

# SMART CONTRACTS – NOT SO SMART LEGAL PROFESSIONALS?

Charlotta Kronblad / Helena Haapio

PhD Candidate, Technology Management and Economics, Chalmers University of Technology, SE  
chakro@chalmers.se; <http://www.chalmers.se>

Associate Professor of Business Law, University of Vaasa / International Contract Counsel, Lexpert Ltd, FI  
helena.haapio@lexpert.com; <http://www.uva.fi/en/profile/?view=1041511> / <http://www.lexpert.com>

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**Abstract:** *Smart contracts are becoming all smarter and increasingly available. Yet there seems to be a reluctance in mainstream industry to actually use them. It seems hard to convince general counsel, law firms, and purchasers of legal services to implement smart systems. This is a challenge for the providers of smart technology. The technology is not the problem – successful implementation is. The aim of this paper is to explore the resistance and gatekeepers within the legal industry, potentially resulting in a better understanding of how to overcome the barriers and use available smart technology.*

## 1. Introduction

Contracts are an inseparable part of commercial life. The internationalization of business and new technologies have brought new business models with new contract types, but the substance, language, and fundamental look and feel of contracts have remained the same for decades. For the most part, contract drafters' old habits, styles and templates have followed self-reinforcing historically generated paths. Until recently, not much has changed in terms of the formation, design, or execution of contracts.<sup>1</sup> Genuine contract innovation has been rare. In recent years, voices calling for a paradigm shift in contracting have started to surface. In response to the growing complexity of contracts, new approaches such as simplification, visualization, and user-centered design have been introduced to the world of contracting.<sup>2</sup> In 2012, Harry Surden published an article on computable contracts.<sup>3</sup> Then smart contracts entered the scene.<sup>4</sup> All of a sudden, across countries and industries, lawyers and coders are hard at work on developing entirely new contracting solutions.

In our previous work, we have explored specific issues of smart contracts: how we might make smart contracts work for not only machines but also for people,<sup>5</sup> and how information design and visualization might be used to enhance contract design and communication more generally.<sup>6</sup> We have also explored the challenges in implementing digital technology in the legal industry.<sup>7</sup> In this paper we combine these areas and ask some new questions: now that smart contracts and new contract design patterns<sup>8</sup> are available, why do we not see

<sup>1</sup> HAAPIO, PLEWE & DE ROOY 2017, p. 1.

<sup>2</sup> See, e.g., WEATHERLEY 2005, HAAPIO 2013(a) and 2013(b), WALLER ET AL. 2016 and 2017, and PASSERA 2017.

<sup>3</sup> SURDEN 2012.

<sup>4</sup> The idea of smart contracts was introduced by Nick Szabo already in the 1990s (SZABO 1997). It took a while before smart contracts became the hot topic they now are. – For us, as for, e.g., CLACK ET AL. 2016 and HAZARD & HAAPIO 2017, it is important that the smart contract is also a legally enforceable contract, a *smart legal contract*.

<sup>5</sup> HAZARD & HAAPIO 2017 and HAAPIO, PLEWE & DE ROOY 2017.

<sup>6</sup> See, e.g., WALLER ET AL. 2016 and 2017, PASSERA 2017, HAAPIO/HAGAN 2016, and HAAPIO 2013(a) and 2013(b).

<sup>7</sup> KRONBLAD 2017.

<sup>8</sup> HAAPIO & HAGAN 2016.

them used on a broad scale? Why does the discussion on smart contracts, automation, etc., mainly reside within the tech-accepting section of the industry, and why does it not gain general acceptance? As mentioned in the IRIS 2018 call for papers, much has happened in AI and law over the last 30 years, however, it has been largely ignored by legal practice. We seek to understand why.

This paper explore factors that hinder successful broad implementation of smart contracting and the actors that serve as gatekeepers for general industry acceptance. The goal is to understand how to overcome these barriers and implement available smart technology. We also discuss drivers enabling this change – a change that we believe is not only inevitable, but also beneficial for both the legal profession and its clients.

## 2. Theoretical frames: barriers and enablers of implementation

Broader change and industrial transformation never occur from inventions alone. Inventions need to be commercially applied and become implemented within the greater market. As recently pointed out by Gaia Bernstein, «Economists distinguish between invention – the technical discovery – which is the first stage of the technological cycle, and innovation – the first commercially successful application of a new technology – which is the second stage of the technological cycle. The final stage of the cycle is diffusion – the technology’s widespread adoption.»<sup>9</sup> «While many legal resources are directed at innovation by focusing on the appropriate incentives to induce individuals and corporations to invent new technologies, relatively few are channelled to the subsequent phase of the technological cycle – diffusion. The neglect of the diffusion stage is crucial because the promotion of progress depends not only on fleeting moments of brilliance or even excruciating processes of development; progress is closely tied also to the technology’s diffusion process. The goals of promoting innovation can be accomplished only if people adopt and use the new technology.»<sup>10</sup>

Smart contracts are now reality: the technology is invented and successfully applied in the context of legal services. However, this technology is yet to be adopted in a wider sense. The phase of diffusion is yet to be completed, and we encounter specific challenges in the context of the legal industry. Several scholars have attempted to explain what barriers there are in general in implementing new technology. In *The Innovator’s Dilemma*,<sup>11</sup> Clayton Christensen explains that dominant players tend to oppose implementation of technology and tools that may disrupt the current business model, regardless if it would lead to success in the long run. Companies are blinded by their focus on the current profitable business models and fail to see the potential in innovation and change. Their focus on current business will also direct their resources to the established profitable market. Thus, dominant firms will only prioritize new technology if their customers are expressing a demand. As a result, radical change is often initiated by newcomers that develop products and services for a lower market segment, where the dominant players are absent. Disruption therefore often comes from below. Translated to the legal industry, we can expect change to initiate at the lower segments of the market, where the dominant actors are absent and where there are benefits from standardization and scale.

While Christensen looked at barriers of implementation generally, Richard Susskind focused on barriers specific to the legal context. Susskind in an early paper on Artificial Intelligence (AI) and law identified four phases in the evolution of the field of AI, where we in the mid-1980s would have entered into the fourth and final stage of commercial exploitation, where market actors explore the developed technology to gain profit.<sup>12</sup> In this article Susskind identified six obstacles to industrial implementation of AI. The first is the lack of knowledge engineers; a shortage of broadly competent individuals who understand both the digital and the legal areas needed to develop the tools. The second obstacle is the lack of domain experts; legal experts willing to put in the legal content to the systems. For any system to become knowledgeable at an expert level, the

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<sup>9</sup> BERNSTEIN 2010, p. 2272 (citations omitted).

<sup>10</sup> *Id.*, at p. 2291 (citations omitted).

<sup>11</sup> CHRISTENSEN 2013.

<sup>12</sup> SUSSKIND 1990, p. 108–109.

real experts of that field need to devote time and invest in the new and unproven tool. In the legal industry, this becomes especially challenging as most lawyers sell their time by the hour, making the relative cost of the investment explicit. The third obstacle is the lack of a tested proper method of implementation; if no one has tried this in the past, there is nothing to learn from. The fourth is the lack of tools specifically devoted to the tasks of the field, and the fifth is about quality control issues. When you cannot test the reliability and accuracy of a system, it is hard to make the argument for implementation. It is hard to push the use of something not fully tested and proved, especially in the legal industry, as lawyers are risk avert and trained to identify and avoid risk. The sixth obstacle is the legal implication and uncertainty of legal issues, such as the liability related to the expert system when it acts or makes decisions. While such uncertainty prevails, there might also be reluctance in developing the technology further.

However, it is not viable to only look at barriers. It is also meaningful to identify factors that should be present to incite successful implementation. Susskind also listed a few of these,<sup>13</sup> for instance, the importance of the solution answering to a real and expressed problem. Often the technological solutions offered are «solutions looking for problems» rather than being designed from an identified need. Another key factor for implementation is early and rigorous testing. Early testing has the advantage of being cheap. It can legitimize and spur implementation as well as continued technological development in the right direction. An OECD report from 2004<sup>14</sup> identified four areas of barriers: first, the suitability for that type of business; second, the presence of enabling factors (ICT skills of qualified staff and network infrastructure); third, concerns of cost; and fourth, factors of security and trust. In the OECD paper, trust is appointed as a key enabler. Lukasz Arendt<sup>15</sup> discusses the barriers of ICT adoption in small companies and argues that the main reason smaller firms do not implement available technology is not the lack of the material information technology, but the lack of proper knowledge and skills of how to implement it. So the problem is rather about the people and the culture than the technology itself.

An additional way to understand implementation is to look at both the *pull* and *push* factors of the new technology. Push factors for change are the perceived problems with the current systems, while pull factors are the presentation of a new system with potential and with clear benefits. Applied to the discussion above both factors are important for the change needed to enable overall industry implementation. Susskind expressed the need for a real management or business problem to be solved,<sup>16</sup> i.e., the presence of a push factor, while also addressing the lack of several factors constituting the main problem for implementation, i.e., the lack of pull factors. For any new technology, system, service, or product, it is important that it obtains trust. Trust is here understood in a broad sense: not only trust in the seller or the technology itself, but trust in the legitimacy of the solution. In order to understand the «how» of actual implementation of the new technology, we also need to understand this key enabler for successful implementation, constituting an important part of the pull-side.

### **3. An illustration of barriers and gatekeepers – the case of the Swedish legal industry**

In order to fully grasp the complexity of the barriers for successful implementation we decided to talk to some industry actors. These interviews show that in the context of the Swedish legal industry there are both general barriers and prominent gatekeepers that must be overcome in order for a successful implementation of smart contracts to occur. The study included interviews with 30 current industry actors in various positions, from a variety of law firms, corporate legal departments, and smart contracting system providers. Since the industry for legal services in general and contracting in particular is mainly business to business and rather

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<sup>13</sup> SUSSKIND 1990, p. 115.

<sup>14</sup> OECD 2004, p. 21–32.

<sup>15</sup> ARENDT 2008.

<sup>16</sup> SUSSKIND 1990, p. 115.

fragmented,<sup>17</sup> it was important to include a large variety of informants. Through an analysis of these interviews a number of commonly discussed barriers for implementation emerged. We summarize them below.

### 3.1. Current hindering organizational structures and gatekeeping partners with veto power

Several legal professionals mentioned that the current organizational and partnership structures of law firms constitute a barrier, as the veto power of certain partners hinders the implementation of new technology. *«In many firms, the partners have a veto-right and stuff like that, so there sit a lot of men, in fact there are almost always men, that are unwilling to change, that have veto power in all these questions that would never have worked in a real company.»*<sup>18</sup> The partners with veto power emerge as the most prominent gatekeepers. Looking instead to corporate legal departments, current governance structures were brought up as a key barrier. One corporate lawyer explained that to implement a new system that carries a substantial cost, you need to raise the purchasing decision in the organization and make the case that the investment will in fact bring savings. The suppliers of smart contract solutions saw a similar problem, as they often get to present their product to IT departments that do not have the authority to make investments, and rarely get to meet with the actual gatekeepers. Also, many (both within law firms and corporate departments) remarked that the lack of technological competences and skills is a main barrier for the implementation of smart technology. They stated that this is something they now look for when recruiting new employees and building new organizations.

### 3.2. Only few assert smart contracting as a business opportunity

Since real testing of smart systems is rare and exemplary cases of implementation are still few, it has been difficult for suppliers and promoters to argue the business case of implementation. *«I believe that the industry does not think that the agreement robots are good enough yet.... Now large investments are needed and no firm wants to be the first, you want to wait and see how and what the others are doing»* remarks one legal professional to this issue. The lack of trust, and the lack of good examples are evident both within law firms and corporate legal departments, for small and large firms alike; as expressed by a senior associate at a large law firm *«It is a challenge in being large, we are in the frontline, but as regards new solutions we have not always been the ones to jump on first, for that very reason. It is easy to become locked into a system of technology that is not yet mature.»* Many legal professionals bring up this fear of being too early, and that legal professionals per se tend to focus on the present and past rather than the unknown future, especially when it comes to technological advances. *«Lawyers like to do things the same way they always have,»* explains a seller of a smart contracting system. While most legal professionals seem to disregard the novel opportunities in smart contracting, *«not all in the industry are traditionalist, some are looking for new solutions, Also the new generation is more inclined to lead this change and drive the business forward. They will expect what they have in the consumer world also in the business world. The customers will demand more also in the legal industry.»* The idea of change being initiated by clients returned in many interviews. *«Our changes rarely depend on our own good ideas, but come as suggestions from our clients. When lawyers change, it is because the client expresses a desire.»* Another reason for this is that for law firms, the implementation of smart solution may not be logical – since their business model builds on the sale of hours. Why make something more efficient if it makes you earn less? Within corporate legal departments, implementation of smart contracting systems is easier as legal work is a cost, so making work processes efficient makes sense. *«A lot of the work selling it is really on educating the clients, making them understand a new way of doing things. The common acceptance of e-discovery has led to an opening of their minds – then it is easier to explain how the same principles will work in contracting. It is great to see when they have a wow-moment. This has the potential of disruption.»*

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<sup>17</sup> SANDSTRÖM 2017, p. 54. This report (in Swedish, with a brief English summary) investigates how digitalization affects the legal services industry in Sweden.

<sup>18</sup> This citation and the ones that follow in this section are translations of Swedish language transcripts from the interviews, on file with the authors. For details of the research, contact Charlotta Kronblad at [chakro@chalmers.se](mailto:chakro@chalmers.se).

#### 4. Innovation in contracts and lawyers' work products remains rare – but is long overdue

While the interviews did not explore barriers to innovation in the context of contract design and communication specifically, experience and research tell us that barriers similar to the ones discussed above exist here, too. Current contracts are neither machine-readable nor easily human-readable. Little has changed in the appearance – look and feel – of contracts (or lawyers' other work products). For instance, the proponents of *plain language, simplification, and visualization*<sup>19</sup> have suggested major changes along the way, but not much has happened. Instead, the trend seems to be towards more complex contracts.<sup>20</sup> Contract drafters tend to favour their conventional ways, seeking precise language and providing for all thinkable contingencies. The implementation of *new contract genres*<sup>21</sup> is still slow, and so is the development and building of necessary trust.

It may well be that at least in some respects, the sceptics are right. Maybe the new contracting approaches are not as ready as some have contemplated. Maybe clients want their contracts look and feel conventional and «legal». Maybe the divide between the legal professionals' reality and the views of the suppliers of new contracting approaches and solutions is still too large. One executive of a leading smart contracting firm of the study explained that there is *«a conflict for simplification, as lawyers make contracts intentionally complicated. It is like they write them to make the other party misunderstand. Most agreements are over-complicated. It is a circle that someone needs to break.»* Companies continue to pay their lawyers first for drafting contracts that only the lawyers understand, and second for interpreting what those contracts mean.<sup>22</sup> Yet recent research illustrates how merging information design with new approaches to contracting can enable contracts that are easier to work with and act upon for business users.<sup>23</sup> Examples of new and improved contract design and related design patterns have started to emerge. Changing overly complex contracts should not be too difficult. However, old habits and templates are not that easy to change, due to what can be described as *inertia*,<sup>24</sup> *path dependence*,<sup>25</sup> or *status quo bias*.<sup>26</sup> Most law firms and legal departments have templates they use for drafting new contracts. Some have moved from manual drafting to automated contract assembly and developed their own computer-based drafting systems.<sup>27</sup> Whether the process is based on copy-pasting or automation, the fact is that contracts are being compiled using templates: templates that are driven by an ambitious search for precision and legal risk allocation, often at the cost of clarity and understandability. While templates bring many benefits, there is a downside: if archaic language and style is used, repeating and automating those

<sup>19</sup> See, e.g., FELSENFELD & SIEGEL 1981, KIMBLE 2006 and 2012, WALLER ET AL. 2016 and 2017, PASSERA 2017, and HAAPIO 2013(a) and 2013(b), with references.

<sup>20</sup> HAAPIO 2013a, p. 70.

<sup>21</sup> For new contract genres beyond smart contracts, see, e.g., HAAPIO ET AL. 2018 and HAZARD & HAAPIO 2017.

<sup>22</sup> HAAPIO & SIEDEL 2013, p. 70, referring to the Scottish & Newcastle legal team's findings explained in WEATHERLEY 2005, p. 39.

<sup>23</sup> See, e.g., WALLER ET AL. 2016 and 2017, PASSERA 2017, and HAAPIO 2013(a) and 2013(b).

<sup>24</sup> See, e.g., ADAMS & ALLEN 2012. According to Ken ADAMS' blog post of January 29, 2013(a), «inertia has rendered most of corporate America either complacent about suboptimal contract templates or incapable of doing anything about them».

<sup>25</sup> See, e.g., DiMATTEO, SIEDEL & HAAPIO 2012, p. 61 and TRIANTIS 2013, p. 16: «standard contract terms are often sticky or locked-in practices» and *Id.* 5: «Departures from standard terms raise the reading costs of contracting partners as well as their suspicions.» See also ADAMS 2013b: «For lawyers unwilling or unable to overhaul their traditional contract language, the excuse of choice is that traditional language has been «tested» – if you meddle with it, you're exposing yourself to all sorts of risk.» – For path dependence more generally and how history matters in organizations, see, e.g., SCHREYÖGG ET AL. 2011.

<sup>26</sup> See, e.g., DiMATTEO, SIEDEL & HAAPIO 2012, p. 61, and TRIANTIS 2013, p. 5. – See also GULATI & SCOTT 2012 and RICHMAN 2011, p. 83: «Firms continue to produce contracts with inferior language because they are hard-wired to resist change and fear deviating from familiar texts.»

<sup>27</sup> For document assembly and computer-based drafting, see, e.g., ADAMS 2009 and QUINN & ADAMS 2007. Today anybody – lawyer or not – can have access to comprehensive commercial «off the shelf» automated forms, templates, clause libraries, and web-based self-service solutions for contract creation. Using a search engine on the Internet for «contract automation» or «automated contract assembly» will bring thousands of results.

templates easily becomes «an exercise in garbage in, garbage out»<sup>28</sup>. Using old templates, echoing the title of a book chapter by Professor Deepak Malhotra, even a *great deal* may end up with a *terrible contract*: «Great Deal, Terrible Contract».<sup>29</sup> So what can we do to reach better contracts – and how can we overcome the barriers to implementing innovation, whether regarding templates or smart contracting systems?

## 5. Overcoming the barriers and convincing gatekeepers to change

It is evident that barriers for implementing smart contract systems or new contract designs exist both on micro and macro levels. On a macro level, current organizational and governance structures are high barriers for implementation, and without good examples and rigorous testing of the systems and designs it is hard for the persons that want to implement new technology, new design, or both, to convince the reluctant crowd that the investment will pay off. This is also one of the key barriers that Susskind brought up. Our findings also raised the veto power of law firm partners as an important barrier for implementation in this section of the industry, with the dominant partners of law firms representing the key gatekeepers of the industry. Although the legal professionals of corporate legal departments may be more open to changes, these professionals, too, have a problem in convincing their organizations to invest in systems that have not been tested or sufficiently used within similar contexts. Both for law firms and corporate legal departments, the lack of a tested and proved solution that is already trusted and accepted within the industry is a key barrier (no one wants to be the first). Also, legal professionals are risk avert in general, and express a focus on the present and past rather than the future. This is why trust becomes an even more important pull side factor for change (or, rather, there presently is a lack of such a pull factor). This constitutes a key barrier on the micro level: the lack of individual trust for the new solution. Further, while the corporate legal professionals may perceive a problem with their current contracting systems, this problem is not as visible for all the legal professionals within law firms. For some, implementing such systems would in fact be a solution to a real problem of a client, but many in the industry are reluctant. Such actors are not willing to promote any new work processes, especially not systems that make work more efficient, as this would be rather challenging to an industry basing its value on selling services by the hour. Thus, these barriers for trust create passive gatekeepers at all levels within the organizations. And the final barrier is potentially caused by the smart systems themselves – also needing improvement and a way to show that they live up to the *smart* part of their name.

## 6. Where do we go from here?

In the title, we allude to the fact that *not* implementing smart contracts is not so smart. However, for many law firm legal professionals, implementation of smart systems might not be smart in the short run. In fact, it would represent a risk, and it may not be in line with their current business models: selling their services by the hour. The current dominant partners of law firms have a strong gatekeeping role hindering transformation. However, we are perceiving a shift in the legal culture, and it seems that a new generation of lawyers may be more open to technological change and the implementation of new innovations. At least the industry is looking for such individuals. Also, clients are increasingly asking for smart(er) solutions, and new contract genres are gaining market acceptance.<sup>30</sup> Since there are examples of professionals who have successfully overcome the barriers and trust the new systems and approaches enough to implement them, there is in fact a case of an ongoing phase of implementation and testing. Although the process is slow, pace would pick up with the probable examples of successful implementation to come.

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<sup>28</sup> ADAMS 2009. For «dysfunctional drafting», see ADAMS 2008 and for «the illusion of quality in contract drafting», ADAMS & ALLEN 2012.

<sup>29</sup> MALHOTRA 2012.

<sup>30</sup> For Comic Contracts and smart (parametric) insurance contracts, see HAAPIO ET AL. 2018, with references.

There are many barriers still out there, and both push and pull factors are lacking. At the push side, only few legal professionals see a problem in the current situation. At the pull side, they do not trust new technology, and the solutions offered may also be in a nascent stage. In this paper, we have identified some of the reasons. While it is understandably hard to motivate dominant players to leave their current profitable models to take on investment and jump to uncertainty, there is a growing number of professionals who regard smart contracting and new contract genres as an opportunity worth exploring. We envision a future where these professionals become leaders of long term innovation for the industry, constantly looking for better ways to generate contracts that will serve client needs and help clients reach their business objectives. Such contracts may auto-execute desired terms and contain code, text, sound, visuals, and more – all depending on the needs and expectations of clients. We are convinced that in the long run, such approaches to contracting will be smart also for legal professionals. To continue this study, we wish to further explore successful (and also failed) smart contracting implementations, so as to identify the key capabilities needed for success.

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