IPHV7I10014X
International Journal Of Advanced Research and Innovation -Vol.7, Issue .I
ISSN Online: 2319 – 9253
Print: 2319 – 9245

A METHODOLOGY FOR AGENT BASED SUPPLY CHAIN MANAGEMENT

[1]D.RAMBABU,
Assistant Professor, Dept of IT,
Vasavi College of Engineering, Hyderabad.
[2]KISHOR KUMAR GAJULA
Dept of CSE, Research Scholar, Hyderabad.

Abstract:- The key to successful contract management is the presence of competent people on both the mine owner's and the contractor's teams. When competent people are present on a project, problems will nearly always be resolved; the work will be well planned by the mine owner and well executed by the contractor Projects may survive inadequacies on the mine owner's side but no1: in the contractor's team. A competent contractor can often compensate for deficiencies on the other side. Unfortunately, disaster will often strike if the contractor's team does not know what its doing. The fIrst casualty when competence is lacking is trust and cooperation between the parties. This is because each party will be blaming the other for all the problems that will inevitably be starting to trouble the project. Contracts are legally binding descriptions of business service engagements. In particular, we consider business events as elements of a service engagement. Business events such as purchase, delivery, bill payment, bank interest accrual not only correspond to essential processes but are also inherently temporally constrained. Identifying and understanding the events and their temporal relationships can help a business partner determine what to deliver and what to expect from others as it participates in the service engagement specified by a contract. However, contracts are expressed in unstructured text and their insights are buried therein. Our contributions are threefold. We develop a novel approach employing a hybrid of surface patterns, parsing, and classification to extract (1) business events and (2) their temporal constraints from contract text. We use topic modeling to (3) automatically organize the event terms into clusters.

Index Terms:- *Service engagements, Contract mining, Business events,Clusters.*

I.INTRODUCTION

Modern business service engagements are becoming increasingly more numerous and more complex. We consider service engagements in the broad sense. Thus we include not just traditional examples of service engagements, such as customer relationship management or business process outsourcing, but also other business interactions, such as manufacturing and software licensing.

Financial: Companies need to determine if it makes more financial sense to purchase cloud services or build customized systems in house. Often companies underestimate the risks and cost of data loss, or the cost of mitigating and

preventing the occurrence in the first place. With your knowledge of the real business cost of data loss, you can educate your clients about their level of exposure.

Legal: Companies need to determine the level of archiving and protection they need to provide for potential legal actions and e-discovery requests. In this day and age, it is not enough to say that the files are no longer accessible; companies can and will be held liable for the data recovery. As a channel partner, you can provide services, like information lifecycle management (ILM) or data privacy audits to ensure your clients are fully protected in the cloud.

Regulatory: HIPAA, state data protection laws, SOX and a myriad of other regulations affect your clients differently depending on their business and industry sector. Regulations are rapidly catching up with cloud technology, so understanding the often complex and sometimes contradictory regulatory environments are valuable skills to help your clients navigate the traitorous waters of using cloud services in a regulated industry. This is particularly true for PCI DSS and banking regulatory compliance.

The problem of specifying, adopting, and enacting a service engagement is exacerbated by the fact that contracts are expressed in natural language. Further, often the people who negotiate and those who implement a contract have different skill sets. Accordingly, we are pursuing a research program that seeks to break the problem down into chunks that are amenable to computational analysis. In previous work, we tackled a part of the second of the above challenges by mining a repository of contracts to determine the possible business exceptions identified in different domains. In this paper, we develop an approach that addresses both of the above challenges. This approach is based on the idea of business events—including business-related actions and activities such as purchase, delivery, bill payment, bank interest accrual, licensing, and dispute resolution. Business events indicate the essential processes involved in a service engagement as well as the risks and exceptions to consider. Moreover, the events are naturally temporally constrained, indicating the conditions on their occurrence. The violation of a temporal constraint is often an important factor in contractual breach and the resulting complications. For these reasons, identifying and understanding business events and their temporal relationships in a service engagement can help a business partner in successfully enacting a contract: that is, determining both what to deliver (to others) and what to expect (from others). Understanding business events and their temporal relationships can also potentially help it decide whether to enter into an engagement in the first place. Note that real-life service engagements are complex interactions with many nuances: we do not claim to have addressed all of the nuances just by identifying events and temporal constraints from contracts, though what we do identify provide a necessary underpinning for more elaborate future analyses.

II. RELATED WORK

We focus our comparisons on service computing.

2.1 Contract Analysis

Traditional studies on contracts have focused on their representation, abstraction, execution, monitoring, and model-checking [17], [18]. In general, our approach does not address the challenges these studies pursue but would support such studies by helping identify the relevant events and temporal constraints.

Milosevic et al. [19] present a contract monitoring facility. Their approach involves the Business Contract Language (BCL) as a way to represent and monitor contracts. Their focus is on the technical aspectsof representing and monitoring contracts. However, since BCL is includes the notions of events and temporal constraints, one can conceivably use an approach such as ours to help create a BCL specification based on a contract describing a service engagement.

Vidyasankar et al. [20], [21] studied activities in contracts with an focus on payments. Business events, which we extract here, are a broader conception than just payments. We observe that payments are an important family of business events in practical contracts. Indeed, Table 9 shows that payment and related events show up in different domains.

Molina-Jimenez et al. [22] provide an approach for checking the compliance of monitored business interactions with respect to a formally specified contract. The above approaches perform their enactment, monitoring, and analysis based upon a formal model. Our contribution in this work is complementary in that we show how to extract the elements of such a formal model in terms of the business events and temporal constraints involved in a service engagement.

2.2 Service Engagement Modeling

Recognizing that service engagements pervade the modern economy, Purvis and Long [27] take an interactionist rather than an objectivist perspective as the underlying principle for modeling real-world businesses. They place multiagent concepts such as norms and institutions at the center of service modeling.

Purvis and Long's ideas are naturally cohesive with 13 our approach because business events are the fundamental elements of normative relationships. Therefore, extracting events helps ground the relationships that characterize service engagements. Our work accords well with conceptual models for service-oriented applications in open environment. In these settings, contracts provide a natural basis for capturing how a service engagement is constructed and enacted.

Chopra et al. [23] present an approach for modeling service engagements via commitment protocols to improve the flexibility and expressiveness of engagements. Our approach can help elicit the business events and constraints that ground such protocols.

Kohlborn et al. [24] study 30 extant service identification approaches and propose a consolidated approach to identify and analyze business services.

However, in this work, the process of abstracting and identifying service engagements is manual. Therefore, significant human effort is needed to build the abstract representations of a service engagement. Our supervised approach for extracting business events and temporal constraints facilitates service engagement analysis and provides the necessary foundations for automated service engagement identification, and addresses challenges posed in a open contractual environment.

EXISTING WORK:

Traditional studies on contracts have focused on their representation, abstraction, execution, monitoring, and model-checking. In general, our approach does not address the challenges these studies pursue but would support such studies by helping identify the relevant events and temporal constraints.

DRAWBACKS:

- Contract is of little use to the people on site who are managing the work
- Workers are not trained and competent;
- Plant and equipment are not standard; and
- Efficient systems for maintenance have been not developed

PROPOSED SYSTEM:

Milosevic present a contract monitoring facility. Their approach involves the Business Contract Language (BCL) as a way to represent and monitor contracts. Their focus is on the technical aspects of representing and monitoring contracts. However, since BCL is includes the notions of events and temporal constraints, one can conceivably use an approach such as ours to help create a BCL specification based on a contract describing a service engagement.

ADVANTAGES:

- Ensure a good working relationship is established and maintained with the superintendent and mine owner
- Resource the job to meet all the obligations under the contract
- Manage the contract fairly and consistently
- Be wary of perfectionism
- The standard you set is the standard you get
- Consciously develop relationships and trust.

III. IMPLEMENTATION

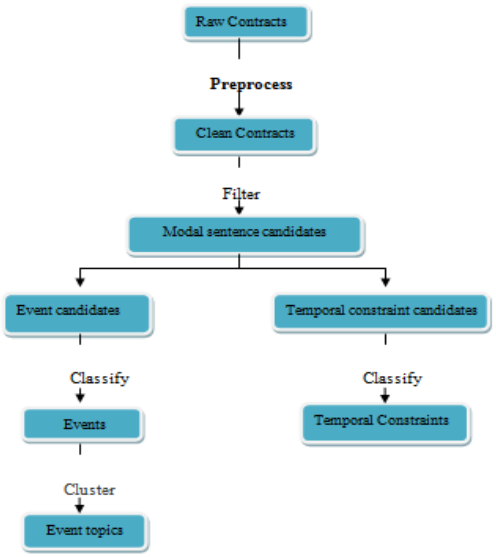
"Knowledge Based Business Service Engagement Identification (KBS)". It would be discover the dependency relationships across business events, e.g., if one event is a prerequisite of another. In the case of manufacturing, a down payment may be a prerequisite for product delivery and installment payments for continued product supply. Interlocked events form a network of business activities and lay the foundation for effective service engagements as a basis for successful commerce. It is also worth

IPHV7I10014X
International Journal Of Advanced Research and Innovation -Vol.7, Issue .I
ISSN Online: 2319 – 9253
Print: 2319 – 9245

studying the types of dependencies because these are associated with different (normative) business relationships. In particular, these relationships -can be categorized as normative relationships, such as commitments, permissions, and prohibitions. Events relate intimately to the antecedents and consequents in such normative relationships. Enriching the models in this manner can lead to improved requirements elicitation for service engagements as well as a principled basis for automating the service engagement life cycle from the perspective of a business partner.

Service engagements encompass diverse domains of knowledge ranging from manufacturing to employment to trade and their contracts exhibit similar diversity. Thus they pose special challenges to event extraction. Event extraction methods rely heavily on patterns. Such methods typically work well in a specific area, for example, natural disaster events. But they suffer from poor portability. For example, extraction patterns for genetic events cannot be applied for extracting

financial events. Thus a purely pattern-based approach, which can work in a specific area, is inadequate for contracts. Some approaches use machine learning to fill in event slots as defined in a sentence context. However, business events do not exhibit a well-defined structure so that slot-filling does not apply well.



BUSINESS EVENT EXTRACTION

A typical service engagement contract contains parts such as header, definition, body, and sign off. At the core of a contract are the clauses specifying mutual expectations expressed as normative relationships such as commitments, powers, authorizations, prohibitions, and sanctions of the participating parties. Normative relationships express business relationships among the parties to a service engagement and these normative relationships are built on top of business events.

Algorithm 1 Business events extraction.

Require: Contract corpus C
1: **for all** contract c in C **do**
2: **for all** sentence s in c that contains a signal word **do**
3: Parse sentence s to induce grammar tree t
4: Prune tree t to obtain event candidate e
5: Build feature vector f for the event candidate e
6: **end for**
7: **end for**
8: build classification model with the training data composed of entries in the form of $(e, f, \text{Boolean})$

IPHV7I10014X
International Journal Of Advanced Research and Innovation -Vol.7, Issue .I
ISSN Online: 2319 – 9253
Print: 2319 – 9245

After the initial cleanup, Algorithm 1 selects contract sentences that include the signal words as event candidates, parses each candidate sentence to induce the grammar tree, then prunes the grammar tree, and finally builds a feature vector for each candidate using the features extracted from the grammar tree.

Algorithm 2 Grammar tree pruning.

Require: Grammar tree t
1: Locate signal words in grammar tree t
2: Obtain the (tree-structured) verb phrase v where a signal word is located
3: for all children c in v do
4: if the label of c appears in Table 2 then
5: Prune c
6: end if
7: end for

Using the Stanford Parser, we parse each event candidate sentence to produce its grammar tree that associates each token with a part-of-speech tag, and each phrase with a phrase label from the Penn Treebank.

Algorithm 2 describes the steps to prune the grammar tree to obtain a concise representation of the event candidate. For example, from the above sentence we obtain "CLIENT shall select and pay freight forwarder who shall solely be CLIENT's agent" as the extracted event candidate because the signal word "shall" precedes this verb phrase. Within the event verb phrase, the clause "who shall solely be CLIENT's agent" with the SBAR chunk label qualifies "the freight forwarder." Our pruning algorithm removes the leaves of the grammar tree with the SBAR labels, so the event is abbreviated to "CLIENT shall select and pay the freight forwarder."

IV.BUSINESS EVENT EXTRACTION

A typical service engagement contract contains parts such as header, definition, body, and sign off. At the core of a contract are the clauses specifying mutual expectations expressed as normative relationships such as commitments, powers, authorizations, prohibitions, and sanctions of the participating parties.

Normative relationships express business relationships among the parties to a service engagement and these normative relationships are built on top of business events. In English grammar, these normative expressions are often associated with modal verbs such as "shall," "may," and "must". We use modal verbs as signals to signify the occurrence of business events. Signal words are widely used in information extraction and serve as clues for locating the extraction context.

V.EVENT TERM CLUSTERING

Business events in service engagements naturally fall into categories such as product delivery, payment, and natural hazards. Automatically discovering the event categories can help us better organize events in different service engagement domains. Further, it would help complete the full knowledge discovery cycle by beginning from raw text and ending with automatically discovered event categories.

Classification and clustering are widely applied to categorize text. Classification

methods are supervised, so a training dataset needs to be built manually beforehand that predefines the categories. However business events found in contracts cut across numerous service engagement domains, with potentially different categories across domains. For example, in licensing contracts, the event categories may be of patent infringement, financial payment, and product licensing. And, in leasing contracts, the event categories may be of property management, rent payment, and eviction.

VI. TEMPORAL CONSTRAINTS EXTRACTION

Service contracts involve temporal information of various forms. The temporal expression format also varies. Some temporal information is expressed explicitly as dates, for example, "Feb. 3th, 2010" and "10-01-1949."

In service engagements, the most relevant temporal information pertains to the constraints that the participants need to observe. For example, a business workflow usually follows a temporal order, and the successful fulfil fulfilment of a service engagement greatly depends on the timely completion of those business processes. Such temporal relations among the business events are usually expressed explicitly for the purpose of clarity and emphasis. Temporal constraints in contracts are mostly expressed in prepositional phrases (PP).

ANNOTATOR

The text classification tasks we consider are not time critical. Applications such as annotator can process the documents offline and then provide users with highlighted information. To illustrate the use of our trained model, we built a temporal annotator using the model we trained on top of the GATE framework. The quoted text below illustrates the annotation result on a purchasing agreement between Redhook Ale Brewery Incorporated ("Redhook") and Anheuser-Busch Incorporated. 13 The underlined text is the business event and the italic text is the temporal constraint discovered by our model.

In the event that the orders and deliveries of Packaging Materials made by Supplier to Redhook have failed in respects material to Redhook's Portsmouth operations to comply with the terms of the Supply Agreement and Redhook determines (such determination to be made in good faith and on a commercially reasonable basis) that such failures are likely to continue, Redhook may terminate the purchase and sale obligations of Redhook and ABI under this Agreement *upon 30 days written notice to ABI and Supplier*.

VII.CONCLUSION

In this paper interesting to discover the dependency relationships across business events, e.g., if one event is a prerequisite of another. In the case of manufacturing, a down payment may be a prerequisite for product delivery and installment payments for continued product supply. Interlocked events form a network of business activities and lay the foundation for effective service engagements as a basis for successful commerce.

It is also worth studying the types of dependencies because these are associated with different (normative) business relationships. In particular, these relationships can be categorized as normative relationships, such as commitments, permissions, and prohibitions. Events relate intimately to the antecedents and consequents in such normative relationships . Enriching the models in this manner can lead to improved requirements elicitation for service engagements as well as a principled basis for automating the service engagement life cycle from the perspective of a business partner.

REFERANCES:

[1] Mining Contracts for Business Events and Temporal Constraints in Service Engagements Xibin Gao and Munindar P. Singh, Fellow, IEEE,2013

[2] H. Tanev, J. Piskorski, and M. Atkinson, "Real-time news event extraction for global crisis monitoring," in Proceedings of the 13th International Conference on Natural Language and Information Systems: Applications of Natural Language to Information Systems, ser. NLDB. London: Springer-Verlag, 2008, pp. 207–218.

[3] M. P. Singh, "Norms as a basis for governing sociotechnical systems," ACM Transactions on Intelligent Systems and Technology (TIST), pp. 1–21, 2013, to appear; available at http: //www.csc.ncsu.edu/faculty/mpsingh/papers.

[4] H. H. Malik, V. S. Bhardwaj, and H. Fiorletta, "Accurate information extraction for quantitative financial events," in Proceedings of the 20th ACM International Conference on Information and Knowledge Management. Glasgow: ACM, 2011, pp. 2497–2500.

[5] M. Pasca, "Answering definition questions via temporallyanchored text snippets," in Proceedings of the 3rd International Joint Conference on Natural Language Processing, Hyderabad, January 2008, pp. 411–417.

[6] R. Quirk, S. Greenbaum, G. Leech, and J. Svartvik, A Grammar of Contemporary English. Harlow, Essex: Longman, 1984.

[7] M. De Marneffe, B. MacCartney, and C. Manning, "Generating typed dependency parses from phrase structure parses," in Proceedings of the 5th International Conference on Language Resources and Evaluation. Genoa: European Language Resources Association (ELRA), 2006, pp. 449–454.

[8] M. Marcus, M. Marcinkiewicz, and B. Santorini, "Building a large annotated corpus of English: The Penn Treebank," Computational Linguistics, vol. 19, no. 2, pp. 313–330, 1993.

[9] J. Finkel, T. Grenager, and C. Manning, "Incorporating nonlocal information into information extraction systems by Gibbs sampling," in Proceedings of the 43rd Annual Meeting on Association for Computational Linguistics. Ann Arbor, Michigan: Association for Computational Linguistics, 2005, pp. 363–370.

[10] I. Witten, E. Frank, and M. Hall, Data Mining: Practical Machine Learning Tools and Techniques. Morgan Kaufmann, 2011.

[11] J. Makhoul, F. Kubala, R. Schwartz, and R. Weischedel, "Performance measures for information extraction," in Proceedings of the DARPA Broadcast News Workshop, 1999, pp. 249–252.

[12] F. Sebastiani, "Machine learning in automated text categorization," ACM Computing Surveys, vol. 34, no. 1, pp. 1–47, March 2002.

[13] P. Berkhin, "A survey of clustering data mining techniques," Grouping Multidimensional Data, pp. 25–71, 2006.

[14] D. Blei, A. Ng, and M. Jordan, "Latent Dirichlet allocation," The Journal of Machine Learning Research, vol. 3, pp. 993–1022, January 2003.

[15] F. Schilder and C. Habel, "From temporal expressions to temporal information: Semantic tagging of news messages," in Proceedings of the ACL Workshop on Temporal and Spatial Information Processing. Toulouse: Association for Computational Linguistics, 2001, pp. 65–72.

[16] H. Cunningham, D. Maynard, K. Bontcheva, and V. Tablan, "A framework and graphical development environment for robust NLP tools and applications," in Proceedings of 40th Annual

Meeting of the Association for Computational Linguistics, ser. ACL. Philadelphia: Association for Computational Linguistics, 2002, pp. 168–175.
[17] P. Radha Krishna and K. Karlapalem, "Electronic contracts," IEEE Internet Computing, vol. 12, no. 4, pp. 60–68, 2008.
[18] F. Meneguzzi, S. Miles, M. Luck, C. Holt, and M. Smith, "Electronic contracting in aircraft aftercare: A case study," in Proceedings of the 7th International Conference on Autonomous Agents and Multiagent Systems (AAMAS) Industry Track. Estoril, Portugal: IFAAMAS, May 2008, pp. 63–70.
[19] Z. Milosevic, S. Gibson, P. Linington, J. Cole, and S. Kulkarni, "On design and implementation of a contract monitoring facility," in Proceedings of the 1st IEEE International Workshop on Electronic Contracting. San Diego, California: IEEE, 2004, pp. 62–70.
[20] K. Vidyasankar, P. Radha Krishna, and K. Karlapalem, "Study of execution centric payment issues in e-contracts," in IEEE International Conference on Services Computing, vol. 2. IEEE, 2008, pp. 135–142.
[21] K. Vidyasankar, P. R. Krishna, and K. Karlapalem, "Study of dependencies in executions of e-contract activities," in Proceedings of the 13th East European Conference on Advances in Databases and Information Systems, ser. LNCS, vol. 5739. Berlin: Springer, 2009, pp. 301–313.
[22] C. Molina-Jimenez, S. Shrivastava, and M. Strano, "A model for checking contractual compliance of business interactions," IEEE Transactions on Services Computing, vol. 5, no. 2, pp. 276– 289, 2012.
[23] A. K. Chopra, F. Dalpiaz, P. Giorgini, and J. Mylopoulos,"Modeling and reasoning about service-oriented applicationsvia goals and commitments," in Proceedings of the 22nd InternationalConference on Advanced Information Systems Engineering(CAiSE), 2010, pp. 417–421.

[24] T. Kohlborn, A. Korthaus, T. Chan, and M. Rosemann, "Identificationand analysis of business and software services—aconsolidated approach," IEEE Transactions on Services Computing,vol. 2, no. 1, pp. 50–64, Jan. 2009.