

DESIGN PATTERNS FOR CONTRACTS

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Abstract: *Law as a profession has much in common with architecture and engineering. In contexts as diverse as business transactions, legislative work, and mediation, lawyers have been called legal architects or engineers. We propose seeing contracts as things or artefacts - something to be designed - and borrowing from architects and engineers the idea of design patterns: solutions to recurring problems. Our examples illustrate how design patterns may relate to contract forms, templates, or clauses, but also go way beyond. The paper concludes with an agenda for an open design pattern library for contracts, seeking to help share examples and best practices that enable better contract design and communication.*

1. Introduction

Contract preparation and review take time. Many people are reluctant to read contracts;¹ these “seem to be written *by lawyers for lawyers*”.² The felt need to produce traditional legal language easily diverts drafters’ attention away from the needs of the users: those who are impacted by or need to work with the text – in contracting, mostly non-lawyers.³

In our previous work, we have looked into what lawyers can learn from designers, especially information and interaction designers,⁴ to develop tools that help people use and navigate complex legal domains. Prior research has revealed many ways to make legal information more accessible and understandable.⁵ Experienced contracts and legal professionals can draw upon a number of solutions to problems they meet in their work. However, they do not necessarily have names for those solutions, so they are hard to discuss or teach.⁶ As a solution, we propose adopting from practitioners in fields outside the law the use of *design patterns*: reusable models of a solution to a commonly occurring problem. This paper first introduces the concept of design patterns and then explores its application

¹ *See, generally*, Burnham 2003, Haapio 2012 and 2013. For click-through agreements and online terms and conditions, *see, e.g.* Plaut & Bartlett 2012 and Lannerö 2013.

² Berger-Walliser, Bird & Haapio 2011 (emphasis added).

³ *See, generally*, Berger-Walliser, Bird & Haapio 2011, Haapio 2013, Haapio & Barton (forthcoming), and Berger-Walliser, Barton & Haapio (forthcoming).

⁴ Haapio & Passera 2013, Hagan, Gavis & Ozenc 2014, and Hagan & Ozenc (forthcoming).

⁵ *See, generally*, Brunschwig 2013 and 2014 and Margaret Hagan, <http://www.margarethagan.com> (all websites last accessed 5 January 2016).

⁶ *Similarly* Waller & Delin 2011, p. 1, in terms of experienced designers.

in contracting. We explore the value design patterns offer, introduce a short summary of prior work, and conclude with an agenda for a *contract design pattern library*.

2. The Promise of Design Patterns and Pattern Languages in Contracting

2.1. Who Prepares and Uses Contracts? Whose Skills Are Needed - Whose Needs Matter?

When drafting contracts, the focus of lawyers is typically on content, language and legal concerns, rather than on how these are presented or how the documents are used.⁷ For the contracting parties whose rights and duties depend on those documents, however, all of these aspects matter.

The core of contract crafting, as we see it, is securing the business objectives and the performance that the parties expect, not just a contract. While transactional lawyers have their templates, style guides, and preferences, business users tend to prefer usable, operationally efficient contracts that provide reasonable risk allocation at an acceptable cost. They need to know what their contracts require them to do, where, and when. If contract language and complexity overload their users' cognitive abilities, even if such contracts might be legally "perfect", they are not what business users need and deserve, and thus fall short of their ultimate purpose.⁸

Most of today's contracts are not crafted by lawyers alone. A wide range of people, functions, and technologies may participate in their preparation. In complex projects, in addition to technical experts contributing to scope, specifications, and approval processes, contracts often involve sophisticated financial and resourcing requirements where the expertise of finance, HR, project and operational management is called for. The various aspects must be consistent and linked with each other. This requires communication between the stakeholders, often with only fragmented understanding of the issues involved.⁹

A contract prepared in such manner can be illustrated through the analogy of a jigsaw puzzle of technical, implementation, financial, and legal parts. The center piece, *information architecture*, highlights the need of the pieces to be consistent and coordinated.¹⁰ The legal element should not be viewed as if it was the whole puzzle; it is just one piece. Empirical research confirms that the input of management is needed in key areas to lay the foundation for the deal and construct operationally efficient contracts. While forms, precedents, templates, boilerplate, and model clauses are typically designed by lawyers, deal-specific information is required from other professionals, mostly business managers and engineers.¹¹ Much of the knowledge regarding, for instance, how to design roles and responsibilities provisions also resides in managers and engineers, rather than lawyers; many terms draw on knowledge of many groups of employees, calling for cross-professional interaction.¹²

After negotiating and signing, the parties are expected to fulfill their obligations; contracts need to be implemented, monitored and managed. People on the operational and delivery teams need information contained in contracts to coordinate in-house and outsourced functions, manage budget, scope, schedule, resources, and so on. Most of the people in charge of these tasks are not lawyers. Overly complex contracts may be ignored or misunderstood, and their implementation may suffer or

⁷ See, e.g., Mitchell 2015, p. 6 (reflecting on the lack of attention lawyers typically pay to the way in which they communicate: "For us, "contract design" means substance, not its concrete expression.").

⁸ Haapio 2013, p. 68.

⁹ See, e.g., Eppler 2004 and Haapio 2013.

¹⁰ For an image, see Haapio 2013. While the puzzle is based on the classification of contract documents typically found in the construction industry, the visual metaphor is also applicable in many other contexts and industries.

¹¹ Argyles & Mayer 2007.

¹² Argyles & Mayer 2007, p. 1065–66 and 1074.

fail. Major contract risks are known to be caused by the gaps when information and responsibility are transferred from one team to another.¹³

Traditionally, the focus of contract scholars and crafters has been on the needs of the legal users, such as courts and arbitrators. While these users are important, we also want to include in our efforts those users who are not lawyers. Their needs may differ greatly.¹⁴ There is a need for facilitating communication and coordination. This is where design patterns enter the picture.

2.2. What Are Patterns and Pattern Languages and What Value Do They Offer?

The word “pattern” has many meanings and definitions. According to a dictionary, it may mean, for example, a form or model proposed for imitation, or something designed or used as a model.¹⁵ Sets of patterns, in turn, make up a *pattern language*.

The concept of *pattern language* was first proposed by Christopher Alexander and his colleagues in architecture, in order to create a common language that captures a set of experiences and insights and codifies them into a formal, standardized collection of patterns embodied as prototypes.¹⁶ The language was intended for use by both experts and laypeople, to guide them when considering how to proceed with a design and improving the communication and knowledge-sharing between those working on a design project together.

For architects, interaction designers, and software engineers, *pattern libraries* are a common way to share solutions.¹⁷ The libraries seek to promote high quality, efficient, and consistent work, and a *lingua franca* among collaborators coming from different domains.¹⁸ Borrowing tools from these professions for lawyers’ use seems natural, especially as in a number of contexts the work of lawyers has been found to have similarities with their work, so much so that law has been viewed as engineering,¹⁹ and lawyers as legal architects, engineers, and designers.²⁰ Many observers have also noted the similarity of contract drafting and computer programming or coding.²¹

In the context of contracts, the concept of patterns is relatively new. Instead of patterns, contract drafters and scholars have discussed models (for example, model contracts or clauses), standards (standard forms or terms), boilerplate, and templates. These refer to the basic text or format of something that can be used over and over for similar contexts. While patterns and templates may be used interchangeably, we want to keep them separate. Templates may play an important role in design patterns, yet we do not limit ourselves to templates, textual content, or documents: our proposed use

¹³ Haapio & Siedel 2013, p. 44–46 and 147–149.

¹⁴ For the different needs and expectations of contracts’ business and legal users and various attempts to merge these, *see, e.g.*, Haapio 2012 and 2013.

¹⁵ *See, e.g.*, Definition of Pattern by Merriam-Webster, <http://www.merriam-webster.com/dictionary/pattern>.

¹⁶ Alexander et al. 1977 – In Alexander’s and his co-authors’ work, each pattern describes a problem which occurs repeatedly, and then describes the core of the solution to that problem in a way that the user can use the solution over and over again, without doing it the same way twice (Alexander et al. 1977, p. ix). *See also* Alexander 1979.

¹⁷ *See, e.g.*, Tidwell 2014, Waller & Delin 2011, and Pan & Stolterman 2013.

¹⁸ Pan & Stolterman 2013, p. 1990-1.

¹⁹ Howarth 2013 sees the work of lawyers as *designing useful devices for clients*; according to the author, lawyers can become more innovative and effective as designers of new devices by using the methods of engineers. *See also* Mitchell 2015 (discussing how lawyers can make their work-product a better product) and Haapio 2014.

²⁰ Fuller 1981 and others interested in lawyers in private commercial practice have used the metaphor of the lawyer as architect. The metaphor has been used even in dispute resolution: *see, e.g.*, Calkins 2010 (discussing the need for, *e.g.*, designing new ADR mechanisms). For more recent work, *see, e.g.*, Mitchell 2015, Haapio 2013 and 2014, Haapio & Passera 2013, and Howarth 2013.

²¹ *See, e.g.*, Gerding 2013, p. 1323 and Mahler 2013, with references. For the computational representation of agreements, *see* Flood & Goodenough 2015.

of patterns covers more. We use patterns in this paper to refer to methods and solutions that make things easier to understand and tools more useful and usable.²²

Patterns can be used in many ways: for learning, examples, terminology, comparison of design alternatives, and inspiration.²³ A *design pattern language* has many points of value: for people working on the same design problem to communicate with each other; for people working on similar challenges in different domains to share knowledge and innovations; and for setting standards and best practices on how best to create designs that address a problem. What is noteworthy, still, is that patterns are suggestions, not requirements.²⁴ They are flexible tools, to be customized as needed in a certain situation, rather than to be copied exactly like boilerplate.

Patterns can facilitate interdisciplinary collaboration. They can help in communication, allowing people working on similar challenges in different domains to share their best practices, and allowing people working in the same design process to collaborate more fluidly.²⁵ A pattern language can also facilitate better communication among a network of various professionals working to solve a challenge.²⁶ Ideally, the patterns will capture experts' insights into what kinds of interactions and interfaces can best work in a problem area. By capturing and categorizing this expertise in a simple way, a pattern library helps non-experts to find both the terms to talk about possible solutions as well as the pattern forms to better conceive of what solution can resolve their problem. The pattern language allows people in different roles, from experts to novices, to communicate better with each other, by giving them usable, pre-made solutions that help them form and communicate ideas.²⁷

Pattern languages identify best practices and common themes in how to best solve common problems in a field. A pattern language creates a framework that documents design concepts, identifies core interactions between people and technology, and uses this framework to more efficiently create successful design interventions. By identifying patterns that show what the conventions are, it allows professionals working on the same challenge to understand the current state of design and think more carefully about what needs to be changed and what opportunities for innovation might be.²⁸ Patterns can standardize the way designs are currently crafted. Pattern languages promise efficiency in the design process, and a way to promote the general advancement of design work. A pattern language could reflect the hard-won wisdom of designers, and allow it to accumulate and gather together into a coherent language.²⁹

2.3. How to Do a Pattern Language Well?

Experts who have created pattern libraries warn of some of the challenges in developing and maintaining a successful pattern library.³⁰ It requires an immense amount of work, particularly to create a rigorous set of patterns that are organized coherently and validated with empirical methods. It can be difficult to engage designers in using the language, because of difficulty in translating formal patterns into specific contexts and designers' resistance to descriptive formalizations of solution patterns.

Taking these constraints as given, the question becomes how to create a pattern language that can be made usable, current, and engaging. Quality, professional-driven research must be conducted to

²² This view is adopted from Jenifer Tidwell, a leading figure in interaction design: *see* Tidwell 2014, p. xviii.

²³ Tidwell 2014, p. xxi.

²⁴ *Id.*, p. xviii.

²⁵ Saponas et al. 2006.

²⁶ Erickson 2000, p. 366.

²⁷ Pan & Stolterman 2013, p. 1994, and Erickson 2000, p. 366.

²⁸ Pan & Stolterman 2013, p. 1993.

²⁹ Erickson 2000, p. 361.

³⁰ Pan & Stolterman 2013, p. 1994-5.

create a pattern language, with much time invested while also working to a clearly defined long-term goal.³¹ The creators of the language must also have a plan to make the patterns easy to use, easy to update, and easy to customize. Pattern languages in the past have failed to attract users, because designers tend not to want to adopt a highly formal or static pattern.³² If the pattern language can emerge from practice, rather than imposed based on theoretical frameworks, this likely will improve the engagement and relevance of the language.³³ Ideally, a pattern language will be generative rather than strict, used as both a communication language and a set of provocations for professionals trying to solve a problem, that allows for deviation, combination, and other adaptations of the patterns to the specific situation.³⁴

2.4. What Other Projects Have Come Before and How Our Proposal Differs from Them

Scholars in many parts of the world have felt the need to improve, systematize, classify, and even standardize the representation of legal information, especially visualization.³⁵ They have suggested, for example, diagramming transactions,³⁶ a graphical user-interface for legal texts,³⁷ a visual interface for dealmaking,³⁸ and a layering approach along with icons and a preview.³⁹ The varying labels used for the suggested solutions show the lack of a common language and the need for a more unified approach. Design patterns can provide such an approach and a more universal language.

We are not the first to explore design patterns in this context. Erik Gerding proposed in his 2013 Law Review article⁴⁰ that contract lawyers take a design pattern approach and create a *pattern language for contracts*. He pointed to the efficiencies that having a design pattern language could have for lawyers creating complex contracts between businesses,⁴¹ as well as the promotion of transparency and better decision-making for consumer-facing contracts.⁴² Gerding focused on the power of a contract pattern language to give greater ability to lawyers to spot potential issues, be creative and comprehensive when considering what possible solutions they could use, and to save time of others who have to then understand and use these contracts. When contract terms are patterned, they help people more quickly understand what is being done with certain terms.

A *Contracts Wiki* approach was proposed by George Triantis and Douglas Barnard in 2008, though without using the language of patterns.⁴³ They, with the sponsorship of Harvard Law School and the Berkman Center for Internet and Society created an online platform that would allow for crowdsourcing among legal experts about what kinds of contract terms could be used to respond to “shocks in the system.”⁴⁴ The platform intended to take legal scholarship around the advantages of modular, patterned contract terms and make use of it in a practical sense, by having an online

³¹ *Id.*, p. 1996-7.

³² *Id.*, p. 1997.

³³ Erickson 2000, p. 367.

³⁴ Borchers & Thomas 2001, p. 226.

³⁵ *See, e.g.*, Conboy 2014, p. 92 (suggesting the standardization of diagrams through usage rules that would make diagrams more consistent) and Hahn, Mielke & Wolff 2014 (exploring the use of ISO 14915 Part 3: Media selection and combination as the basis for classifying legal visualization forms).

³⁶ Conboy 2014 (suggesting rules for the use of symbols, colors, lines, and shapes in diagramming transactions).

³⁷ Mahler 2013.

³⁸ Plewe 2013.

³⁹ Lannerö 2013 (seeking to use icons and a preview to highlight the most important terms of online contracts). The report contains references to other similar projects; for updates, *see* Related Work, <http://commonterms.org/Related.aspx>. A similar approach has been pioneered by Creative Commons licenses, *see* <https://creativecommons.org/licenses/>.

⁴⁰ Gerding 2013; his inspiration was Christopher Alexander’s work.

⁴¹ Gerding 2013, p. 1345.

⁴² *Id.*, p. 1354.

⁴³ *See* About the Contracts Wiki.

⁴⁴ *Id.*

community that created new contract modules to solve problems that arose from changes in regulation, the business environment, or other conduct. It was intended to be a live resource to spread and refine good practices in designing parts of contracts that could adapt to new problems with new solutions, and then promote efficiency and standardization by distributing these new solutions to the entire community. The Contracts Wiki did not succeed as a platform; currently its webpage is still live, but it is not being actively maintained.

There are several new initiatives that begin to demonstrate what a contract design pattern library may look like. Docracy presents a crowdsourced library of contracts for any person to explore, customize, and use for free.⁴⁵ It also allows any person, no matter their expertise, to upload and share a contract on the platform. The contracts are rated by users by likes and by views, to allow for lay people to find the most popular contracts for a certain situation. Other initiatives attempt to improve the contracting process by comparing a current document to standards and metrics. Legal Robot⁴⁶ promises to help a person aspiring to create a contract with artificial intelligence-guided best practices, by uploading a draft of the contract, and then with the tool's analysis providing improved phrases and composition to make the contract more readable and more enforceable.⁴⁷ This can promote standardization, though it does not provide transparent tools or standards for those making contracts to use on their own.

Where our approach differs from these pioneering proposals is in its wider scope. First, we wish to introduce design patterns as a way to enhance contracts, not just in terms of their content and language, but also in relation to how these are presented and communicated, so that contracts function optimally. Our aim is to cover tools and practices that enable successful business deals and relationships; we see contract crafters as designers rather than drafters. Second, we suggest expanding the view from contracts to *contracting*, by which we refer not just to preparing and making a contract; we include the entire lifecycle, beginning from the pre-contractual stages and translating the deal into a contract, and continuing to interpreting, monitoring, managing and implementing the contract. Finally, we propose to look beyond the legal field and drafting, to highlight the needs and expectations of the business users of contracts, without ignoring the need for contracts to be legally sound. We are especially interested in ways in which contract design patterns might be used to facilitate contracting



⁴⁵ <http://docracy.com>

⁴⁶ <https://legalrobot.com/>. For another example, see Contract Standards by KMStandards (originally operating under the name KIIAC), <http://www.contractstandards.com/>.

⁴⁷ <https://legalrobot.com/>.

documents and practices that enable successful business outcomes; prevent and resolve misunderstandings and disputes; and, if a dispute is inevitable, help solve it in an amicable way.⁴⁸

**Figure 1: Illustrations of the contract design patterns from <http://www.contractpatterns.design>
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3. An Agenda for a Contract Design Pattern Library

Parties make commercial contracts so that they reach the outcomes they expect. Our aim is to set up a platform that enables scholars and practitioners across professions and disciplines to discuss, develop, and share tools and solutions that help reach this goal. We have created an initial version of this platform, with prototypes of what patterns in the contract design pattern language could be.⁴⁹ This prototype contains a handful of contract patterns, as a template for possible additions as well as a provocation to inspire others' contributions of contract design patterns. We hope to engage contract scholars and practitioners and also the many different users of contracts, in order to collect and describe good practice and build on the collective wisdom of people experienced in the field. Our aim is ambitious, and it is obvious that there are a range of issues to be debated before we have a contract design pattern library ready and in use. This paper serves as a first step towards this goal. Design patterns offer great promise for making contracting processes and documents more efficient, of higher quality, and of greater consistency.

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⁴⁸ These are among the goals of Proactive Law and Proactive Contracting. See, e.g., Haapio 2013.

⁴⁹ <http://contractpatterns.design/>.

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