks, simplification and legal informatics updates such as 'legalware' development for big data analytics and other applications are in high demand. In contrast, the interest among lawyers to encourage creativity and innovation in non-technical areas, is less noticeable. Legal standards are still used authoritatively, in a strong competitive manner, distributing and excluding; and incentives for antagonistic dealings continue to exist (Hollander-Blumoff, 2016; Menkel-Meadow, 2017). Legal education has not changed significantly either, despite the interest in reforms (Menkel-Meadow, 2013); the same can be said about the judiciary and other dispute resolution scenarios. The strengthening of the technical literacy of practitioners could distract from looking at the emerging modes of thinking that really affect private governance patterns, legal theory and some of the most critical aspects of lawyering (Feigenson, 2014; Jackson, 2016; Solarte-Vasquez *et al*., 2016).

In sum, the EU normative context is an innovation-friendly governance scheme where the SC relational conceptualization can be framed, and related to a concrete legitimizing institutional backup. The EU itself is an example of adaptability; albeit constant transformations, a fully functional versatile and inclusive multi-layered structure is preserved throughout, without disturbing the fundamentals of normative integrity (Stephenson, 2013). The EU encourages a wide range of stakeholders to model normative expressions and participation in scalable schemes of governance. This choice of context does not deny limitations, but underlines the diverse institutional enablers permitting the implementation of the smart proactive (reflexive, responsive, human-centered) relational, sustainable approach to contracting at hand.

3.2.2 SC Principles and UXI factors in transaction design

Transaction design principles

The SC approach formulates a coherent and functional contracting strategy that unifies values into guiding principles, and integrates basic standards in legal drafting, UX and UXI essentials drawn from the field of Human Computer Interaction (HCI). The principles relate to the characterization of the approach, in pairs. SC is an operationalization of the relational theory/governance of exchange, founded on the same core propositions or *principled*, and with special interest in *collaborative* contracting models. The *strategic* nature of SC and its *proactive* developments are the result of risk management considerations,

and aim at alleviating the costs of poor drafting and antagonistic contracting processes. Finally, the increasing *interdisciplinarity* and *technology*-driven support to lawyering processes inspire a truly transformative movement combining legal tech and innovations.

Principled. SC processes are purposeful and take into account the interests and needs of all parties, in accordance to the conflict management and dispute prevention and resolution nature of the concept. Methodologically speaking, SC aims at maximizing mutually beneficial outcomes on the basis of well-calculated and substantiated choices. These are more demanding and complex contracting processes, because they are relational, but also more creative, participative and engaging. The problem-solving style in integrative contracting rules out some of the distributive (non-cooperative) bargaining incentives of traditional contracting and recent automation trends.

Collaborative. In principled and integrative exchange parties are helped via empowerment, and viewed as associates in determining how to allocate rights and assign responsibilities. This reflexive and responsive mode of governance follows corporate mission trends on sustainability and meets policy standards and the expectations of the participants in digital trade environments. The flexibility of the SC techniques is in part about the use of alternative formats, texts (visual, graphic, augmented, lean, etc.), and features, to accommodate contracts and transactions to the needs of the agents. This 'UXI-fied' relational contracting approach is a centrepiece of the SC contribution to organizational economics, that does not dismiss the transaction cost economics considerations dominating the empirical study of contracts (Macher & Richman, 2008).

Strategic. Smart exchange practices align with corporate level goals in terms of sustainability (long-term survival), prosperity and socially responsible growth, on the basis of stakeholders' satisfaction, regulatory flexibility and technical and social innovation. Managers may bring these higher-level goals from the corporate level onto business operations through contracting, and across the organization in internal documents and communications. Strategically speaking, the logic of smart regulation, public or private, includes the responsible, autonomous (self-regulatory) use of multiple instruments, and with the participation of more actors than the traditional ones which are presumed to be closer, interpret better and react faster to the regulatory needs of society (Gunningham *et al.*, 1998).

Proactive. SC transaction design techniques applied normative relational documents (regulatory texts, contracts, codes of conduct, transactions, etc.) are oriented towards prevention and the creation of incentives for compliance

and satisfaction. This way of lawyering follows naturally from the greater understanding in collaborative strategies, of the needs and interests of the stakeholders and the regulatory environment. User-friendly transaction design solves understanding deficiencies and should improve trust in legal relationships (Berger-Walliser *et al.*, 2017).

Interdisciplinary. Smart contractual management differs from other approaches by engaging experts and representatives of the main stakeholders from the fields of business, law and ICTs, bridging interests and harmonizing languages, understandings and methodologies. Broader regulatory influences and interactions and the legitimation of different groups require professional and diverse backgrounds, and taking into account standards different from the law and economics, which is the case of contract theories, already under strong strain to meet the requirements of the global digital economy (Braithwaite, 2011).

Technical. This last principle involves being up to date to deliver confidently at the legal, managerial and technological levels considered by contractual management. Professional cooperation unifies technologies and methods that can enhance exchange and improve performance without compromising standards. Mixed expertise, partnerships, and systemic digitalization may address the innovation lag afflicting the legal profession. Shifting from competitive and antagonistic contracting methods towards more amicable, usable, and more likely to minimize the risks of disputes has no drawbacks. Proactivity for SC requires the support of ICTs solutions to reach out in tech-savvy communities, where collaborative features can be embedded in legal products, experienced, and tested using HCI methods. Standardization, professionalization, and digitalization are acceptable means to upgrade contracting but to avoid formalisms that may bring the contracting activity back to stiffness and unresponsiveness, a very careful balance should be found between the adaptive character of SC and the shaping standards, as well as the ones already in place.

SC principles shares with Mandelkern's proposals aspects on accountability, accessibility and simplicity. The dimensions or indicators of quality in regulatory processes impact assessment and consultation, according to the report, reflect relational governance as well as principled and collaborative principles. Quality of simplification, strategy for access, design, and quality assurance fall under the proactive, strategic and technical principles of SC.

UXI factors in transaction design

The UXI taxonomy of factors for the drafting and design of legally relevant texts also belongs to the functional and tactical aspects of SC, and a very recent

contribution of the approach to the legal design 'toolbox'. Originally, UX is a quality attribute defined in HCI by the ease of use of designs, measured by the simplicity and effortless interaction between users and systems. Communication and accessibility improvements may enhance the UX of binding texts without degrading agreements or transactions, except in instances of non-conventional representations fully replacing language: the validity of visual legal categories is not merely a UX concern but a matter of legal theory and semiotics (Solarte-Vasquez *et al*., 2016). Nonetheless, both the layer of the graphic interface in mediatized contracts and other regulations for display on a device, and the underlying legal relationships of legal texts, static or dynamic (interactive), will increasingly be defined by their UX and accessibility.

The boundary object concept has been used to tie contractual management to UX and information architecture (Passera & Haapio, 2013). It also emphasizes the recommending power of proper knowledge communication as legal interfaces display interaction possibilities to users/contracting agents. Interfaces allow shared meanings and simplify the complexity of the system they represent, ultimately facilitating understanding and consent. Contracts are typical boundary objects to be shared by groups but likely to be viewed and used differently.

Although the effects of visualization may result in misrepresentation and liabilities, also the use of persuasion techniques is in question, in here the assumption is that contracts and other legal documents are valid, convey accurate information, and induce compliance to the satisfaction of all parties. Some adjustments for cognitive enhancement constitute a meaningful advancement for the improvement of regulatory quality, and these are all related not to adorning but simplifying and leaning legal texts. The findings of the first EU study on the consumer attitudes about regulatory complexity of the general terms and conditions of contracts, corroborate the need for usability adjustments such as readability, simplicity, accessibility and information architecture and visualization. (Passera & Haapio, 2013, p. 13)[2]

Table 1 summarizes the combination of drafting standards and UX principles proposed by Solarte-Vasquez *et al*. (2016) when the SC was initially introduced. This selection of usability factors composes a practical checklist to be used on transactional design during contracting processes.

[2] The study also inquired on formats to present consumer information, addressing the information and knowledge architecture issues including the availability of information in pre-contractual stages, and accessibility of graphic text and icons.

Table 1. Abridged taxonomy of UX factors for transaction design

Efficiency	**Effectiveness**	**Satisfaction**
Readability	*Completeness*	*Awareness:* taking notice
Consistency	*Collaborative:* perception of mutual gain, emotional incentive	*Understanding:* knowing
Organization	*Communication effect on consensus*	*Consensus:* willful participation, engagement and commitment
Information visualization	*Pleasantly memorable:* attention, memory and emotions	*Compliance:* associative action
Learnability	*Sustainable*: relational resilience	Positive exchange experience
Flexibility		Sustainability of agreements
Control of the interactive and the static layers		

Source: UX taxonomy applicable to transaction design adapted from the 'Combined taxonomy of usability components applicable to transactions' in Solarte-Vasquez et al., 2016.

The taxonomy combines drafting quality rules, and UX and UXI standards into a set applicable to transaction design. Three traditional quality attributes are placed at the primary level of UX in every smart system assessment: efficiency, effectiveness and satisfaction. Efficiency is determined by the relationship between inputs (costs and effort) and outputs; effectiveness measures the results or accomplishments facilitated by the efficiency factors, according to the goals of exchange and UX standards; and satisfaction, a novel consideration in contracting, resulting from the quality of the process and reflected in user engagement, and the validation (agreeability and acceptability) of the interface and the underlying interaction. SC adds a focus on collaboration, less stressing, friendlier transactional experiences, and the inclusion of some alternative texts such as screened visual elements. It should be highlighted that the legal requirements for the formation of binding agreements do not need to be enhanced by design, but could be communicated more clearly.

Readability, the first efficiency factor among the HCI usability standards, is the most important in contract drafting for being a basic condition for communication and understanding. Readability relies on language conventions that permit users the accurate identification of information in texts or images; hence, agreements cannot be said to have freely formed when agents are misinformed or not informed.

The contractual usability of legal documents is reduced by default; they are hard to read due to the specialized language and unique categories of the law. Very few supporting visual conventions have been codified, which is problematic for the establishment of visual representations of legal knowledge as accuracy cannot be ensured.[3] Nevertheless, lean contracting or the use of simplified texts, plain language and information visualization are other acceptable techniques. Next to language come formatting rules such as indentations, headings, labelling, etc.; layout tactics to highlight information; and size and appearance arrangements to help sharpen meanings. *Consistency* and *organization* are UX standards from HCI that may support the unity and coherence of legal texts (design, language, navigation, etc.), and decrease cognitive tensions by providing a logical flow of ideas. These factors amount to *Visibility*, that recommends the placement of content and commands at immediate reach, without noise. In interactive interfaces, the user should be able to detect functionalities at all times, when a design is *Understandable*, navigation becomes intuitive even to novice users. *Information visualization* in contract drafting holds a readability interest but deserves to be placed apart because of its potential to deliver alternative interfaces.[4] The current knowledge on legal visualization is only forming and focuses mainly on experimental design studies (Passera, 2012). *Learnability* measures the speed at which a design becomes familiar to the user allowing fast completion of tasks (Ziefle, 2002). *Flexibility* and *user control* over interfaces are close to adaptivity and refer to personalization choices at the convenience of users. In SC the functionalities and affordances of the system should not be fixed, irreversible or imposed because the freedom of human agents is needed to prevent the system from regulating on their behalf. The UXI would not be upgraded if agents are disabled from modifying the agreements, correcting mistakes or changing their mind (undoing functions).

Contractual documents gain in effectiveness when the design process is successful, firstly because the text is comprehensive. The underlying relationships and the essential components of the contract should be identifiable in the interface, so *completeness* refers to the integrity and relevance of the content that is made accessible to users. Secondly, when *Communication* is improved *through design,* and meaning is accurately conveyed using appropriate data enrichment techniques. Lastly, if the upgrades become *pleasantly memorable*, improving attention, memory and producing positive emotions, so that strategy, transactional tool, and interaction can be expected to be *sustainable*.

[3] The Creative Commons logos and traffic signs are some of the very few (http://creativecommons.org/).

[4] Precision and recall are characteristics of data representation about correctness and completeness of graphics in information visualization (Tufte & Graves-Morris, 1983).

Satisfaction is a quality attribute about the exchange experiences and interactions of agents. The factors that define satisfaction result from effectiveness, producing genuine participation, understanding, empowerment and supporting contractual responsibility. The perception of the parties in traditional contracting is not as important and compliance is secured with remedies and sanctions. SC, in contrast, assumes that most of the times, promises are kept if contractual processes are responsive, flexible and trustable, and when all parties can benefit from collaborative interactions. Positive disposition and emotions could also be induced by pleasant *aesthetics*. Minimalistic designs have been found to help improve interfaces, discourage distractions and even be promotive of engagement (Tufte & Graves-Morris, 1983).

Smart contractual management strategies have no apparent drawbacks but the many expected advantages need to be verified empirically, across organizations, sectors, industries and cultures. Non-legal values shaping the evolution of cultures, communities, organizations and individuals must be factored into the analysis of legally relevant interactions. *The overall satisfaction* with enhanced exchange experiences can be measured using the parameters recommended in HCI studies and considered accomplished when the interfaces have been duly transformed into relational tools that raise people's *awareness*, help *understanding*, inform *consent* and induce *compliance*.

Transactional design practices would smooth the transition to smart contracts and other systems of automated agency that can be no longer ignored by the social and legal sciences. In the meantime, human-centered design could help the institutionalization of collaboration in exchange. Businesses that formulate strategies with collaborative components contribute to the organization's sustainability. Based on usability slogans, other innovative possibilities can be anticipated, like the creation of multifunctional contracts of escalating levels of difficulty, different versions in layers with adaptable interfaces, controlled by the users. Alternatively, the generation of functionalities, affordances, and visuals to explain and clarify transactions may become automatic, generated when the system perceives the need to do so.

3.2.3 Smart contracts

SC fundamentally differs from smart contracts in respect to its characterization and operationalization, but proactive contractual management practices and automated transactions are compatible tools, with specific functions and applications in the digital markets. Smart contracts are not defined by the law but the literature generally as software agents/code, agnostic to legal values or

ideologies, which fulfil obligations by command, and are enabled to execute rights in full control of certain assets (Szabo, 1997; Christidis & Devetsikiotis, 2016; Koulu, 2016). The so-called smart contracts are often nested in distributed data structures, within shared ledgers,[5] and do not necessarily derive from or refer wholly to a legal agreement. The code is inexpressive, incomplete and not amenable to the relational theory of exchange if standing alone. In contrast, the relational approach of SC may help transform the exchange environment from what it is: restrictive, antagonistic, contentious, competitive, divisive and costly, into participative, responsible, responsive and collaborative, and is developed in conformity with the existing legal frameworks and values.

Smart contracts are not the result of smart contracting processes. While SC revives the interest on contractual freedoms and contributes to sociotechnical systems, smart contracts could deprive the parties from having control of automated transactions. For example, smart contract commands are irreversible (Rouvroy & Stiegler, 2016). Technically speaking, automation is unproblematic: blockchains can be embedded with data and commands which are activated upon pre-established conditions (inputs) to produce unambiguous results (outputs). Automation adds digital efficiency to the problem of enforcement and secures record-keeping, but efficiency is not the only or the most important concern of legal procedure theories; in fact, it can be argued that any contemporary legal system would be irritated by the notion of unrestricted efficiency overriding other and more complex values that need to be upheld such as the fundamental rights to freedom and property. The procedural justice pursued by due processes, according to the Rule of Law doctrine is substantially more important, due to a notion of fairness alien to computational methods that balances powers, provides assurances of respect for equality, transparency, and a reasonable chance for agents to participate in operations that could modify their legal rights and obligations (Kerikmäe *et al*., 2016). Furthermore, the due process stands against swift and summary proceedings. Smart contracts may be optimal execution management code, decentralized and fully autonomous, able to increase transactional accuracy, but not inherently fair.

Smart contracts are claimed to create incentives to make new trade relationships possible in non-human interaction inside the growing ecosystem of 'smart' devices such as in machine-to-machine commerce (Christidis & Devetsikiotis, 2016). Examples would be self-recharging devices/appliances and cars which perform their own periodical revisions. However, it would be a limp argument to

[5] Some of the most popular distributed ledger platforms are: AxCore (https://axoni.com/), Digital Asset Platform (http://digitalasset.com/), and Ethereum (https://ethereum.org/).

state that because distributed systems are self-executing and tamper-proof, trust is not necessary. Much to the contrary, the viability of these systems requires an enormous amount of trust in the enveloping agreements and it is hard to ensure the faithful correspondence between automated transactions and the agreement they aim to secure. Technology cannot understand in the sense of a state of mind or intuition; code does not detect whether agreements were fixed onto blockchain mistakenly, fraudulently or by force. The unrestricted dissemination of smart contracts could unleash regrettable chains of events, presuming everyone is well informed and self-reliant. Smart contracts are ill-suited for relational exchange and collaborative contractual management strategies. They resemble discrete transactions and do not admit proactive elements unless their usability is improved with user-friendly templates allowing human involvement. Some template ideas with simplified interfaces have begun to emerge, aiding some contractual stages rather than handling the whole lifecycle of contractual processes (Clack *et al*., 2016).

Adding a complex algorithmic layer to complicated legal texts and documents does not increase understanding, much less when using misleading characterizations. Moreover, the metaphoric use of contractual terminology to refer to smart contracts may be thought to justify enforcement, possibly rendering some transactions illegal. Smart contracts proponents must invest on the UX and UXI of these computational tools, and clarify that smart contracts do not equal complete legal agreements. Non-usable automated systems are likely to deepen asymmetries and structural conflicts. Consequently, a transition from welfarism and protectionism to a fully self-regulated scheme cannot be imposed or justified by any legal system in the absence of guarantees for groups with disadvantages, lack of competences and unhabituated or incapable of self-agency. The institutionalization of SC practices may provide the missing assurances in contracting processes where automation would only occur if consent has been verified or when human participation has been enabled, and safeguarded from unfair and abusive practices. This is why this paper argues that smarter contracting practices are key in transitioning from digitalization to these self-executing blockchain technologies.

Table 2 summarizes the areas where work on further specification is warranted to differentiate both concepts and research areas.

Table 2. Conceptual differences between smart contracting and smart contracts

Criteria	Smart contracts 'smart contract code' -'contractware'-	Smart contracting
Definition	Distributed system for automated execution of events according to contractual terms, typically contained on a shared ledger. Comparable with digital management rights	Principled legal products and services design activities focused on usability and UX of interfaces with legal relevance
Scope	Supports some stages of the lifecycle of a contract	Covers all stages of the lifecycle of a contract
Governance approach	Promotes a discrete transaction view of contracts	Operationalizes the relational view of exchange
Technology	Computational. Blockchain technologies mainly	Specialized contractual management strategy supported by digital technologies
Purpose	Efficient execution, self-organizing, self-help, compliance, independence from state control	Efficiency, effectiveness, satisfaction, sustainability (relational), dispute prevention
Main characteristic	Smart: automated by electronic means	Smart: strategically sound, astute, scalable onto electronic formats, transferable, sustainable, friendly, collaborative, relational, proactive, socio technical (supported by technology)
Results/outcome	Preconceived outputs, enforcement, accuracy. Examples: asset transfers, conditional charges, etc.	Multi-dimensional, not necessarily a deal or the completion of a contractual provision, dynamic performance and execution (may be transformed according to unforeseeable events, renegotiation, etc.)
Features	Perfect implementation leaving no room for errors; unstoppable; tamper-proof; all conditions must be decided beforehand; operational semantics, freedom 'in' but not 'out' Other attributes: Security, anonymity (to some extent); data integrity (record-keeping); decentralized and independent; innovative	Innovative dynamic conflict management; traditional enforcement; susceptible to human error; does not consider a contract can determine beforehand everything needed to know about a legally relevant relationship; the literal interpretation method is one of many ways to process text; treats interfaces as boundary objects; requires expertise on legal pragmatics); freedom 'in' and 'out'
Information and knowledge management aspects	Indifferent to legal requirements for the formation of valid agreements. Inexpressive, not user-friendly. Templates proposals aided with basic graphical user interfaces may help solve this problem[6]	Usability criteria is a key component. Focused on creating compliance incentives by increasing understanding and reducing misinterpretation and information asymmetries
Drawbacks	Transaction costs economics approach, motivates adversarial thinking, wasteful, no scalability, pricey, tamper-locked, distributed but not collaborative	Not binding, requires institutionalization efforts which increases investment costs (change), contracting and lawyering styles are slow changing institutions
Current challenges	Usability and synergies between the social and the technical components of this technology; uncertainty on whether the parameters for execution faithfully represent what was agreed by the parties.	Dissemination, systematization and unification of theoretical developments and the practice. Slow consolidation of the research field, and the automation rush.

[6] A high-tech industry consortium (http://entethalliance.org/) launched in February 2017 a joint research project to explore the applications of Ethereum to a wide spectrum of transactions.

Source: Adapted from the notes on Smart Contracting presented in the Computation methods in Law Workshop at Ulm University in November 2016 (http://www.uni-ulm.de/mawi/cml/).

Blockchain technologies and systems using AI are soaring in popularity in a haste that reminds of the problems of the social interconnected technologies: the content of the Web is full of mistaken and misleading data and imperfect code, produced and used by biased people who do not legitimately represent others, but influence decision-making on behalf of everyone. AI is bound to reinforce the inherent biases present at programming, leading to unintentional neglect of fundamental rights and ongoing sociotechnical processes such as increased inclusiveness, social responsibility or sustainability (Barocas & Selbst, 2016). Crawford and Calo (2016) described the situation as follows: "AI research has a blind spot that needs to be addressed by a social system approach to automated decision making, where the AI system undergoes a test of how the system is interwoven with social processes, ethical principles and legal regulations."

Rejection of AI solutions and blockchain technologies in law would not be reasonable, but building a governance system where the problems generated by these tools are properly addressed is a must. Conventional theories and methods are poorly equipped for dealing with automated exchange and a network of autonomous devices is growing without having yet framed their applications in consideration to the affected social systems. Loosely attributing collaborative tags to machines and suggesting these could, on people's behalf, perform personal human activities such as understanding, agreeing, accepting and contracting is misleading. This is in part why automation is a reason for privacy, security, and trust on the Web to continue to be critical research issues (Wagner, 2016), not to mention the challenges that arise in view of the built-in indifference to individuals and minorities that algorithmic properties and big data unintentionally display (Barocas & Selbst, 2016).

In little more than a decade the legal tech movement has raised awareness about alternative mind-sets and the need for changes and innovation in law and the legal profession (Susskind & Susskind, 2015) but the prevalent updates are superficial. Lawyers are being helped to do what they have always done with 'legalware' such as storing and sharing contracts, and data analysis (see more on this and other applications of digital technologies in law in Kerikmäe & Rull, 2016). Machine learning and the implementation of computational methods in law has barely been addressed or problematized in spite of the many areas where fundamental values could be affected (Roach, 2016). Nevertheless, the implementation of computational methods in the legal sphere is on the increase,

and before or along with the automation of the law, UX and UXI developments will become necessary. Usability should not be mistaken for a trivial and secondary trend. Transaction quality factors are substantial to the existence of law by code and may determine the validity of a deed. The future does not end in automation, other types of texts and formats, voice and sound conventions may soon be found to constitute binding legal conduct. Contracts, transactions, pacts, and other legal acts could eventually be embedded on melodies, drawings, or even movements if unambiguously modifying relationships, or if those expressions are given the power of transforming rights and obligations. For the time being, imperfect human judgment and control seems much better than none over the growingly smarter contracts of the Internet of Everything (Hussain, 2017).

4. Concluding remarks

This paper unpacks the SC concept from characterization to specification, consolidating dispersed theoretical developments in the field of proactive law, business law for the digital markets and sociotechnical systems. The concept includes a proactive, relational and sustainable approach, proposed for strategic contractual management processes and the private governance of trade. The proposal challenges the traditional governance capacities of private exchange models to adapt to digital markets, and makes contributions to the theory and practice of relational exchange and trade that are manifold and cross-disciplinary. SC stems from the most advanced developments of the conflict management and dispute prevention field. It operationalizes Ian Macneil's original relational theory weaving contracting with threads of other sociotechnical exchange realities at different levels such as digital transformations and automation. SC relies upon few essential rules from the legal system and other formal institutions, and develops heuristics for contract drafting and transaction design through principles and UX/UXI factors.

The operationalization of SC as a relational theory is possible in environments where collaboration and contract responsibility or self-agency as the minimum conditions of viability and an institutional legitimizing framework are available. Awareness of these values would help the adoption and inspire the diffusion of the practices.

The institutional regulatory system and exchange environment of the EU, where the proactive movement has been officially promoted, legitimizes the

SC approach. If the perspective spreads across the DSM, it is likely to increase consumer empowerment and with it, strengthen confidence in the European digital trade and business environment. The operationalization aspects of SC suggest to build into legally relevant exchange consumer protection by design, following the principled functional components of the proposal. The SC concept needs to be contrasted with smart contracts for a clear and detailed specification. The former is about improving the quality of regulations and applies to any legal document, deal, contract or transaction, automated or not, while the latter is a digital entity using a metaphor of widespread acceptance to refer to code or computational tools and self-executing transactions, preceded or not by valid agreements. SC could improve the usability of smart contracts and both may be integrated in digital contractual management but remain categorically differentiated from the foundational level.

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