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Collaboration Modelling Framework for Courts Hearing Workflow Specification

Thilini Bhagya[1] Shanmuganathan Vasanthapriyan[1*] Prasad Jayaweera[2]

1. Department of Computing & Information Systems, Sabaragamuwa University of Sri Lanka, PO box 02, Belihuloya, Sri Lanka

2. Department of Computer Science, University of Sri Jayewardenepura, Gangodawila, Nugegoda, Sri Lanka

* E-mail of the corresponding author: priyan@sab.ac.lk

Abstract

Effectiveness of the legal sector is highly relying on the coordination of collaborative workflow activities to cope with highly dynamic and complex information exchanges among many different partners. In this work, we have proposed a set of legal transaction patterns that could facilitate legal collaboration modeling for courts hearing procedure with the objective of facilitating the specification of legal case hearing workflows. These transactions patterns were developed in align with UN/CEFACT's recommendations for business collaboration modeling with promising results in modeling complex legal collaborations. The two main contributions of this work are collaboration modelling framework and application of the framework in courts hearing legal process specification. The application of collaboration modelling framework resulted possibility of streamlining and then to ensure coordination among workflow activities to achieve productivity and efficiency.

Keywords: Legal Workflow, Legal Collaboration Modelling, Courts Hearing, Transaction Patterns

1. Introduction

The legal sector is large and complex, and comprised with many different partners. Usually, they are dispersed around many geographical areas while acting on a same legal case. However, any work performed by one partner is utmost important to all others in order to deliver a high quality legal service. Correspondingly, each partner within the legal sector collaborates with each other for sharing of case related information, which in turn gives rise to highly dynamic and complex information exchanges. It therefore is clear that, the productivity and efficiency of the legal sector could be granted with formalization of the complex multi-party legal collaboration workflows.

In today's increasingly competitive and dynamic environments, many industries use workflow management (WM) to automate and coordinate their collaborative workflow activities as they are involved in more cross functional activities and processes than ever before. In general, this is done by the use of a workflow management system (WMS) [4]. Since WMS have become an ideal tool for defining and managing the coordination of collaborative workflow activities, we have discovered the appropriateness of the adaptation of WM in legal sector to address the complexity issues in multi-party collaborations while enabling more efficient functionalities and improving the quality of service.

Generally, at the highest level, functions of a WMS could be characterized into build-time and run-time functions. The build-time functions are concerned with defining, and modelling workflow activities and their dependencies; while the run-time functions are concerned with managing the workflow execution and interactions with resources for processing workflow applications. Accordingly, users of a WMS interact with workflow modelling techniques and methodologies to generate a workflow specification, which is then submitted to a run-time service called workflow enactment service for execution. However, during our literature survey, it was evident that there is no a standard framework to adapt in the legal sector that could assist in modelling the legal workflows. In this paper, we report on an attempt to develop a collaboration modelling framework based on UN/CEFACT's recommendations to facilitate the specification of legal workflows, in particular for courts hearing proceedings.

The remainder of the paper is arranged into four main sections. First, provides the background on related aspects. Then, a set of transaction patterns for legal collaboration modelling in courts hearing proceedings are introduced and the application of district courts case hearing legal workflow specification with a brief evaluation are presented. Finally, the paper concludes with summary conclusions are drawn.

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2. Related Work and Background

In this section, we have briefed the related projects available for legal solution development and collaboration modeling, and the foundation of the proposed framework for legal collaboration modelling.

2.1 Related Projects in Legal Solution Development

1. JWeB - The JWeB [2] project, funded by the European Commission in IST Program, has the objective to implement a secure, web based Judicial Collaboration Platform (JCP) supporting cross-border investigations on criminal matters through the integration of Computer Supported Cooperative Work (CSCW), secure information exchange, videoconference and advanced knowledge management. However, these contributions are at very lower technical level and not addressed much on higher level legal service collaboration modeling like in our work.
2. SecurE-Justice - The SecurE-Justice project [3] aims at introducing an advanced information management system in the field of justice to manage three main phases; investigation, criminal action and debate. Chiefly, the SecurE-Justice system provides a common platform to manage all these phases using a unique collaboration framework and an innovative technological solution to integrate and define a workflow model to facilitate the continuous collaboration of the investigation authorities and the judging magistrate within a secure and private working environment. Anyhow, these contributions are also not directly related and addressed legal service collaboration modelling as of interest in our work.

2.2 UN/CEFACT Modelling Methodology (UMM)

For generic business collaboration modelling, there is a huge collection of globally accepted open standards. However, among them UMM [5] is well known and widely adopted in different industries, since it provides a methodology to model business collaborations in a technology-neutral and implementation independent way. Basically, there are six primitive transaction patterns recommended to model collaboration as listed below.

1. Commercial Transaction Pattern
2. Query/Response Transaction Pattern
3. Request/Response Transaction Pattern
4. Request/Confirm Transaction Pattern
5. Information Distribution Transaction Pattern
6. Notification Transaction Pattern

Accordingly, this set of original transaction patterns that has been proposed in UN/CEFACT recommendations is selected as the basis for our proposed framework.

2.3 Business Process Management Notation (BPMN)

In literature, there are several different techniques for developing collaborative workflow models. However, the primary requirement relation to our work was the need for a notation that is readily understandable by all users, from the analysts who participate in collaboration modelling tasks, to the technical developers responsible for implementing the technology that will perform those processes, and finally, to the people who will manage and monitor those processes. In this circumstance, BPMN [1], proposed originally by Business Rules Group and then adopted by OMG fits perfectly with our requirements, as it creates a standardized bridge for the gap between the process design and implementation. Accordingly, our work solely focuses on using BPMN specification for documentation of the proposed framework.

3. Collaboration Modelling Framework

In the proposed framework, we have developed a set of transaction patterns in compliance with but by extending original transaction patterns that has been proposed in UN/CEFACT recommendations. However, we have noticed several significant differences between generic business collaborations and legal service collaborations that demand for a need on extension to the original UN/CEFACT's business transaction patterns proposal. Consequently, we have identified several different transaction patterns to model binary legal collaborations between two parties in legal case hearing proceedings as listed in following sub sections.

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3.1 Query/Response Transaction Patterns

There is a transaction pattern called Query/Response in original UMM recommendations that demands to request information that responding party already has. During our investigation in courts hearing procedure, we get explored the need for differentiation of Query/Response transaction into two.

One is named as Information Querying, which is very much identical to original Query/Response transaction pattern. The requirement for adaptation of this transaction pattern is querying the content that responding party (court) already has. For an instance court clerk, Mr. Tennakoon requests names and addresses of all witnesses in a divorce hearing from court's record room, could be given as an example.

The other transaction pattern that we have developed is called Examine/Testify. The requirement for adaptation of this transaction pattern is examining for information that the responding party already knows. Although this could be considered as an extension to original UMM Query/Response transaction pattern, we have further specialized this pattern into three sub types according to courts hearing procedure requirements we were explored during our analysis. Therefore, the first sub-type of Examine/Testify transaction pattern is named as DirectExamine/Testify through which a lawyer asks questions from the responder (client) in order to place evidence before the court in support of pleadings. The second sub-type of Examine/Testify transaction pattern is named as IndirectExamine/Testify through which the other side cross-examines the responder. The third sub-type of Examine/Testify transaction pattern is named as Re-directExamine/Testify through which the lawyer asks more questions from the responder to fix any inaccurate information. In the first place, the plaintiff's lawyer gets the opportunity to perform these three transaction patterns sequentially until all witnesses for their side are done and generally, the defendant's lawyer goes next. In these situations, each responder is obliged to place requested information before the court. However, the syntactic BPMN representation of these transaction patterns kept identical.

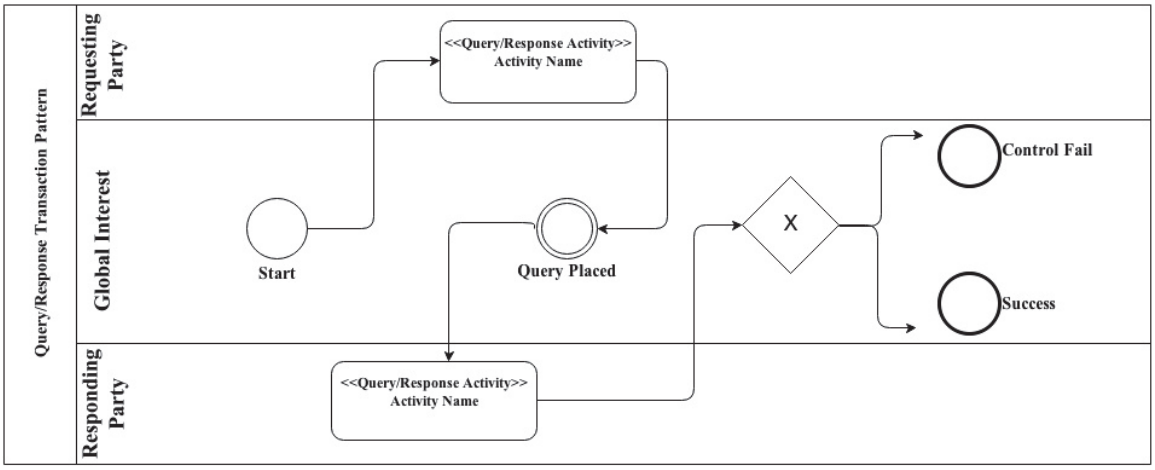

Figure 1. Basic Semantics of Query/Response Transaction Patterns

It is important to notice in these Query/Response transaction patterns that the final results always evaluates to a success. This is because of query always returned zero or more results. The other possible outcome is "Control Fail" event, means due to some technical error, requestor is not receiving intended outcome of the transaction.

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3.2 Request Case Hearing Status/Confirmation Transaction Pattern

There is a transaction pattern called Request/Confirm in original UMM recommendations that demands the status of an existing agreement. Request Case Hearing Status/Confirmation is much identical to this original pattern. The requirement for adaptation of Request Case Hearing Status/Confirmation pattern is requesting confirmation about status with respect to started case hearing proceedings. In this situation, responder (courts) is obliged to provide requested status information.

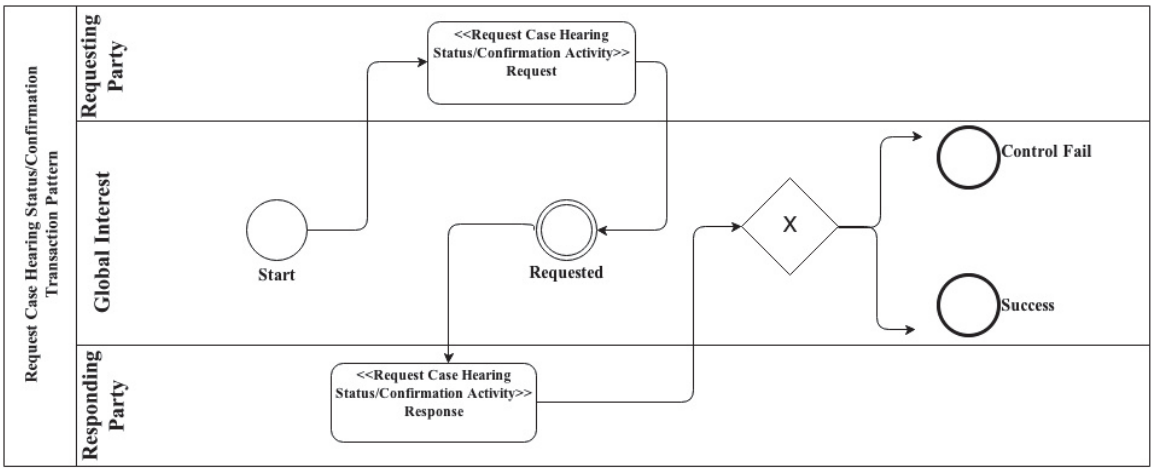

Figure 2. Request Case Hearing Status/Confirmation Transaction Pattern

The only two possible outcomes of this pattern are “Success” and “Control Fail”. As responder is obliged to provide a response, this pattern always evaluates to a “Success”, if not a technical issue. A specific example instantiated from this pattern is a plaintiff, Mr. Perera in divorce case requests status information about the filled case from the court.

3.3 Request Made at Court Transaction Patterns

Request Made at Court Transaction Patterns are very special patterns that are not common in generic business collaborations. During our investigation in legal domain, we get explored the need for differentiation of request made at a court by either party to a case into two.

One is named as Request/Order through which either party to a case requests to the court to make an order. If the court is satisfied with the request, then shall set an order. When the plaintiff’s witness in a divorce case, Mr. Dias fails to appear at case hearing date, then the plaintiff’s lawyer, Mr. Perera requests for the court to order for serving summons personally on Mr. Dias by delivering through fiscal, which would be an instance of the Request/Order pattern.

The other specialization is Request/Grant transaction pattern. Through this pattern, either party to a case could request to the court to concede for conduct a specific legal proceeding. If the court is satisfied, then shall grant the request. When the defendant in a divorce case, Mr. Ekanayake fails to appear at the case hearing date, then the defendant’s lawyer, Mr. Fernando requests for the court to adjourn the hearing of the action, which would be an instance of the Request/Grant pattern.

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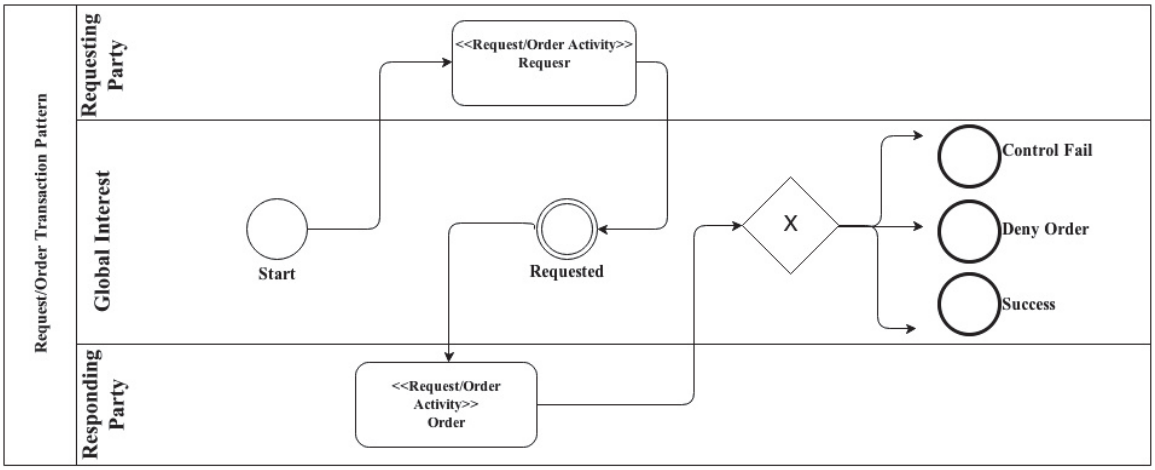

Figure 3. Request/Order Transaction Pattern

Similar to the above transaction patterns, even in Request/Order, there are two common possible outcomes as "Success" and "Control Fail". There could also be a possibility of "Deny Order" event where the court denies provisioning the requested order.

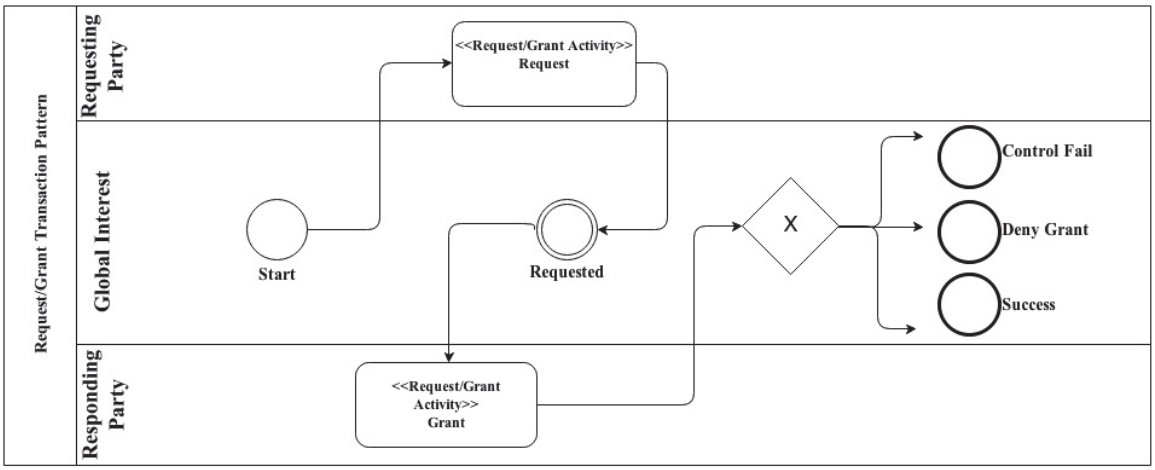

Figure 4. Request/Grant Transaction Pattern

Even in Request/Grant transaction pattern, there are two possible outcomes as in most of the transaction patterns. Besides them, due to not having sufficient reasoning to grant the request, there could also be another possible outcome called "Deny Grant" event where the court denies provisioning the granting of request.

3.4 Order/Completion Transaction Pattern

Order/Completion transaction pattern is also very special pattern that is not complying with the original transaction patterns that has been proposed in UN/CEFACT recommendations. The requirement for adaptation of this transaction pattern is ordering a specific legal proceeding with respect to on-going case hearing. In this situation, the person who has received the order is obliged to fulfil it. During our investigation in courts hearing procedure, we get explored the need for differentiation of Order/Completion transaction further into three sub categories that might carry different weight-ages, as Order Plaintiff/Completion, Order Defendant/Completion, and Order Court Personnel/Completion.

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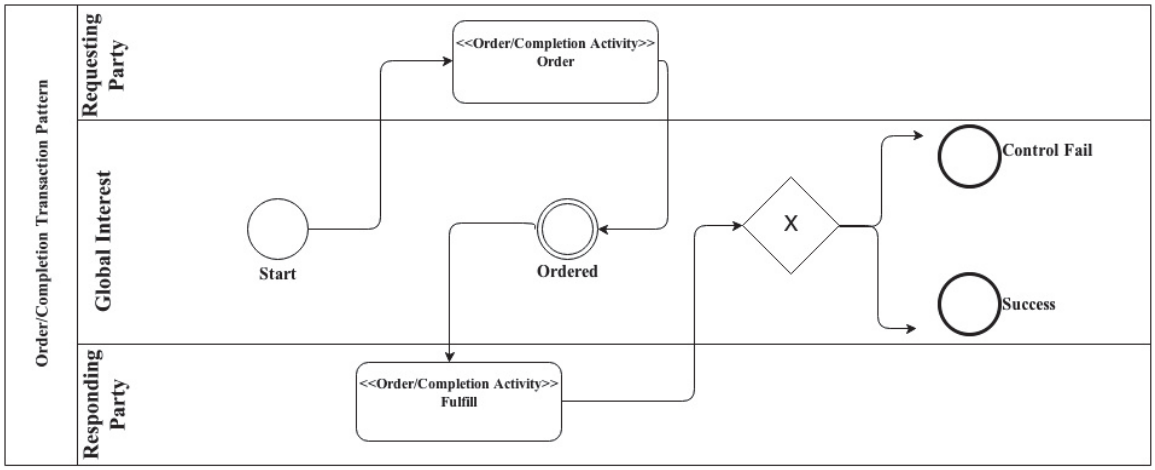

Figure 5. Basic Semantics of Order/Completion Transaction Patterns

Generally, the only two possible outcomes of these patterns are "Success" and "Control Fail". As receiver is obliged to fulfil the order these patterns always evaluate to a "Success", if not a technical issue. A generic example instantiated from these patterns is, court orders to file a list of witnesses to be called at the hearing and a list of the documents relied upon and to be produced at the hearing before the date fixed for hearing. In this situation, each party to the case is obliged to fulfil the order.

3.5 Case Hearing Information Notification Transaction Patterns

There is an original UMM transaction pattern called, Notification transaction pattern that can be used to notify recipient with non-repudiation requirement. However, during our investigation in legal domain, we get explored the need for differentiation of Notification transaction into two. Both these transaction patterns are very much identical to each other. The only difference is the final intended party of the notification.

One is named as Direct Notification through which intended recipient is directly informed with some notice. When the defendant, Mr. Bandara is contesting the divorce, court fixes a day of hearing and pronounces it in open court, which would be an instance of the Direct Notification transaction pattern. In the meantime, we get noticed the need for specializations of Direct Notification pattern, called State Issues transaction pattern which could be performed by either party to a case and Judgment Notification transaction pattern.

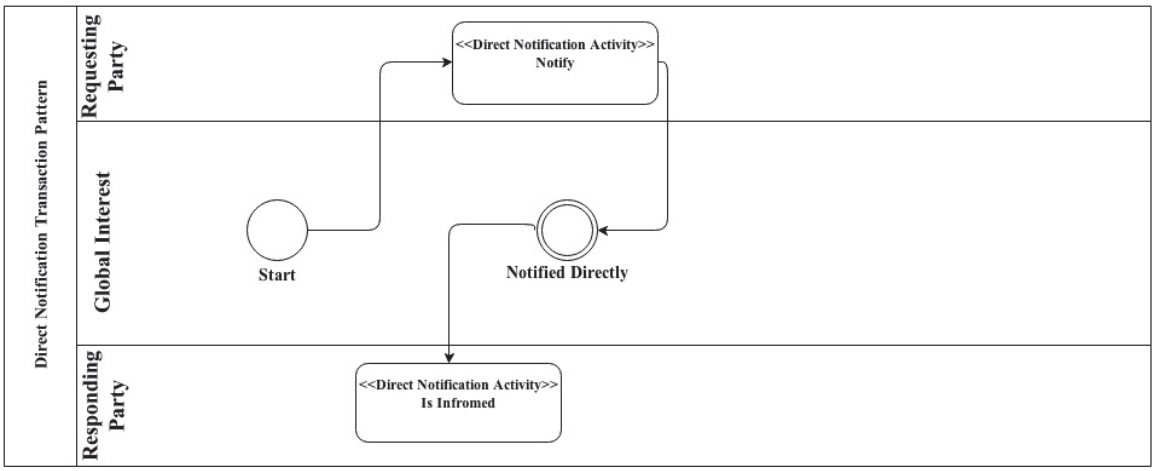

Figure 6. Basic Semantics of Direct Notification Transaction Patterns

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The other specialization of Case Hearing Information Notification transaction pattern is to notify immediate recipient with the intension of communicating to intended party of the notice. When court adjourns the hearing of the action, both parties in the divorce case are notified about the next assigned date with the intension of informing that to their witnesses, which would be an instance of the Indirect Notification transaction pattern

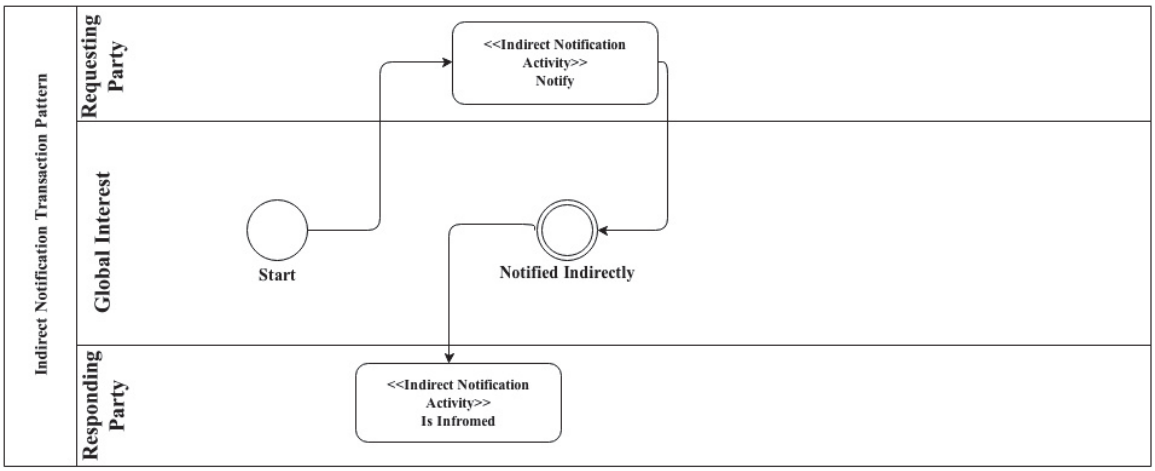

Figure 7. Indirect Notification Transaction Pattern

4. Application and Evaluation of Legal Service Collaboration Modelling Framework

In this section we have briefly illustrated the application of proposed framework in district courts hearing procedure specification, following with superficial practical evaluation that we completed by surveying a number of best practice cases around the country.

An intuitive illustration of the courts hearing application is given below. There we have utilized some of the primitive transactions patterns introduced above for develop a legal workflow specification for case hearing procedure.

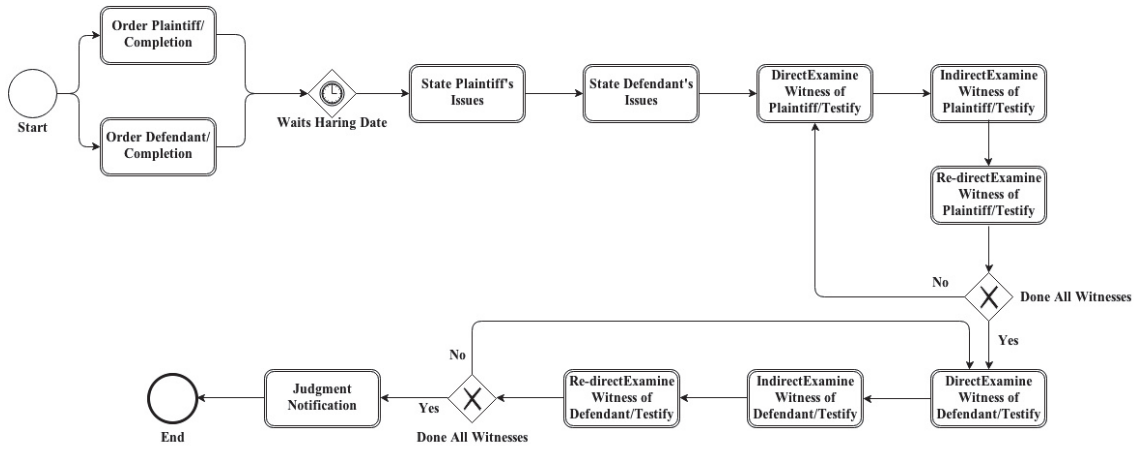

Figure 8. Courts Hearing Procedure

As in the above illustration, case hearing situation could be considered as proceeding via four main collaborating phases; Fling Lists, State Issues, Examination and Judgment. During Filing Lists phase, court orders each party to an action for filing a list of witnesses to be called and a list of the documents relied upon at the case hearing, before the date fixed for hearing of the action via Order/Completion transaction. On the case hearing day, State Issues phase executes, where both parties present their issues to be solved before the court via State Plaintiff's Issues and State Defendant's Issues transactions. After that, during Examination phase, the plaintiff's lawyer gets the opportunity to ask questions from their witness in order to place evidence before the court in support of pleadings via DirectExamine/Testify transaction. Then, the other side cross-examines the witness via IndirectExamine/Testify transaction. The plaintiff's lawyer then asks more questions via Re-directExamine/Testify transaction to fix any inaccurate information that arose from the cross-examination. The

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plaintiff's lawyer repeats this cycle until all witnesses of their side are done. The defendant's lawyer goes next and repeats the cycle. Finally, during Judgment phase, judge issues a decision after considering all the issues presented at hearing. With pronouncing the decision in open court, case hearing process terminates.

Altogether, the application of the proposed framework is resulted possibility of streamlining and then to ensure the coordination among legal workflow activities in courts hearing procedure. This has the potential of achieving productivity and efficiency with promising results. It therefore is clear that, the proposed framework could be used as basic building blocks in the process of constructing complex multi-party legal collaboration workflow models. Also, with representation of legal processes using BPMN, we are formalizing the domain knowledge and bridging the communication gap between technical and non-technical participants.

5. Conclusion

As WMS have become an ideal tool for defining and managing the coordination of collaborative workflow activities while coping with highly dynamic and complex information exchanges among many different actors, through the adaptation of WM in legal sector, productivity and efficiency could be granted. In this work, we have proposed a sound framework for legal service collaboration modelling in courts hearing proceedings with the objective of facilitating the foundational requirement for setting up a WMS in legal sector. For the development of the framework, we have based on a set of legal service transaction patterns aligned with globally accepted standard, UN/CEFACT's recommendations. With utilization of the proposed transaction patterns in designing complex legal collaborations, much of burdens connected with specification of legal workflows in courts hearing procedure could readily be overcome.

Especially, the identified framework is semantically rich enough for composing into complex multi-party collaborations in legal sector not only in selected application area in the paper but in many other areas of court proceedings. Therefore, suggested future works include, complete evaluation on the selected application as well as in other possible areas of courts proceedings to carryout.

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