Towards Business Process Modeling in Business Contracting – Analyzing Collaboration Contracts as a Field of Application for Process Models

Jörg Becker
University of Münster
{ joerg.becker | marcel.heddier | ralf.knackstedt }@ercis.uni-muenster.de

Abstract

Today’s rising quantity of business collaborations increases the relevance of business contracting between companies. This leads at the same time to more complex and incomprehensible business contracts. We state a need for new approaches to handle this complexity. Business process modeling is a well established methodology of business process management (BPM) that can be used to handle complexity in business processes. In this paper we argue that conceptual models can improve comprehensibility of complex contracts by modeling those parts of business contracts that regulate specific procedures. Based on a contract analysis we indentify different contract content types and their potential for process modeling. The results show great potential in some content types and less in others. Based on our findings we propose the design of a software-based recommendation tool that could facilitate business contract design and the comprehensibility of these contracts.

1. Introduction

Business contracts play a vital part in business life. For example, collaborating companies, that exchange knowledge and technological capabilities in order to jointly work towards a common goal or companies that share revenues in a supply chain usually copy the arrangement of their relationship down in business contracts [40, 18]. In most cases, contracts are the result of prior negotiations (e.g., [18]). They provide objectivity, certainty, and consistency for the contractual parties, which are required for planning and managing their business relations [28]. The design of these contracts can be subordinated to the design phase of the BPM life-cycle [22].

Therefore, it is crucially important, that the contract’s text reflects exactly what has actually been negotiated. Otherwise, prior misunderstandings could lead to subsequent legal disputes over certain aspects of the collaboration that actually should have been clarified right from the start [9].

Contradictory to these demands is the fact that many business contracts are composed in a very specialized legal professional jargon. This lowers a contract’s comprehensibility and therefore increases the potential for misunderstandings.

The probably unnecessary legal dispute between Rogers Communications Inc. and Aliant Inc. in 2006 proves the danger that lurks in ambiguously designed parts of a contract [5]. A single controversial comma caused Rogers to assume they had an iron-clad five year deal while Aliant assumed the five year deal included the possibility to cancel it with a one-year’s notice. Resulting from this misunderstanding was an 18-month dispute with over two million dollars at stake.

Such misunderstandings can lead to high costs, a huge loss of trust, and a high probability of the collaboration’s unscheduled termination. Increasing the comprehensibility of business contracts could help to avoid such disputes in the first place [9].

Business process modeling as a part of business process management has proven effective for describing business processes in a comprehensible and comparable way [43]. Business process models serve as a basis for the design, analysis and improvement of business processes [38].

Therefore, we argue, that the established research field of business process modeling should inform the design and usage of business contracts. Process modeling techniques and methods could improve comprehensibility of contracts, especially in those parts, where specific procedures and processes are described. Our assumption is, that the design and discussion based on such process model enhanced contracts will be of fewer misunderstandings and more productive.

The structure of the remainder of this paper is as follows: Chapter 2 describes the literature of BPM research and contracting research that is fundamental to our analysis. Chapter 3 outlines the research design of the contract analysis and presents the results. The
2. Inherent Limitations

inherent limitations to our research and the resulting need for further research are finally discussed in Chapter 4.

2. Related Work

The prevention of legal disputes that result from fallacy and misunderstandings is a goal that has already been stated by legal researchers and is discussed with the label proactive law [52, 20, 47, 9]. It is argued that the proactive law approach should replace the still very prominent retroactive assessment of legal disputes [9]. One already well established approach to tackle this problem is to simplify a legal text’s language [46, 21, 10]. Nevertheless, simplification has also its limits [2].

Legal researchers are looking for new ways to represent law and legal texts. These approaches, which can be subsumed under the term legal visualisation respectively multisensory law, examine the potential and possibilities for visualisation of legal text [11, 12]. Enhancing the comprehensibility of business contracts by means of visualisation is one approach in this field [9].

We want to point out that we see a certain danger of reinventing the wheel regarding the development of new means for visualisation of legal text. Business process modeling as a part of BPM already offers a large variety of modeling techniques and methodologies [43] that could in our mind be used in the legal context, especially when designing contracts. Business process modeling can be used for different purposes like supporting communication between different stakeholders, enabling computer assisted analysis, or facilitating quality management by providing reference models [32].

Current approaches to model business contracts mostly aim to formalize the contracts’ content in order to enable automated model analysis [30, 44, 29]. These approaches contribute to making contracts accessible by algorithms but they do not necessarily improve a contract’s comprehensibility.

3. Contract Analysis

In order to enhance the comprehensibility of complex contracts by means of process modeling, we first of all have to determine whether there is any potential for process modeling in contracts, at all. We furthermore have to define the different types of content a contract can have and, if existent, the related potential for process modeling. The Goal of our analysis is, therefore, to answer the following two research questions:

Research Question 1: Do collaboration contracts contain significant potential for process modeling?

Research Question 2: Do content types in collaboration contracts differ in their potential for process modeling?

By answering these two questions we hope to achieve two different things. On the one hand we try to raise awareness among researchers as well as among practitioners of the potential of business process modeling in contract design. We suppose that many practitioners, especially from the legal domain, do not use any visualization or modeling technique when crafting a contract, simply because they are not aware of the existence and the potential of such techniques. On the other hand the results could be used in the design of an IT artifact that supports the crafting of contracts with additional representational aspects like process models, like is also described in the interpretation and contribution section of this paper.

Our research approach can be conceptualized in five steps (see Figure 1), namely the determination of the scope of research, the selection of the contracts to be analysed, the clustering of the contract’s content into different content types, the analysis of those content types regarding their process modeling potential, and the interpretation of the results and their contribution. These steps are further described in the following subsections.

3.1. Determination of Research Scope

Business collaboration between companies (e.g., in supply chain collaboration) often involves an integration of business processes in order to jointly work towards a common goal [48]. This necessarily requires the planning and management of organizational and operational procedures, where BPM offers a variety of concepts, methods, and solutions. Collaborating companies are often engaged in negotiations on the collaboration’s scope and
content prior to the actual collaboration activities [18]. Resulting from these negotiations are contracts that lay down the general scope of the collaboration as well as more detailed regulations, regarding, e.g., financial affairs (like, e.g., revenue sharing), promotion activities, license regulations, or confidentiality matters. These contracts can be summarized under the term ‘co-operative agreement’ [37]. In this paper we refer to this type of contracts as ‘collaboration agreements’.

Such agreements aim to reinforce trust and reduce risk in business transactions between the collaborating parties [36, 33]. Business collaboration agreements further can describe detailed procedures for certain circumstances, like e.g., the collaboration’s extracurricular termination. Therefore, such a contract is not only used for enforcing the negotiated agreement but is also used as a productive factor that facilitates an effective and efficient collaboration [34, 35, 4].

The design of collaboration agreements often involves different people with different roles from different organisations, like e.g., managers, engineers, or lawyers [3]. Therefore, it is crucial that this contract type and its content are also as comprehensible as possible for legal laypersons so that misunderstandings can be minimized during the design phase and possibly resulting disputes that could hinder an effective and efficient collaboration can be avoided [9]. Out of the different types of contracts and agreements that exist in a company’s environment, therefore, we focus our analysis on collaboration agreements.

3.2. Contract Selection

The contracts used in our analysis are taken from the online database oneCLE which provides a large number of publicly accessible business contracts [41]. These contracts are mainly contracts that have been filed with the U.S. Securities and Exchange Commission (SEC) which implies that often at least one of the contractual partners is from the public sector and comes under SEC reporting obligations. This presents certain limitations to our analysis which are further discussed in Chapter 4.

A sample of 12 contracts has been randomly drawn from a number of 296 contracts listed in the ‘collaboration agreement’ category at oneCLE.com. For this purpose, the whole list which is provided at oneCLE.com was consecutively numbered and the sample was drawn by generating true random numbers between 1 and 296. The only exclusion criterion was the length of a contract. We did not take contracts with less than 5000 words into the sample because we believe that a contract should have a certain length in order to provide interesting data. This resulted into the exclusion of one contract that did not fit this criterion. Other criteria like the specific type of agreement or the related industries were intentionally not used as selection criteria. The sample size of 12 was chosen due to feasibility aspects. The detailed analysis of a complex collaboration contract is a very time consuming activity. On top of that we think that a number of 12 contracts is totally sufficient for answering our research questions. The selected contracts are from a wide range of industries and have their effective date

<table>
<thead>
<tr>
<th>ID</th>
<th>Contract</th>
<th>Date</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Agreement - WellPoint Health Networks Inc. and Drugstore.com Inc.</td>
<td>Jun 22, 2000</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>C2</td>
<td>Alliance Agreement - IWC Services Inc. and Halliburton Co.</td>
<td>Sep 18, 1995</td>
<td>Energy</td>
</tr>
<tr>
<td>C3</td>
<td>Alliance and Co-Marketing Agreement - Corio Inc. and Ernst and Young LLP</td>
<td>Apr 19, 2000</td>
<td>Computer Software and Services</td>
</tr>
<tr>
<td>C5</td>
<td>Code Share and Revenue Sharing Agreement - America West Airlines Inc. and Mesa Airlines Inc.</td>
<td>Mar 19, 2001</td>
<td>Transportation</td>
</tr>
<tr>
<td>C6</td>
<td>Contractual Joint Venture Contract - Chengdu Huanyu Information Industry Co. Ltd. and Big Sky Network Canada Ltd.</td>
<td>Jul 07, 2000</td>
<td>Energy</td>
</tr>
<tr>
<td>C7</td>
<td>Cross Promotion Agreement - 247 Media Inc. and TechWave Inc.</td>
<td>Apr 04, 1999</td>
<td>Services</td>
</tr>
<tr>
<td>C8</td>
<td>Joint Commercialization Agreement - Dendreon Corp. and Kirin Brewery Co. Ltd.</td>
<td>Jan 31, 2000</td>
<td>Biotechnology/Pharmaceuticals</td>
</tr>
<tr>
<td>C9</td>
<td>Joint Venture Agreement - Innotech Corp. and Credence Systems Corp.</td>
<td>Jun 09, 1997</td>
<td>Electronics and Miscellaneous Technology</td>
</tr>
<tr>
<td>C10</td>
<td>Collaboration Agreement - Amgen Inc. and ViaCell Inc.</td>
<td>Dec 23, 2003</td>
<td>Biotechnology/Pharmaceuticals</td>
</tr>
<tr>
<td>C11</td>
<td>Preferred Partner Agreement - DrKoop.com Inc. and Salon Internet Inc.</td>
<td>Apr 19, 1999</td>
<td>Health Products and Services; Media</td>
</tr>
<tr>
<td>C12</td>
<td>Strategic Marketing Alliance Agreement - Portable Software Corp. and American Express Co.</td>
<td>Dec 16, 1997</td>
<td>Computer Software and Services</td>
</tr>
</tbody>
</table>
between 1995 and 2003 (see Table 1). All contracts are written in English language and vary in their length from approximately 5500 to 32000 words.

### 3.3. Content Clustering

Our second research question asks for differences of process modeling potential in different content-related parts of a contract. Therefore, it is necessary that the selected collaboration contracts are analysed to identify different types of content and determine these type’s frequency and relevance. We coded the contracts’ content into 14 categories (content types) that subsume similar thematic groups (see Table 2). The categories were derived in an iterative process. A first set of categories was established after working through half of the contracts. This set was then adjusted and complemented after analyzing the second half of the sample. Two independent IS researchers were following this procedure and comparing their results which led to the final set of categories. Each part of these contracts was assigned to one of these 14 category variables using again the four-eye-principle. In the following these variables are described in more detail.

Contracts usually begin with some kind of recitals (CT1) where often the contractual partners themselves and the current status quo of their relationship respectively their market position are described and fundamental testimonies of will are given by the contractual parties.

Following the recitals part many contracts include a definitions part (CT2) where basic terms and concepts that are used in the contract are defined and described. Certain parts of the contract refer to these definitions afterwards.

Another frequently observed content type is the description of the agreement’s organisation aspects (CT3). These parts describe the collaboration's organizational framework. This includes, e.g., a joint venture company’s organizational structure, the constitution of a board of directors and their decision making power, and other governance issues.

Many contracts contain descriptions of joint marketing and promotion activities (CT4) ranging from the definition of specific requirements for promotional materials to the description of whole marketing programs and their activities.

The usually most extensive part of a collaboration agreement is principally concerned with the actual collaboration activities (CT5). This first of all includes a description of the collaboration’s overall objective and scope which is followed by more detailed descriptions of and regulations on the value added solution, development plans, performance of services, joint product development and sale, or manufacturing and supplies. We also included the definition of the parties’ rights, responsibilities and obligations concerning the collaboration in this content type. Thereby, the more specific descriptions are often to be found in a contract’s exhibit (appendix).

Another large part of a collaboration contract is concerned with financial issues (CT6). We assigned those parts of a contract that dealt with stock transfer and stock purchase issues, financial compensation and incentives, capital and costs, payment and fees, distribution of profits and losses, taxation, and accounting and auditing issues. Here, as well, specific descriptions are often to be found in a contract’s exhibit.

Regulations on non-competition and exclusivity constitute the next content type (CT7). In these parts the contractual parties agree, e.g., on not promoting or favoring each other’s competitors and on not trying to solicit the other’s employees.

The content type term and termination (CT8) contains descriptions of a contract’s duration and termination regulations. The term-part usually defines an agreement’s duration and extension options, while the termination-part usually describes possible reasons for scheduled or unscheduled contract termination and the according procedures that have to be implemented in such a case.

Contractual parties very often define rules for liability and indemnification during the collaboration (CT9) where they hold each other harmless in cases of damage, which seems to be essential for the necessary foundation of trust. Furthermore, these contract parts describe procedures of how to act in the case of indemnity claims.

For the case of any dispute that arises between the contractual parties within or after the collaboration period, collaboration contracts frequently contain

---

#### Table 2. Contract content types

<table>
<thead>
<tr>
<th>ID</th>
<th>Content Type Name</th>
<th>Relative Occurrences</th>
<th>Absolute Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT1</td>
<td>Recitals</td>
<td>100%</td>
<td>12</td>
</tr>
<tr>
<td>CT2</td>
<td>Definitions</td>
<td>67%</td>
<td>8</td>
</tr>
<tr>
<td>CT3</td>
<td>Organisation</td>
<td>42%</td>
<td>5</td>
</tr>
<tr>
<td>CT4</td>
<td>Marketing/Promotion</td>
<td>50%</td>
<td>6</td>
</tr>
<tr>
<td>CT5</td>
<td>Collaboration Activities</td>
<td>100%</td>
<td>12</td>
</tr>
<tr>
<td>CT6</td>
<td>Financial Issues</td>
<td>100%</td>
<td>12</td>
</tr>
<tr>
<td>CT7</td>
<td>Non Competition/Exclusivity</td>
<td>42%</td>
<td>5</td>
</tr>
<tr>
<td>CT8</td>
<td>Term/Termination</td>
<td>100%</td>
<td>12</td>
</tr>
<tr>
<td>CT9</td>
<td>Liability/Indemnification</td>
<td>92%</td>
<td>11</td>
</tr>
<tr>
<td>CT10</td>
<td>Dispute Resolution</td>
<td>92%</td>
<td>11</td>
</tr>
<tr>
<td>CT11</td>
<td>Licenses/Reservations of Rights</td>
<td>75%</td>
<td>9</td>
</tr>
<tr>
<td>CT12</td>
<td>Confidentiality</td>
<td>92%</td>
<td>11</td>
</tr>
<tr>
<td>CT13</td>
<td>Representations and Warranties</td>
<td>67%</td>
<td>8</td>
</tr>
<tr>
<td>CT14</td>
<td>General Regulations</td>
<td>100%</td>
<td>12</td>
</tr>
</tbody>
</table>
dispute resolution regulations (CT10). These particularly include definitions of dispute resolution procedures and arbitration processes.

The question of who gets the license or intellectual property rights of what is a vital question in joint collaborations. Because of this, many contracts contain a section that regulates issues on licenses and reservation of rights (CT11). This includes, e.g., regulations on intellectual property rights, service mark licenses, sublicenses, trademark rights, or copyrights.

Another important issue in business collaborations is the regulation of confidentiality and disclosure (CT12). This content type contains rules for the treatment of confidential information and possible scenarios of disclosure. It sometimes even contains descriptions of specific procedures that have to be followed in the case of information disclosure.

During the design of collaboration contracts, the contractual parties often demand representations and warranties of each other (CT13). This usually contains warranties on the ownership of necessary authorization and rights but can also include other matters as well.

The last variable subsumes a number of different content types under the term general regulations (CT14). These content types are often highly standardized in their content and relatively briefly worded (so called boilerplates) [1]. CT14 contains definitions of the effective date, the governing law, means for notices, the contract’s language, rules of waiving, regulations of force majeure, insurance issues, the relationship of the contractual partners, severality clauses, the meaning of the contract’s headings, the contract’s counterparts, rules for assignment, and the scope of the entire agreement’s text.

The relative and absolute occurrence of these content types in the selected collaboration contracts can be seen in Table 2. It is obvious that some content types can be found in all contracts while others are more infrequently distributed. In the context of our analysis the frequency of occurrence could be a measure for the relevance of specific content types in a collaboration agreement. Although it is tempting, we do not claim that these results are representative for the whole class of collaboration contracts because of the rather small sample that was analyzed. Any conclusions we draw are therefore valid for the sample data only.

3.4. Analysis of Process Modeling Potential

After identifying the different content types in collaboration contracts we aim to answer the question of whether there is potential for process modeling in those contracts and how this potential differs between different contract content types. Therefore, we worked through the selected contracts, again using the four-eye-principle, and determined process modeling potential for all content types (except CT14) in a binary way, meaning that a content type either has process modeling potential or not. We excluded CT14 from our analysis because we think that the highly standardized general regulations (boilerplates) in this content type should be analysed more differentiated and in more detail which should be subject of another analysis.

In order to determine whether a contract or certain parts of it contain potential for business process modeling, it is essential to define what exactly constitutes a process and how to recognize this in the text of a contract. Therefore, it is first of all necessary to establish a working definition of business processes that can be used in our analysis to identify those parts of contracts that describe processes and, therefore, could potentially be represented by business process models.

A business process describes the way organizations work, which is a set of activities they conduct to accomplish a particular objective [16]. These activities can be defined on various functional abstraction levels [16], ranging from global cross-company processes to very narrow, isolated business functions. Beyond that, business processes may consist of different additional aspects, like time-logical activity sequencing, resource allocation, communications, and organizational responsibilities [49, 8].

Thus, during the contract analysis we noted business process modeling potential wherever a time-logical sequence of activities was described (regardless of the abstraction level), that optionally includes additional aspects like resources or organizational responsibilities.

The results of this analysis can be seen in Figure 2. We can state that there is varying potential for process modeling in different content types in our data sample. While some content types like financial issues or term and termination show very high potential, others like licenses/reservation of rights or confidentiality show rather little potential. In the following, based on a selection of eight interesting content types we discuss the results supported by exemplary excerpts from the contracts that attest process modeling potential.

The content type definitions (CT2) shows no potential for process modeling at all. This is not unexpected because the definitions section in a contract usually defines fundamental terms and does
not describe any processes or procedures.

The content type organisation (CT3) contains very high potential for process modeling. In every contract, with CT3 present, we found potential for process modeling (see Figure 2). This originates mainly from descriptions of meeting procedures or decision processes. The excerpt from contract four (C4) describes the procedure for the generation of a board meeting’s minutes (Table 3). This satisfies the prior given definition of a business process. Certain activities (Distribution of the Minutes, Amendments, etc.) are described in a time-logical sequence with additional aspects like responsibilities (Chairman, Vice-Chairmen, etc.). Nevertheless, only 42% of all contracts even contain organizational descriptions that belong to the content type CT3. This means that, although there is high potential for process modeling in CT3, the content type itself occurs only in a few of the sample of collaboration contracts.

The content type marketing and promotion (CT4) shows process modeling potential (50%) in parts where specific procedures for marketing and branding activities are described, as can be seen in the excerpt of contract ten (C10) in Table 3. Here, as well, we have a time-logical sequence of activities with different actors (the contractors) and resources (promotional materials, products, etc.). The marketing and promotion content type appears only in 50% of all contracts that have been analysed which could again indicate a lesser relevance of this content type in the sample of collaboration contracts.

The content type collaborative activities (CT5), where the highest process modeling potential was suspected, shows potential in only 75% of the analysed contracts. This potential is mainly found in parts where specific activities of the value-added collaboration are described. Some contracts, however, solely describe the overall scope of the collaboration and the respective regulative framework in terms of rights and obligations. This may explain why we didn’t find process modeling potential of CT5 in all analysed contracts.

The content type financial issues (CT6) shows very high potential for process modelling (100%), which can be ascribed to the fact that it often contains descriptions of procedures for stock transfer, payment, or pricing.

Also very high process modeling potential (92%) has the term and termination content type (CT8). Here, the potential lies mainly in the descriptions of procedures for a collaboration’s termination.

The dispute resolution procedures described in CT10 contain definite potential for process modeling (82%). Processes for the case of dispute between the contracting parties are described on a regular basis and often in much detail.

The content type confidentiality (CT12) shows rather little potential for representation with process models (36%). Those parts that showed process modeling potential were mainly descriptions of procedures on how to handle confidential information or disclosure like, e.g., in the excerpt from contract nine (C9) in Table 3.

3.5. Interpretation and Contribution

We can state that all analysed contracts contain process modeling potential (although to varying degree). This answers our first research question of
whether collaboration contracts do contain significant process modeling potential, which is the main prerequisite when thinking of improving a contract’s comprehensibility and reduce its complexity and ambiguity by using business process modeling techniques. This is not as trivial as it may seem. In the literature it is often stated that business contracts specify obligations, permissions, and prohibitions (e.g., [19]). But in order to exploit the benefits of business process modeling, it is necessary that specific procedures and processes are described. The fact that there actually are processes described in all analysed contracts is a simple but important finding on the way to a process model supported contract design.

Our second research question, asking for differences of process modeling potential in different content-related parts of a contract, was answered by the fact, that we found significant differences of process modeling potential in the analysed content types. Some content types like confidentiality or recitals showed little or no potential at all while other content types like organisation or term and termination contained descriptions of procedures and

<table>
<thead>
<tr>
<th>CT ID</th>
<th>Content Type Name</th>
<th>Contracts</th>
<th>Exemplary Excerpt</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT2</td>
<td>Definitions</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CT3</td>
<td>Organisation</td>
<td>C4, C6, C8, C9, C10</td>
<td>C10: [...] Prior to the use thereof, Party A shall provide to Party B a prototype of any Promotional Materials or Product Labeling which contains Party B’s corporate name and/or logo, so that Party B may review the manner in which its corporate name and/or logo are used therein. Party B shall notify Party A within [*] after delivery of such prototype, whether Party B approves or disapproves of the manner of such use and, in the case of disapproval, the specific reasons therefore and an acceptable alternative. In the event, that Party B fails to notify Party A [...]</td>
</tr>
<tr>
<td>CT4</td>
<td>Marketing/Promotion</td>
<td>C1, C3, C10</td>
<td>C1: [...] If Party A enters into an agreement with another Health Plan or PBM that provides the other Health Plan or PBM with a lower reimbursement rate (AWP discount and fill fee together) for the same days’ supply that Party A is permitted to fill under the Pharmacy Provider Agreement, or commits Party A to offer through the Health Plan or PBM a program that offers a superior discount program to the Health Plan’s or PBM’s members, Party A shall notify Party B of such agreement within ten (10) days of entering into the Third Party Agreement. Following receipt of such notice, Party B may unilaterally amend the Pharmacy Provider Agreement to match the reimbursement rate (in total) or amend the then current Party B member discount program [...]</td>
</tr>
<tr>
<td>CT5</td>
<td>Collaborative Activities</td>
<td>C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12</td>
<td>C5: [...] If the monthly insurance payments made by Party A are less than the actual premiums paid by Party B, then Party A shall pay such excess in the month Party B pays the insurance premiums. If the monthly payments made by Party A exceed the actual insurance premiums, then Party A shall be entitled to a credit against the next payment of the Actual Costs in an amount equal to such overpayment. Party B, within 10 days after receipt, shall provide Party A with copies of all premium notices received for insurance premiums. [...]</td>
</tr>
<tr>
<td>CT6</td>
<td>Financial Issues</td>
<td>C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C12</td>
<td>C6: [...] All fixed assets and capital shall be turned to Party A upon expiration of the Contract, after paying in full of the debts of the company, the Liquidation Committee shall distribute the remaining assets among the Parties hereto in proportion to the profit distribution ratios in effect under Article 50 of Articles of Association as of the liquidation date. After the liquidation Party A has the pre-emptive right to purchase the remaining equipment[...]</td>
</tr>
<tr>
<td>CT8</td>
<td>Term/Termination</td>
<td>C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C12</td>
<td>C8: [...] If any dispute, controversy or claim arises out of or in connection with this Agreement, the Parties shall use reasonable efforts to settle it by friendly negotiation within sixty (60) days of notice from one Party to the other of such dispute, controversy or claim, before pursuing any other remedies available to them. If either Party fails or refuses to participate in such negotiations, or if, in any event, the dispute, controversy or claim is not resolved to the satisfaction of both Parties within the sixty (60) day period, any such dispute, controversy or claim shall be settled by arbitration. Any such arbitration shall be conducted [...]</td>
</tr>
<tr>
<td>CT10</td>
<td>Dispute Resolution</td>
<td>C1, C2, C3, C4, C5, C6, C8, C9, C10</td>
<td>C9: [...] The Confidential Information shall be (i) disclosed in writing or in other tangible form and marked as confidential at the same time of disclosure, or (ii) disclosed orally or in other intangible form and clearly indicated as confidential at the time of disclosure and, within thirty (30) days after such disclosures, followed up with a written notice stating the content and nature of such Confidential Information [...]</td>
</tr>
<tr>
<td>CT12</td>
<td>Confidentiality</td>
<td>C8, C9, C10, C12</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Excerpts for process modeling potential of selected contract content types
processes. These results indicate in which parts of a collaboration contract process modeling techniques could or could not be applied beneficially.

But how can we actually support contract design and comprehension by using business process modeling and how can the results of our analysis be used in doing so? When asking a lawyer how he usually designs a contract he will probably tell about the right phrasing and formulations of a contracts text and what exact text passages are needed in order to craft a good contract. We assume that most lawyers do not even consider using visual means like conceptual models to supplement the design of a contract. Therefore, the most important contribution of our results is to raise the awareness among contract designers and contract users of the potential and possibilities that come with process modeling. Contract designers should especially consider using process modeling techniques when drafting contract content types that were identified as the most suitable for process modeling in our analysis. This would open up a completely new field where BPM methods and techniques have to be conveyed and evaluated.

Currently, many contracts are designed with the help of so-called legal document assembly software or legal document management systems [31, 26, 17]. These systems often provide textual building blocks that facilitate reuse of text during contract design. Nevertheless, these systems lack the possibility to create process models or any other type of visualisation.

Therefore, we propose a design science approach to this problem [24, 7]. Design science aims to develop artifacts that provide an effective and innovative contribution to the solution of a certain problem [24, 42]. We think that an IT artifact that supports contract designers during the drafting phase of contracts by providing the means for utilizing business process modeling techniques would support the goal of creating more comprehensible contracts. Therefore, the first step should be the development of an IT artifact that contains a graphical model editor for business process modeling while at the same time supports contract drafting by providing and managing textual building blocks. We argue not to replace the text of a contract but rather to supplement it by providing additional representational forms like business process models.

We are aware of the fact, that the people that usually design contracts (e.g., lawyers) could face some difficulties in identifying business process modeling potential in a contract. Therefore, the artifact should be further enhanced with a hybrid (content-based and collaborative) recommender system [13, 6] that can detect process modeling potential during the design phase and recommend the design of a process model in a specific process modeling language to the contract designer. In addition to the recommendation of process modeling potential, such a system could provide matching process reference models [51, 39, 45] that would enable the contract designer to reuse process models [25]. The results of our analysis regarding the differences in process modeling potential among different content types could, thereby, be used as an indicator for where the design of process reference models in a collaboration contract would be most efficient. A lot of research has already been done concerning recommendation systems that can be taken as a foundation for the proposed IT artifact. One approach with high relevance to this artifact supports process modeling novices and experts by identifying and recommending relevant process fragments in large texts and by identifying and suggesting related process reference models from an existing repository [25]. Other approaches make recommendations based on the experience and information of other users [23].

The results of our analysis could be used in such recommendation systems by, e.g., limiting such recommendations only to those parts of a contract with high process modeling potential and leaving out the parts with little or no potential.

4. Limitations and Outlook

In this Chapter we discuss certain limitations to our research design and procedure (see Figure 1 for the research procedure) and state potential for further research.

We are aware that with determining collaboration contracts as our research scope, we neglect other contract types that could be also relevant for businesses when managing their business processes. These contract types could, e.g., be distribution agreements, employment contracts, marketing agreements, outsourcing agreements, or purchase agreements. Different contract types could contain different content types and process modeling potential. Therefore, it is necessary to conduct further research on the differences between diverse contract types regarding their process modeling potential in relation to their content types.

In the contract selection phase, the source of the contracts, oneCLE.com, provides a limitation to the analysis. Due to the fact, that nearly all contracts in this database are taken from public filings with the SEC and, therefore, in most cases at least one contracting partner succumbs to the SEC’s public filing obligation, the data is biased this way. This and
the relatively small data sample do not allow any universal conclusions beyond the sample data. Another point we should note is that the contracts are in average 12 years old. The possibility exists, that more recent contracts provide different results. We further note, that the method of randomly choosing the contracts from the database could be changed in order to get a more representative sample regarding industry, effective date, size of contracting parties, etc. This would require a more detailed preliminary study of the contracts.

During the content clustering, the four-eye-principle could be extended to an n-eye-principle with n > 4 to confirm our results. The analysis has been conducted by two IS researchers. We assume that if additional experts from other fields of expertise, like e.g., law or business administration, are included in the analysis, it could be further confirmed that our results reflect the contracting practice in an optimal way.

During the analysis of process modeling potential, the binary way of determining potential in the particular content types allows for basic conclusion on process modeling potential. Nevertheless, we think that further research is needed to analyze the contract content types in more detail to get additional information, like e.g., the distribution and quantity of process modeling potential within a certain content type or the different properties and resources of a process description (e.g., organizational units, information objects, cash flows, temporal flows). These properties could lead to a postulation of specific requirements for a contract design process modeling language.

The interpretation and contribution of our results is done from a design science research perspective. The proposed IT artifact is based on the assumption, that visualizing text by means of conceptual models does contribute to a better comprehensibility and management of complexity in contracts. The effectiveness of such means, however, is still matter of discussion [50, 27, 15, 14] and needs to be proven empirically. This empirical study should not exclusively examine the legal discipline but also other disciplines that are involved in contractual design or are in need of reading and understanding business contracts.

Another research question that should be answered by an empirical study is the question of what type of process modeling language (rather formal or rather semi-formal) and which specific process modeling languages (e.g., BPMN, EPC, Petri Net) qualify best for the proposed IT-artifact.

5. References


