Author(s): Passera, Stefania

Title: Beyond the wall of text: How information design can make contracts user-friendly

Year: 2015

Version: Author accepted / Post print version

Please cite the original version:

Passera, S. (2015). Beyond the wall of text: How information design can make contracts user-friendly. In: A. Marcus (Ed.), Design, User Experience, and Usability: Users and Interactions (pp. 341-352). Lecture Notes in Computer Science. Cham, Switzerland: Springer International Publishing. DOI: 10.1007/978-3-319-20898-5_33

Beyond the Wall of Text: How Information Design Can Make Contracts User-Friendly

Stefania Passera[1]

[1] Aalto University School of Science
Department of Industrial Management and Engineering
c/o Aalto Design Factory, P.O. Box 17700
FI-00076 AALTO, Finland
stefania.passera@aalto.fi

Abstract. This study investigates the unique contribution of layout and visual cues to the comprehension of complex texts. Contracts are taken as a key example of cumbersome, complex texts that most laypeople do not like to read, and avoid reading altogether if possible. By means of information design, the meaning of contracts can be made more readily visible and understandable to their intended user-group. An experimental evaluation shows how it is not enough to simply reorganise the text in a more logical, user-friendly order, but real improvements in comprehension speed and accuracy can only be observed when enhancements to the textual structure of the contract are accompanied by an improved layout and other visual solutions.

Keywords: Document design · information design · contracts · experimental evaluation · user experience · usability · complex information · cognitive load theory

1 Introduction

Last year I attended a workshop led by a plain language expert, who provided several principles and examples on how to make contracts more understandable and user-friendly. The speaker guided the audience through an exercise where a very confusing leasing contract was re-ordered and given new, improved headings. Everyone in the room agreed that the restructured version of the contract was much better and appeared to better respond to the information needs of the intended readers. In his take-away message, the expert claimed that '*just by getting the structure and the headings right, we can probably solve 90% of the contract's understandability issues*'. This statement sparked my researcher's curiosity and provided inspiration for the research questions behind this study: is good document structure the main solution to conveying complex information in a more logical and easier manner, or does visual display of information have a unique role in supporting comprehension? Is comprehension of meaning ultimately a verbal phenomenon, or can visual communication help people simply *see* meaning?

As an information designer, I do not doubt the effectiveness of structuring information as a way to make complex documents more transparent and accessible to their users. However, visually undifferentiated text alone does not provide salience or prominence to different bits of information, while, for easier reading, stronger attention must be guided towards those parts that are more relevant to the user [1]. Visual cues can provide an 'attention hierarchy', making sure that what is most important is not overlooked. Additionally, people tend to find more usable what they find beautiful [2], and a wall of text simply looks scary, cumbersome and off-putting for most laypeople.

This study focusses on contracts, as they are a prototypical example of a common, completely textual, complex document. People usually do not like reading contracts, as they are dull, difficult and hard to understand for most. Everyone would agree that contracts are something important, but would gladly avoid reading a long text in legalese. For most, even after going through the effort of reading, contracts might still not be clear. Others are left with the doubt that they *might* have misunderstood something, and that will cause negative surprises in the future.

However, in the eyes of their creators – the lawyers – contracts try to accurately describe which rights, obligations, permissions and prohibitions apply to the signatories, and make them binding under the law [3]. The approach of legal scholars comes most typically from contract law and the law of the obligations [4], the body of principles and rules governing the rights and duties arising between individuals. The problem with this traditional view is that it focusses only on the essence and precision of the rules, but not at all on the needs and abilities of the individuals tasked with understanding and acting upon such rules. Rules matter to contract users only as long as they are instrumental in achieving their goals (e.g. how much, how and by when one should pay a bill in order to continue receiving electricity). It is then crucial to see contracts as a document genre similar to instructions and user guides: this is because not only do the rules need to be fair and consistent, but they also must be logically and clearly delivered if we want contract readers to apply them in practice and be compliant.

From a theoretical perspective, contracts constitute an interesting case, because they are purely textual documents, cognitively demanding and very close to zero in terms of eliciting positive experiences. This allows researchers to experimentally manipulate their structure and appearance in order to observe how information design solutions can affect comprehension and reader experience. From a practical perspective, several organisations could benefit from understanding how to make the meaning of contracts more visible and improve the overall contract-user experience. Companies can gain competitive advantage and improve their customer-centredness by developing and managing superior customer experiences [5]. In order to do that, they need to build meaningful customer touchpoints. In some industries – such as utilities, insurances, banking, online services and the rental market – contracts are a key customer touchpoint, as they 'officially' represent the service promise that the customer is signing up for. Transforming contracts into clear, engaging, transparent, visually pleasant instructions is an opportunity to build trust with consumers and deliver value.

This study seeks to determine which approaches are available for information designers and user-centric lawyers in order to make contracts more comprehensible

and pleasant for their users. The need for both good information structure and visual information display are argued in the light of literature about cognitive load theory, user experience and usability. Both information structure and display can help in seeing intellectual performance, and their relative contributions were assessed and compared through an experiment on contract comprehension.

1.1 Cognitive Load Theory

Cognitive load theory (CLT) can help us understand why people struggle so much in reading and understanding contracts. Developed by Sweller, while initially studying problem solving [6], CLT postulates that learning happens best when information is presented in a way that takes into consideration human cognitive structures. Limited working memory capacity is one of the characteristic aspects of human cognition [7]: thus, comprehension and learning can be facilitated by presenting information in ways minimising working memory load.

In order to understand written texts people form mental models [8], mental representations based on the principles of causality, spatiality and temporality [9]. A chronological sequence of causally connected events is thus fairly easy to comprehend: this is because we mentally form a model integrating many details of the situation, with no need to store them all individually in our working memory. The mental model counts as a single element in the working memory, avoiding information overload. However, if working memory is overloaded in the first place we cannot form mental models, because information needs to be processed and integrated before being stored as knowledge in our long-term memory. In order to prevent overload, it is then useful to recognise different types of cognitive load [10]: *intrinsic load* is caused by the inherent difficulty and complexity of the subject matter, and it cannot be reduced; *extraneous load* is produced by the way in which content is presented, and can be reduced through design and instructional support; *germane load* is generated by information processing and integration into mental models, it can be affected by design and is not seen as a negative factor because schema formation supports learning. The task of designers is to create information structures and displays that reduce extraneous load and eventually increase germane load. Contracts contain lots of special terms, concepts and information (intrinsic load), and presenting this content as a wall of legalese text overloads readers without legal expertise (extrinsic load) and neither does it help them to develop mental models to make sense of the meaning (germane load).

In light of cognitive load theory, both information structure (how the content is ordered and organised) and information display (how it is visually presented) should play a key role in supporting comprehension and intellectual performance. A meaningful information structure helps readers to preserve continuity, allowing the formation of a useful and easy-to-process mental model. Visual information display further facilitates mental model creation by representing information structures and relationships more explicitly, so readers do not have to use cognitive resources to develop a mental model from scratch [11].

There are also further reasons why proper visual information display should enhance intellectual performance, and why a better but perceptually *invisible* information structure is probably not enough to reduce cognitive load . Firstly, the architecture of working memory is composed by specialised 'processors' devoted to process separately visuo-spatial information and speech/text, as well as components coordinating attention allocation and integrating visuo-spatial and phonological information with schematic long-term memory [12]. All processors have different and separate capacities, thus information processing should be more effective and sophisticated when both verbal and visual systems are activated. Secondly, people do not simply read texts in a linear fashion, but tend to skim and search for the most relevant bits of information. Visual cues (e.g. font size, boldface, bullet points, indentation, icons…) in the text assist readers in focussing on important items, better avoid distractors and process the text selectively when necessary [13], thus reducing the amount of information to be processed. Moreover, visual cues can simplify sense making by constraining possible interpretations. For instance, larger font size can be a cue for a heading, thus reducing possible ambiguities on the meaning and role of that bit of text, and thus reducing extraneous cognitive load. Thirdly, visible elements create an external persistent referent, enforcing consistency also in mental representations [14]. By 'externally storing' information working memory demands decrease, especially if we wish to explore relationships between different information, as 'statements that are distant in logical space can be brought beside each other in physical space' [14]. In this case, extraneous cognitive load is limited and more resources can be invested into mental model re-creation and manipulation [7].

In light of CLT, two hypotheses were formulated:

H1: Intellectual performance (comprehension and ease of comprehension) using a traditional text-only contract is worse than performance using a text-only contract where information has been better re-ordered and structured

H2: Intellectual performance (comprehension and ease of comprehension) using either a text-only traditional contract or a restructured contract is worse than performance using a restructured contract where visual solutions are also employed

1.2 User Experience

As already mentioned, people do not like to read contracts and in some cases avoid reading them altogether. It is not only a matter of cognitive effort, but also of negative emotions: we feel frustrated by lack of clarity and uncertainty and we do not feel in control. Assuming the predictions of CLT are correct, and design can indeed aid cognitive performance, the question on motivation remains open. How do we motivate people to engage with contracts, as their previous experiences of contracts have been consistently negative?

According to Hassenzahl and Tractinsky [15] UX research deals with emotions in two ways: either as consequences of use, or as antecedents of motivation to use and evaluative judgments. UX can be seen as expectations before use (*anticipated UX*),

perceptions and judgements during and after a single use (*momentary UX* and *episodic UX*) and over repeated use in time (*cumulative UX*) [16], and it is easy to see how the loop closes and cumulative UX from previous experiences will affect future expectations. Cognitive load and perceived difficulty experienced in past interactions with contracts might prevent people from attempting to engage with contracts in the future, even if we decrease their complexity. For this reason, it is important for contracts designed with the intent of being user-friendlier to also look and feel different from other contracts. Research has shown that not only do people tend to find more usable what they find beautiful, but also that aesthetic perception overrules the degree of actual usability of an artifact when forming judgments on perceived usability [2]. Consequently, a visibly different design should have an edge over simple information restructuring in improving the overall experience of contract readers. A different appearance would immediately signal an intention to communicate more clearly with readers, and this in return might change their expectations, while a structural improvement cannot be easily discovered at a glance before use. However, the promise of simplicity needs to be kept during use. Research has shown how experiential judgments are affected by the satisfaction of two separate needs, the utilitarian (satisfaction of needs dictated by pragmatic, instrumental reasons) and the hedonic (the visceral need for affective gratification) [17, 18], and how those judgments can affect consumers' attitudes, preferences and decisions [19, 20, 21, 22]. In the case of contracts, it can be argued that user experience will be positively affected by design solutions that not only functionally help in achieving comprehension goals, but also stimulate aesthetically and emotionally, before and during use. In terms of functionality, we can evaluate information restructuring versus information restructuring and visual redesign in terms of Norman's concepts of affordances and signifiers; in other words, what an artifact potentially allows users to do and what devices indicate when, how, where to use it [23]. Affordances without signifiers might not improve usability and user experience. A better contract structure can at best represent an affordance – as a logical structure *offers the functionality* of finding information smoothly – but visual design elements can be signifiers – as they also indicate *where* to search for a specific type of information and *how* to navigate the document. In terms of aesthetic stimulation and gratification, obviously a document with a good, clear, pleasant layout, typography and visual elements will trump an illegible wall of text. We can thus hypothesise the following:

H3: The experience of using a visually improved and logically restructured contract is more positive than the experiences elicited by using either a traditional text-only contract or a logically restructured contract.

2 Methods

2.1 Sample and Experimental Design

The study was carried out as an experiment in which participants had to answer 7 comprehension questions, using a contract text. After that, they also had to evaluate

the experience of performing the comprehension tasks with the given contract through a self-administered questionnaire.

48 research participants, 24 female and 24 male master students, were recruited from at least 6 different European universities. The sample was widely diverse – 21 different nationalities and at least 6 different educational backgrounds (arts, law, business, engineering, sciences, other). In order to increase the validity of the experiment, the contract used in the experiment was the English version of the tenancy agreement for student apartments used in the Helsinki area: thus, students were the intended user group of this real document. This tenancy agreement was also chosen because its content was rather simple compared to other agreements: this arguably results in lower intrinsic cognitive load, with extraneous and germane cognitive loads (which can instead be affected by design solutions) remaining as the main components of overall cognitive load.

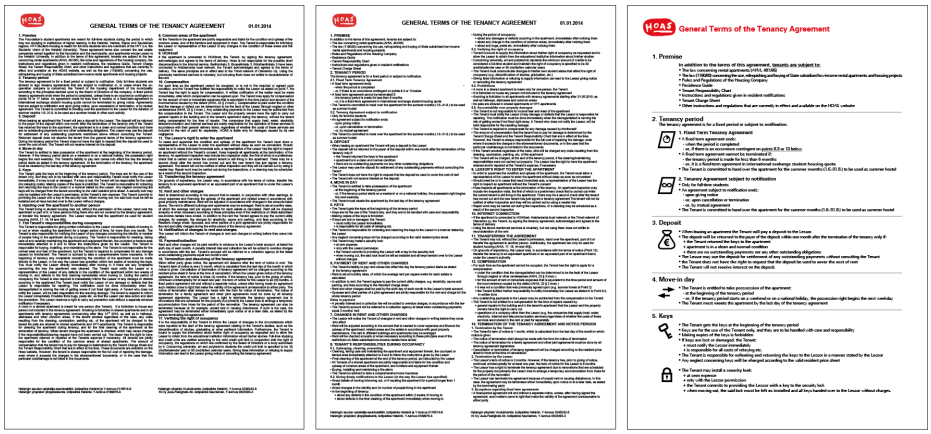

Fig. 1. Examples of one page of the three versions of the tenancy agreement: original agreement (left), restructured agreement (centre), visually redesigned and restructured agreement (right)

The experimental manipulation consisted of randomly assigning a differently designed version of the same contract text (Fig. 1) to the participants, divided in three groups:

- 'Textual/original' group (n = 16): the first group used the original, completely textual version of the tenancy agreement, an A4 document set in font size 6 pt, in a two-column layout;
- 'Textural/restructured' group (n = 17): the second group used a modified version of the original tenancy agreement. The document was still completely textual and presented in the same layout and font size as the original. However, the order of the clauses was modified so as to increase coherency, and more descriptive, plain language headings were added. Lastly, the original text was chunked down in bulleted lists;
- 'Visual/restructured' group (n = 15): the third group used another modified version of the agreement which, in addition to all the structural improvements of the second version, was also modified in terms of layout

and design (bigger font size, icons suggestive of the topic of the clause, bigger headings, single column layout, wide white margins, …). The content and the wording were unchanged.

2.2 Measures

Answering Speed. The first measure of intellectual performance considered the time taken by each participant to answer the 7 comprehension questions. The time taken to answer each question was measured individually and then summed to the others. This measure includes only the time taken to find the answer and write it down, but not the time taken to carefully read the question *before* starting the search for the correct answer. The participants were given 6.5 minutes for each question. The decision to limit the time available for each question was dictated by the fact that all questions dealt with very simple real-life questions of a tenant. If a tenant would take more than 6.5 minutes to find an answer to such a question from a one-page contract, it would mean that the contract is very badly designed for its scope and user group.

Answer Accuracy. The second measure of intellectual performance considered the correctness of each given answer. Answer accuracy was measured assigning one point for each correct answer, summing the scores over 7 questions. Partially correct answers were graded with 0.25, 0.5 and 0.75 points, depending on the magnitude of the mistakes and imprecisions, and thus the scores could vary between 0 (all wrong) and 7 (all correct).

Skipped Questions. The participants were given the possibility of skipping questions. They were told that skipping would equate saying '*I give up. This document is too badly designed, I think it is impossible to find the answer in the given time*'. Skipped questions were counted as a wrong answer (0 accuracy points) given in the maximum time allowed (6.5 minutes). Skipped questions were taken as a measure of the intrinsic difficulty of working with each version of the texts. If one version is more difficult to understand than the others, it will cause the participants to skip more questions overall.

User Experience. The HED/UT (Hedonic/Utilitarian) Scale [19] was chosen as a measure of UX, as it is a well-validated tool that allows taking into consideration both how useful/functional and gratifying/pleasurable the interaction with a product or service is. The analysis of HED/UT results is carried out graphically with the aid of a 2x2 matrix (Fig. 3), where the x-axis maps the hedonic score and the y-axis maps the utilitarian score. It is desirable to get a score of at least 4 points in each dimension, as 4 points is considered the threshold between low and high scores.

3 Results

3.1 Intellectual Performance

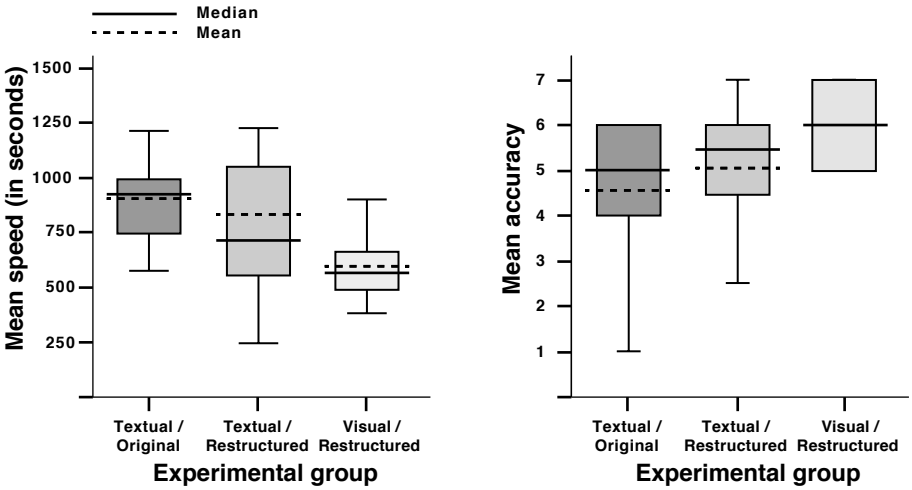

Fig. 2. Comparison of the performance scores in the 3 experimental groups: answering speed (left) and accuracy (right)

Answering Speed. The mean time taken to answer the 7 questions was longest in the textual/original group (896 seconds ± SD 333.65), and decreased in the textual/restructured group (827.11 seconds ± SD 464.15), with the visual/restructured group being the fastest (586.64 seconds ± SD 149.48) (Fig. 2). As the assumption of homogeneity of variances was violated (assessed through Levene's Test of Homogeneity of Variance, $p = 0.03$), the differences in score between the groups was investigated through a Welch ANOVA and resulted statistically significant ($F = 6.73$, $p = 0.004$). The significance of pairwise differences between groups was investigated through a post-hoc Games-Howell test. The only statistically significant decrease in mean answering speed existed between the scores of the visual/restructured group and textual/original group (-309.37 seconds, $p = 0.008$). The results confirm Hypothesis 2, but fail to convincingly confirm Hypothesis 1. Simply restructuring the text is not enough to significantly improve the speed of searching and giving an answer, while employing visual elements in displaying information affects performance.

Answer Accuracy. Mean accuracy was lowest in the textual/original group (4.62 ± SD 1.54), increased in the textual/restructured group (5.09 ± SD 1.29) and was highest for the visual/restructured group (6 ± SD 0.87) (Fig. 2). Since there the data was not normally distributed and some genuine scores appeared nevertheless as outliers, the difference between group scores had to be assessed through the non-parametric Kruskal-Wallis H test. The difference among the 3 scores was overall significant ($\chi^2 = 7.53$, $p = 0.023$). Pairwise comparisons were performed using Dunn's procedure [24] with a Bonferroni correction for multiple comparisons. This post hoc

analysis revealed a statistically significant difference only between the scores in the visual/restructured group and textual/original group (1.38 points, $p = 0.022$). This pattern mirrors what was already observed in regards to speed scores: accuracy somewhat increases as the text is presented in a more logically structured way, but displaying information in a visual, user-friendly way increases comprehensibility even further (and significantly). Hypothesis 2 receives thus further support, while Hypothesis 1 is rejected.

Skipped Questions. Even though the difference in the amount of skipped questions in the three groups is not statistically significant, it is interesting to note that in the textual/original group three participants skipped questions (for a total of 6 missing answers) and two participants skipped questions in the textual/restructured group (for a total of 3 missing answers), while nobody in the visual/restructured group skipped any question. This matches the performance trends observed for speed and accuracy, with the visual/restructured contract seemingly better supporting comprehension and performance.

3.2 User Experience

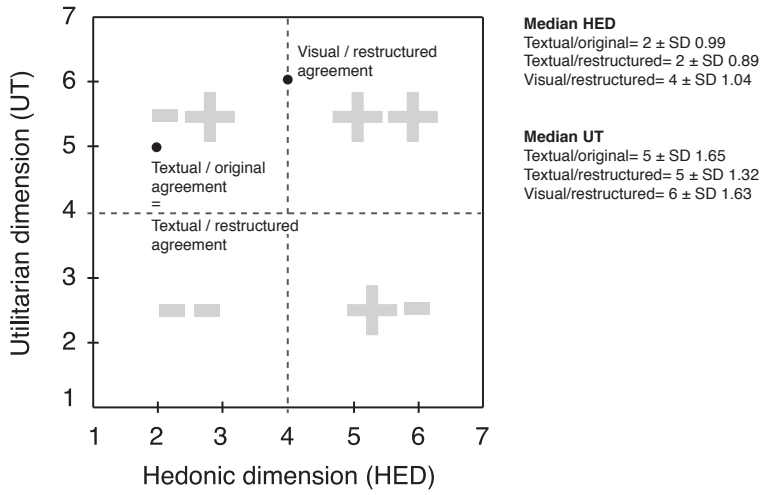

Fig. 3. HED/UT matrix showing the scores of the three experimental groups

HED/UT scores for the three experimental groups are displayed in Figure 3, with the visual/restructured contract (HED = 4; UT = 6) scoring better than both textual/restructured contract (HED = 2; UT = 5) and textual/original contract (HED = 2; UT = 5). The result of Mood's median test was statistically significant for both HED ($\chi^2 = 18.23$, $p < 0.001$) and UT ($\chi^2 = 9.39$, $p = 0.009$) dimensions. Logically restructuring the text seems to have no effect on user experience, while visibly discernible design improvements have a positive impact in terms of both instrumental

and affective satisfaction. Not only does the contract feel more pleasant to use, but it also feels more useful and usable in completing the task. These results provide evidence in favour of Hypothesis 3.

4 Discussion

The results suggest that the visual display of information (visually perceptible information design solutions in terms of layout, typography and iconic language) is necessary, in addition to a logical structure of the text, in order to make the meaning of contract clauses clearer to readers. This is consistent with the results of previous studies about the effects of different types of visual representation on the comprehension of complex legal texts, across different user groups (e.g. civil servants [25], the general public [26, 27] and contract professionals [28]). Specifically, however, the results of this study should be better interpreted as supporting evidence for the need of making the structure and logic of the text visible: differently from the documents employed in the above mentioned studies – where explanatory diagrams such as timelines and flowcharts had a crucial role in demystifying the text and supporting comprehension – icons were the most visually noticeable element in the redesigned contract used in this experiment. Icons alone did not explain the details of the clauses or their logic, as a diagram would do, but were rather used to signal the topic discussed in the adjacent text. In Kong's words [29], icons played mostly an *identification* role in relation to the text. Identification is a key dynamic in multimodal texts, and especially in instructional genres such as textbooks, manuals and guides, thus consolidating the suggested reconceptualisation of contracts-as-instructions. While diagrams can enhance comprehension through explanation, supporting cognitive processing involved in mental model building, icons (when used in concert with text) enhance comprehension by acting as signifiers indicating what actions are possible [23] (in this case, which instructions – in the format of clauses – apply, and where to find them). The extraneous load associated with understanding the hidden logic and narrative of a complex text is reduced as its structure is made visible: the reader does not need anymore to invest lots of attentional resources to visual search, nor needs to envision search strategies to dig out the required information of the text. Further research will be needed to understand the role of different types of visual solutions in enhancing comprehension, and to demonstrate which mechanisms might link them to the reduction of extraneous cognitive load and to the support of mental model building cognitive processing.

In terms of experiential evaluation, respondents in all groups considered their contracts sufficiently good in satisfying their pragmatic information needs, as measured by the UT component of the HED/UT scale. However, looking at the HED component, the two textual versions scored very poorly in terms of gratification, while the visual version obtained just a sufficient score in this respect, suggesting that legal documents are intrinsically unpleasant for laypeople. One reason could be that the rather stuffy language of the original agreement was used in all versions of the agreements. While the adoption of plain language is desirable in real life, it was

undesirable in an experimental setting exclusively focussing on the contribution of information design solutions to comprehension. A manipulation of verbal language would introduce a confounding variable, and it would be difficult to correctly discern among effects due to plain language, logical structure and visual display. In order to analyse the effects of both verbal and visual language styles as predictors of both comprehension performance and experience, a new experiment with more participants and larger experimental groups would be necessary.

5 Conclusions

It is not enough to restructure texts in a meaningful, sensible way in order to make them more comprehensible. The visual presentation of legal texts strongly affects content comprehensibility and accessibility, making meaning more immediately available to readers. Logical structure and visual cues need to be planned and designed together in order to make documents clear, engaging, easily readable and skimmable. Suitable design solutions decrease extraneous cognitive load and support comprehension by supporting mental model formation. The look and feel of improved layouts, as well as the perceived ease of comprehension, also elicits more positive user experiences in interacting with legal texts – which is usually pretty poor. In many industries, contracts are important touchpoints with customers, but nowadays their potential is completely untapped: organisations seeking to be truly customer-centric should give information design serious consideration in order to transform contracts from necessary evils into clear, user-friendly interfaces.

Acknowledgments. This research was kindly funded by the FIMECC UXUS project (User Experience & Usability in Complex Systems) and Tekes – the Finnish Funding Agency for Technology and Innovation.

References

1. Albers, M.J.: Information Salience and Interpreting Information. In SIGDOC '07, 25th Annual ACM International Conference on Design of Communication, pp. 80–86. ACM, New York (2007)
2. Tractinsky, N., Katz, A.S., Ikar, D.: What Is Beautiful Is Usable. Interact. Comput. 13, 127–145 (2000)
3. Fryar, E.F.: Common-Law Due Process Rights in the Law of Contracts. Tex. Law Rev. 66, 1021–1070 (1988)
4. Haapio, H.: Next Generation Contracts: A Paradigm Shift. PhD Thesis, Lexpert Ltd. (2013)
5. Zomerdijk, L.G., Voss, C.A.: Service Design for Experience-Centric Services. J. Serv. Res-US, 13, 67–82 (2010)
6. Sweller, J.: Cognitive Load During Problem Solving: Effects on Learning. Cognitive Sci. 12(2), 257–285 (1988)
7. Sweller, J., van Merrienboer, J.J.G., Paas, F.G.W.C.: Cognitive Architecture and Instructional Design. Ed. Psych. Rev. 10(3), 251–296 (1998)

8. Johnson-Laird, P.N.: Mental Models: Towards a Cognitive Science of Language, Inference, and Consciousness. Cambridge University Press, Cambridge (1983)
9. Zwaan, R.A., Magliano J.P., Graesser, A.C.: Dimensions of Situation Model Construction in Narrative Comprehension. J. Exp. Psychol. Learn. 21(2), 386–397 (1995)
10. Chandler, P. Sweller, J.: Cognitive Load Theory and the Format of Instruction. Cognition Instruc. 8(4), 293–332 (1991)
11. Keller, T., Grimm, M.: The Impact of Dimensionality and Color Coding of Information Visualizations on Knowledge Acquisition. In: Tergan, S.-O., Keller, T. (eds.) Knowledge and Information Visualization. LNCS, vol. 3426, pp. 167–182. Springer, Heidelberg (2005)
12. Baddeley, A.D.: The Episodic Buffer: A New Component of Working Memory? Trends Cogn. Sci. 4(11), 417–423 (2000)
13. Gribbons, W.M.: Visual Literacy in Corporate Communication: Some Implications for Information Design. IEEE T. Prof. Commun. 34(1), 42–50 (1991)
14. Kirsh, D.: Thinking with External Representations. AI & Soc. 25, 441–454 (2010)
15. Hassenzahl, M., Tractinsky, N.: User Experience – A Research Agenda. Behav. Inform. Technol. 25(2), 91–97 (2006)
16. Roto, V., Law, E., Vermeeren, A., Hoonhout, J.: User Experience White Paper: Bringing Clarity to the Concept of User Experience. http://www.allaboutux.org/uxwhitepaper (2010)
17. Hassenzahl, M.: The Interplay of Beauty, Goodness, and Usability in Interactive Products. Hum-Comput. Interact. 19, 319–349 (2004)
18. Hassenzahl, M.: The Effect of Perceived Hedonic Quality on Product Appealingness. Int. J. Hum-Comput. Int. 13, 481–499 (2001)
19. Spangenberg, E.R., Voss, K.E., Crowley, A.E.: Measuring the Hedonic and Utilitarian Dimensions of Attitude: A Generally Applicable Scale. Adv. Consum. Res., 24, 235–241 (1997)
20. Voss, K.E., Spangenberg, E.R., Grohmann, B. Measuring the Hedonic and Utilitarian Dimensions of Consumer Attitude. J. Marketing Res. 40(3), 310–320 (2003)
21. Batra, R., Ahtola, O.T.: Measuring the Hedonic and Utilitarian Sources of Consumer Attitudes. Market. Lett. 2(2), 159–170 (1991)
22. Holbrook, M.B., Hirschman, E.C.: The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun. J. Consum. Res. 9, 132–140 (1982)
23. Norman, D.A.: The Design of Everyday Things: Revised and Expanded Edition. Basic Books, New York (2013)
24. Dunn, O.J.: Multiple Comparisons Using Rank Sums. Technometrics 6, 241–252 (1964)
25. Passera, S., Pohjonen, S., Koskelainen, K., Anttila, S.: User-Friendly Contracting Tools – A Visual Guide to Facilitate Public Procurement Contracting. In: Proceedings of the IACCM Academic Forum on Contract and Commercial Management 2013. IACCM, Ridgefield (2013)
26. GLPi, Schmolka, V.: Results of Usability Testing Research on Plain Language Draft Sections of the Employment Insurance Act. Justice Canada and Human Resources Development Canada. http://www.davidberman.com/wp-content/uploads/glpi-english.pdf. (2000)
27. Kay, M., Terry, M.: Textured Agreements: Re-envisioning Electronic Consent. In: Proceedings of the Sixth Symposium on Usable Privacy and Security. ACM, New York (2010)
28. Passera, S., Haapio, H.: The Quest for Clarity – How Visualization Improves the Usability and User Experience of Contracts. In: Huang, W., Huang, M. (eds.) DVVA 2013: Innovative Approaches of Data Visualization and Visual Analytics, pp. 191–217. IGI Global, Hershey
29. Kong, K.: A Taxonomy of the Discourse Relations Between Words and Visuals. Information Design Journal 14(3), 207–230 (2006)